PROJECT MANUAL
15 SEPTEMBER 2025 **DIVISIONS 00,01,27**

Paging System Replacement
CLAIRVIEW SCHOOL

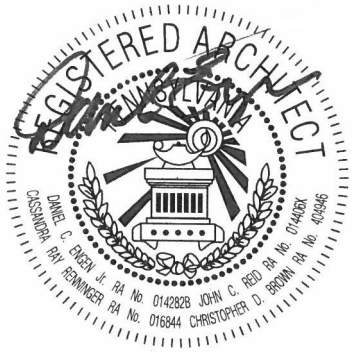
215 Donohoe Road,
Hempfield Township,
Westmoreland County,
Pennsylvania

OWNER: **WESTMORELAND INTERMEDIATE UNIT 7**
102 Equity Drive, Greensburg, PA 15601

DRAW Project No. S50-25-02

ARCHITECT:

470 Washington Road, Pittsburgh, PA 15228
412-561-7117 DRAWcollective.com



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DOCUMENT 00 1113 - ADVERTISEMENT FOR BIDS

The Westmoreland Intermediate Unit 7, Greensburg, PA, will receive signed and sealed Bids, appropriately identified, for the following project:

PAGING SYSTEM REPLACEMENT
CLAIRVIEW SCHOOL
215 Donohoe Road, Hempfield Township, Westmoreland County, Pennsylvania

Contracts: **01 – Electrical Construction**

The Owner will receive Bids until **12:00 noon,** prevailing time, on **Thursday, October 23, 2025**, at the Westmoreland Intermediate Unit 7 Administrative Offices, 102 Equity Drive, Greensburg, PA 15601, c/o Tammy Good, Financial Services Director. Promptly thereafter, they will be publically opened and read aloud in the Fort Ligonier Room at Westmoreland Intermediate Unit 7. Bids received after this time will not be accepted.

Each Bid shall be submitted in a sealed, opaque envelope and individually marked with the following:
Project Name (as noted above)
Prime Construction Contract Number and Name ("01 – Electrical Construction")
Company Name
BID ENCLOSED – Do Not Open

Bids shall be made upon the form provided and shall be accompanied by a bid bond, certified check, or cashier's check in the amount of ten percent (10%) of the Base Bid amount made payable to or indemnifying the Westmoreland Intermediate Unit 7. In addition, submit the following with each bid: Non-Collusion Affidavit, Contractors Qualification Statement, and Certificate of Authority (if applicable). Owner reserves the right to waive any informalities in bids and to accept or reject any or all Bids.

Prime Bidders will be required to REGISTER to receive notification of Addenda and project information updates, and to obtain access to the PrintScape Website. Registration as a Prime Bidder is automatic upon request and purchase of the complete Project Manual and Drawing sets by contacting Tom Santia at PrintScape, 412-788-0641, x115. Bidders shall submit registration request on company letterhead to include the following: 1) Company Name, 2) Contract(s) being bid, and 3) Contact person, email address and phone number. Notification of addenda and updates will be via e-mail to registered bidders. Addenda, question and responses, and other update information will be posted on the DFS Plan Room Project Folder at www.myPrintScape.com. The purchase of additional bidding documents may be arranged directly through PrintScape. The cost of the Project Manual and Drawings is non-refundable.

Each bid must be accompanied by a proposal guaranty of not less than ten percent (10%) of the total of the Base Bid; and by a Non-Collusion Affidavit, Qualification Questionnaire, and a Pennsylvania Certificate of Authority (if applicable).

Project is subject to applicable provisions of the Pennsylvania Prevailing Wage Act, Act of August 15, 1961, P.L. 987, as amended and supplemented.

Owner reserves the right to accept or reject any or all Bids or parts thereof or items therein and to waive any informality in the bidding.

A **Pre-Bid Conference** will be held at the Clairview School at **11:00am** prevailing time, on **Tuesday, October 9, 2025**. After the meeting, Bidders will be permitted to examine the areas of the Work.

Questions pertaining to the content of the Bidding Documents shall be directed to Steffanie Bako, Tower Engineering, by email at sbako @ tower-engineering.com. Questions must be submitted using the Pre-Bid RFI form available on the DFS Website, phone calls will not be accepted.

By order of the Board of Directors
Westmoreland Intermediate Unit 7

END OF DOCUMENT 00 1113

DOCUMENT 00 2113 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 DOCUMENTS

A. See “Instructions to Bidders”, AIA Document A701-2018, Articles 1 through 14 inclusive, standard form as amended for this project, following this page.

B. Supplemental Instructions to Bidders, in the form of additions or revisions to standard form text, are incorporated in the modified Document A701 attached.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

DOCUMENT CONTINUES ON NEXT PAGE

AIA® Document A701® – 2018

Instructions to Bidders

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

Project No. S50-25-002
Paging System Replacement, Clairview School
215 Donohoe Road,
Hempfield Township Westmoreland County, Pennsylvania

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

Westmoreland Intermediate Unit 7
102 Equity Drive
Greensburg, PA 15601
724-836-2460

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

DRAW Collective
470 Washington Road
Pittsburgh, PA 15228
412-561-7117

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

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

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

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

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, the Bid Bond, the Non-Collusion Affidavit, the Contractor's Qualification Statement and all attachments, whether submitted on AIA A305 or another equivalent Contractor's Qualification Statement, and any other bidding and contract forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda issued prior to execution of the Contract, and all other documents enumerated in Article 8 of these Instructions.

§ 1.1.2 The Contract Documents consist of the Bidding Documents, Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect.

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

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

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

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

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

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

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

(Paragraph deleted)

ARTICLE 2 BIDDER'S REPRESENTATIONS

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

- **.1** the Bidder has read and understands the Bidding Documents;
- **.2** the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- **.3** the Bid complies with the Bidding Documents;
- **.4** the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents; No allowance or contract adjustment will be made for the lack of such information on the part of the Contractor. Becoming familiar with local conditions includes, but is not limited to, the location, accessibility, and general character of the site, the building, and the areas of the Work and the character and extent of existing work within or adjacent to the areas of the new Work, including field checking of existing Work which interferes with new Work. Visits to the site of the Work are permitted only under the conditions described in paragraph 2.2.

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.5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and a bid containing an alternative that does not comply with the Bidding or Contract Documents may be declared non-responsive.

.6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

.7 the bid does not include any sales or use tax on "building machinery and equipment" (or services to such property) as defined by Act 1998-45. The Bidder has used its best efforts to identify "building machinery and equipment" (or services to such property) that can be purchased exempt from Pennsylvania sales and use tax.

.8 Contractor will require each Subcontractor and each Sub-subcontractor, through legally enforceable written Contracts, to meet all of the responsibilities of the Contractor with respect to any portion of the Work performed by any Subcontractor or Sub-subcontractor.

§ 2.2 To avoid interference with the established routine of the Owner, access to the site in order to prepare a bid is permitted only at times and in groups as the Owner may determine, and then only when accompanied by an attendant. For appointments to visit the site, the Bidder applies to the following individual:

Mr. Ronald Lawson, Buildings and Grounds Supervisor
724-836-2460 x2377

§ 2.3 The Bidder acknowledges that the Project for which construction proposals are being solicited is a project constituting public works and is subject to applicable provisions of the statues and regulations of the Commonwealth of Pennsylvania, including the Pennsylvania Human Relations Act, the Antibid-Rigging Law, the Bid Withdrawal Act, the Public Works Contractors Bond Law, the Resident Labor Statute, the Trade Practices Act, the Utilities Protection Act ("Pa. One-Call"), the Public Works Employment Verification Act, and the Act 114 FBI Fingerprint Report.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

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

Prime Bidders will be required to REGISTER to receive notification of Addenda and project information updates, and to obtain access to the PrintScape Website. Registration as a Prime Bidder is automatic upon request and purchase of the complete Project Manual and Drawing sets by contacting Tom Santia at PrintScape, 412-788-0641, x115. Bidders shall submit registration request on company letterhead to include the following: 1) Company Name, 2) Contract(s) being bid, and 3) Contact person, email address and phone number

§ 3.1.2 The cost of the Project Manual and Drawings is non-refundable .

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

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

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

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study all Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

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§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

Submit to Architect via email to MChvala@estower.com on DRAW Collective form provided in Project Manual

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

§ 3.3 Substitutions
§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process
§ 3.3.2.1 No requests for changes in products, materials, or equipment required by Contract Documents proposed by Contractor will be considered prior to receipt of Bids or award of Contract.

(Paragraphs deleted)
§ 3.4 Addenda
§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

Notification of addenda and updates will be via e-mail to registered bidders. Addenda, question and responses, and other update information will be posted on PrintScape's website DFS Plan Room Project Folder at www.myPrintScape.com

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

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

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

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids
§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.

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

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

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid. Failure to initial may make the Bid non-responsive and may subject the Bid to rejection.

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

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

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

§ 4.1.7.1 When the Bid is executed by or on behalf of a partnership, at least one partner must sign the Bid in his own hand and usual manner and the names and addresses of all members of the partnership must accompany the Bid.

§ 4.1.7.2 When the Bid is executed by or on behalf of a corporation, the Bid must be signed by at least two officers in their own hand and usual manner thereof, one of whom is the President or Vice President of said corporation, and must have the corporate seal affixed.

§ 4.1.7.3 If the Bidder is incorporated in a state other than Pennsylvania, the Bidder must state on the Bid whether the corporation is registered to do business in Pennsylvania. If the Bidder is not so registered, it must state thereon that upon acceptance of its bid it will immediately register to do business in Pennsylvania or forfeit any right to the Contract.

§ 4.1.7.4 If the Bidder operates under an assumed or fictitious name, it must identify the fictitious or assumed name and state whether such a name has been registered in Pennsylvania.

§ 4.1.7.5 No Contract will be awarded to a Bidder unless it has complied with or agrees to comply with proper registration under the laws of the Commonwealth of Pennsylvania.

§ 4.1.7.6 Upon written request to the Owner, and with its approval prior to the filing of a Bid, a Bidder may submit a Bid signed by and on behalf of the Bidder by and attorney-in-fact authorized to so act by the Bidder by a written and notarized power of attorney filed with the Owner.

§ 4.1.7.7 When the Bid is executed by or on behalf of an individual or sole proprietorship, the Owner must sign the Bid in his own hand and usual manner.

§ 4.1.8 Any requested separate prices and unit prices must be bid. When appropriate, estimated quantities to be included by the bidder in the Base Bid are provided for unit prices. Where a blank is included for estimated quantities, bidder includes his estimate of quantities.

§ 4.1.9 Bids shall be submitted on the Contract Documents and Bidding Documents forms furnished, including the Contractor Qualification Statement, or an exact copy thereof, and shall be signed in ink. All unsigned Bidding Documents and Bidding Documents that are not completely and properly executed on the signature page may be rejected by the Owner, or the Owner's authorized representative. Each Bid must include the full business address of the Bidder and must be signed by the required individual or individuals, in their usual hand using their usual signatures. Bidding Documents containing any conditions, omissions, unexplained erasures, blanks, unanswered items, or alterations, or items not called for in the proposal, or irregularities of any kind, may be rejected by the Owner and subject to a determination by the Owner that the Bid is non-responsive.

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

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:
(Insert the form and amount of bid security.)

Bid security of not less than ten percent of the amount of each Base Bid, which may be in the form of a certified check, bank cashier's check trust company treasurer's check, Bid Security on the Form enclosed and furnished by the Owner, or other form of security permitted by law, made payable to the Owner.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should

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the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 Bid securities not forfeited under the terms of bidding, except for those furnished by the 3 lowest responsible Bidders on each Contract, are to be returned immediately. The security of the 3 lowest responsible Bidders, except where forfeiture is required, are to be returned upon execution of the Contract and delivery of the required bonds and insurance coverage by the successful Bidder; or before 60 days after the designated date for receipt of Bids, unless an extension of time is granted by them.

§ 4.3 Submission of Bids

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

paper copy

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

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

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

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.3.6 The failure to submit all required documents and materials with the Bid, including but not limited to the Non-Collusion affidavit, the Bid Bond or other acceptable form of Bid Security, and the Contractor's Qualification Statement, AIA A305 or another equivalent form of Contractor Qualification Statement, may result in the rejection of the Bid on the grounds that the Bid is non-responsive.

§ 4.3.7 Each Bidder shall submit with its bid evidence of its experience, qualifications and financial ability to carry out the terms of the Contract in the form of a completed Contactor's Qualification Statement. AIA-A305 or another equivalent Contractor's Qualification Statement and provide additional information thereafter as requested by the Owner. Each Bidder must submit answers to each and every one of the questions on the Contractor's Qualification Statement and all other Contract Documents and Bidding Documents at the time of bidding, with complete answers to questions concerning the Bidder's capability, its financial integrity, and its past conduct. The Owner may make such investigations as it deems necessary to evaluate the responsiveness of the Bidder's answers to the questionnaires and submissions and as it deems necessary to determine the ability of the Bidder to perform the Work and the Bidder's responsibility and responsiveness generally. The Owner, after investigation, may determine that the Bid is non-responsive and, after such determination, may reject the Bid. The Owner need not contact the Bidder prior to bid rejection provided that the Owner has engaged in and investigation it deems necessary to evaluate the Bid's responsiveness. However, to the extent that the Owner elects to contact the Bidder to obtain more information prior to bid rejection, the Bidder must furnish to the Owner all information and data, as may be requested by the Owner after the submission of the Bid. The Owner reserves the right to reject any Bid from a Bidder that is not responsive and/or not responsible in accordance with the Public Procurement Code, the Public School Code, these Contract Documents and Bidding Documents or other applicable and governing law. Evidence of the failure of the Bidder to properly respond after the submission of its Bid to request from Owner for additional information, documents and data, may be considered by Owner in determining the Bidder's responsibility and responsiveness.

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§ 4.4 Modification or Withdrawal of Bid

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

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

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error and submit credible evidence that the reason for the lower price was a clerical mistake, due to an unintentional and substantial arithmetical error or an unintentional omission of a substantial quantity of work, labor, material or services made directly in the compilation of the bid, within two business days, pursuant to 73 P.S. §1602 requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

Bid security will be held based on Bid rank and returned as provided in Section 4.2.4

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

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

§ 5.2 Rejection of Bids

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

§ 5.2.1 The Bids of any Bidders who engage in collusive bidding are rejected. Any Bidder who submits more than one Bid for a Contract, directly or indirectly, and makes it appear that the Bids are on a competitive basis from different parties, is considered a collusive Bidder.

§ 5.2.2 Submit a completed copy of the document "Non-Collusion Affidavit" (Document 00 4519) with accompanying attachments with your Bid. Failure to provide this information with the Bid shall result in the Bidder's disqualification and rejection of its Bid.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsible Bidder with a responsive bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgement and discretion, is in the Owner's best interests. It is the intent of the Owner to award a Contract within 60 days from the date when the Bids are due.

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

§ 5.3.3 The Bidder to whom the Contract has been awarded shall execute and return the Contract to the Architect within 10 days after Notice of Award. The Bidder shall also furnish at that time to the Architect properly executed (1) Performance, Maintenance Bond and Payment Bonds in the form included in the Contract Documents, (2) insurance certificates and endorsements/riders, evidencing insurance of the required types and in the required amounts, (3) a

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breakdown of the Bidder's schedule of values using the forms provided at the time, (4) the Form of Owner-Contractor Agreement, and (5) a corporate resolution, if appropriate.

§ 5.3.4 When separate Base Bids are requested for different products and systems of construction, the Owner has the right to accept the product or system of construction which, in its judgment, is in its own best interests, and to determine the lowest responsible Bidder with a responsive bid on the basis of the accepted product and/or system of construction.

ARTICLE 6 POST-BID INFORMATION

(Paragraphs deleted)

§ 6.3 Submittals

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

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

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

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND AND MAINTENANCE BOND

§ 7.1 Bond Requirements

§ 7.1.1 The Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

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

§ 7.1.3 Provide the required bonds by a company or companies licensed to do business in the Commonwealth of Pennsylvania which have a minimum Best rating of "A-", a minimum policy holder's surplus of $100 million, are listed on the current U.S. treasury Circular No. 570 (sureties acceptable for federally financed construction projects), and against which the Owner has no reasonable objection.

§ 7.1.4 The Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

§ 7.1.5 The Maintenance Bond shall be written in the amount of ten percent of the Contract Sum.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to

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commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

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

§ 7.2.2.1. The Maintenance Bond, guaranteeing that the Contractor remedies without cost to the Owner any defects in the Work which may develop during a period of one year from the Date of Substantial Completion of the Work performed under the Contract in a form acceptable to the Owner.

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

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

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

§ 8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor.

ARTICLE 9 PUBLIC WORKS EMPLOYMENT VERIFICATION ACT

§ 9.1 All Contractors and Subcontractors of whatever tier are required to comply with the Public Works Employment Verification Act, 43 P.S §§ 167.1-167.11 and its Chapter 66 implementing guidelines. All Contractors and Subcontractors performing work on this Project are required to comply with Federal Employment Eligibility Requirements through the United States Department of Homeland Security's E-Verify Program. For each employee hired on or after January 1, 2013, Contractors and subcontractors must submit a Public Works Employment Verification Form to the Westmoreland Intermediate Unit 7 (Owner) prior to being awarded a Public Works Contract and throughout the duration of the Project, regardless of whether such employees will work onsite or offsite. Contractors and subcontractors shall update the Verification Forms throughout the duration of the Project. Contractors shall include the requirement to comply with this Act in each and every subcontract into which they enter on this Project. The Intermediate Unit will maintain the Form for the duration of the Project. The Form may be accessed at: www.dgs.state.pa.us. The Chapter 66 implementing guidelines are located at: http://www.pabulletin.com /secure/data/vol42/42-52/index.html. Information on the E-Verify program can be found at: www.dhs.gov/e-verify.

ARTICLE 10 EMPLOYEE BACKGROUND CHECKS

§10.1 Bidders are advised that the Owner will require employee background checks in accordance with Act 34 of 1985, Pennsylvania State Police Request for Criminal Record Check, Form SP4-164 and the Department of Public Welfare, Pennsylvania Child Abuse History Clearance, Form CY-113. Contractors shall provide all documentation to the Owner.

§10.2 The Owner shall require a criminal history background check prior to hiring an applicant or accepting the services of a contractor, if the applicant, contractor or contractor's employees shall have direct contact with children. The criminal history check shall not be more than 1 year old at the time of employment or engagement of contracted services. Contractors shall provide all documentation to the Owner.

ARTICLE 11 PENNSYLVANIA PREVAILING MINIMUM WAGE RATES

§11.1 This regulation and the general Pennsylvania prevailing minimum wage rates, (Act 442 of 1961, P.L. 987, amended), as determined by the Secretary of Labor and Industry, which shall be paid for each craft or classification of all workers needed to perform the contract during the anticipated term therefor in the locality in which public work is performed, are made part of this specification. If bidders proposal is less than $25,000, the Bidder shall not be required to meet Prevailing Wage Requirements.

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(Table deleted)

ARTICLE 12 DISCRIMINATION (SECTION 755)

§12.1 DISCRIMINATION PROHIBITED: According to 62 Pa. C.S.A. § 3701, the contractor agrees that:

.1 In the hiring of employees for the performance of work under the contract or any subcontract, no contractor, subcontractor or any person acting on behalf of the contractor or subcontractor shall by reason of gender, race, creed or color discriminate against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.

(Table deleted)

.2 No contractor or subcontractor or any person on their behalf shall in any manner discriminate against or intimidate any employee hired for the performance of work under the contract on account of gender, race, creed or color.

.3 The contract may be canceled or terminated by the government agency, and all money due or to become due under the contract may be forfeited for a violation of the terms or conditions of that portion of the contract.

(Table deleted)

§12.2 COMPLIANCE WITH HUMAN RELATIONS ACT NO. 222

(Paragraphs deleted)

The provisions of the Pennsylvania Human Relations Act, Act 222 of October 27, 1955 (P.L. 744) (43 P.S. Section 951, et. Seq.) of the Commonwealth of Pennsylvania prohibit discrimination because of race, color, religious creed, ancestry, age, sex, national origin, handicap or disability, by employers, employment agencies, labor organizations, contractors and others. The Contractor shall agree to comply with the provisions of this Act as amended that is made part of this specification. Your attention is directed to the language of the Commonwealth's non-discrimination clause n 16 PA. Code 49.101.

ARTICLE 13 BUY U.S. STEEL, CAST IRON, MACHINERY, AND EQUIPMENT

§13.1 Provision for the Use of Steel and Steel Products Made in the U.S.: In accordance with Act 3 of the 1978 General Assembly of the Commonwealth of Pennsylvania, if any steel or steel products are to be used or supplied in the performance of the contract, only those produced in the United States as defined therein shall be used or supplied in the performance of the contract or any subcontracts thereunder.

(Table deleted)

§13.2 In accordance with Act 161 of 1982, cast iron products shall also be included and produced in the United States. Act 141 of 1984 further defines "steel products" to include machinery and equipment. The act also provides clarification and penalties.

ARTICLE 14 PENNSYLVANIA ONE-CALL

(Table deleted)

(Paragraphs deleted)

§14.1 Bidders shall acquaint themselves with Act 287 and Amendment Act 172, creating the "One Call System. The successful Contractor shall give notification using the "One Call System" (telephone number 1-800-242-1776) whenever the work includes excavation, tunneling or other potential subsurface disturbances using powered equipment.

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DOCUMENT 00 4116 – ELECTRICAL CONSTRUCTION BID FORM

CONTRACT NO. S50-25-02-01

ON

PROJECT NO. S50-25-02

PAGING SYSTEM REPLACEMENT
CLAIRVIEW SCHOOL
for

WESTMORELAND INTERMEDIATE UNIT 7
102 EQUITY DRIVE
WESTMORELAND COUNTY
GREENSBURG, PA 15601

DRAW Collective
470 Washington Road
Pittsburgh, PA 15228

BID OF _____ _____
(Name) (Date)

_____ _____
(Address) (Telephone Number)

_____
(City, State, Zip)

TO: Tammy Good, Financial Services Director
Westmoreland Intermediate Unit 7
102 Equity Drive
Greensburg, PA 15601

Ladies and Gentlemen:

The undersigned submits this Bid in conformity with the Drawings and Specifications prepared by DRAW Collective., 470 Washington Road, Pittsburgh, PA 15228-2811, and on file at the above named office; and after examination of the site of the Work, the Bidding Requirements (including the Advertisement for Bids, Instructions to Bidders and the proposed Contract Documents (including the General Conditions, and any addenda issued during the bidding period changing any part of the Contract Documents).

For the price hereinafter stated, it is proposed to provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services, and to do and perform all superintendence of the construction, and to secure and pay for all permits and licenses, and to do all incidental work in order to execute and complete the Work in an expeditious and workmanlike manner to the satisfaction and acceptance of the Owner, and the Architect, all in accordance with the Contract Documents.

Enclosed herewith as bid security is a Bid Bond or certified check drawn to the order of the Owner in the amount stated in the Advertisement for Bids. The undersigned agrees not to withdraw this Bid for a period of 60 days after the designated time for receipt of Bids; and that if this Bid is accepted by the Owner, to execute the Contract and furnish the required bonds and insurance coverages. It is agreed that upon the request of the Owner, that date of

award will be extended by 30 days. It is agreed that the bid security will be forfeited as liquidated damages, not as a penalty, if the undersigned fails to furnish the required bonds and insurance coverages within 10 days after receipt of written notice of award of Contract, or fails to execute and deliver the Agreement for the Work within 10 days after receipt of it.

The Bidder hereby certifies that he is the only person(s) interested in this Bid as principal; and has not entered into collusion with any person, firm, or corporation in respect to this Bid or the submitting of Bids for this Contract.

The Bidder hereby agrees to comply with and to be bound by all applicable governmental regulations, laws, codes, ordinances and legal requirements affecting the work, including, but not limited to, Sections 752, 755, and 757 of the "Public School Code of 1949" of the Commonwealth of Pennsylvania, as amended, and the "Pennsylvania Human Relations Act," as amended.

The Bidder hereby acknowledges that Act 114 of 2006, Act 34 of 1985, and Act 151 of 1994 requires that all of the Contractor's employees and all lower tier contractors' employees produce an FBI Federal Criminal History Record, reports of criminal history record information from the Pennsylvania State Police, or a statement from the State Police that the State Police central repository contains no such information relating to each such person, and an "Official Clearance Statement" (OCS) from the Department of Public Welfare before said person may begin working on School District Projects. (See Division 01 Section, "Regulatory Requirements" for additional information.)

The Bidder hereby agrees to comply with and to be bound by all applicable governmental regulations, laws, codes, ordinances and legal requirements affecting the work, including, but not limited to, Compliance required with the Pennsylvania Prevailing Wage Act of 1961, P.L. 987, No. 442; Title VI and other applicable provisions of the Civil Rights Act of 1964; the Department of Labor Equal Opportunity Clause (41 CFR 60 -1.4); Executive Order 11625 (Utilization of Minority Business Enterprise); Executive Order 12138 (Utilization of Female Business Enterprise); in compliance with Section 504 of Rehabilitation Act of 1973 and Americans with Disabilities Act of 1990.

The Bidder hereby agrees to progress with the Work in accordance with the predetermined schedule, and to achieve Substantial Completion within the Contract Time in accordance with the dates established in the Agreement.

The Bidder hereby agrees that the right is reserved to the Owner to reject any or all Bids and to waive any informality or irregularity in any Bid received. It is further understood that the competency and responsibility of Bidders is a consideration in the award of the Contract.

The Base Bid, price quotations, and other information are submitted in the spaces provided on the Bid Form or attached to the Bid Form. Omission of price quotations or other information requested will be sufficient reason for rejection of this Bid.

In submitting this Bid, the Bidder hereby acknowledges the issuance, receipt, and acceptance of Addenda as indicated below:

Addenda issued: YES / NO [*cross out one*]; if YES list below:			
Addendum:	dated	Addendum:	dated
Addendum:	dated	Addendum:	dated
Addendum:	dated	Addendum:	dated
Addendum:	dated	Addendum:	dated
Addendum:	dated	Addendum:	dated

****

CONTRACT NO. S50-25-02-01
BASE BID

For all Work, the total sum of:

_____ Dollars ($_____)
(Written) (Figures)

****

ALTERNATE PRICE SCHEDULE
Costs listed for each Alternate include costs of related coordination, modification, and adjustment.

ALTERNATE NO. E-1: Call-in Switches

DEDUCT _____ Dollars ($_____)
(Written) (Figures)

****

SIGNATURES
When the Bidder is an Individual:

_____(SEAL)

****

When the Bidder is a Partnership:

_____
Name of Partnership

By_____(SEAL)
Partner

_____(SEAL)
Partner

_____(SEAL)
Partner

****

****

When the Bidder is a Corporation:

_____

Name of Corporation

By_____
President

Corporate Seal

ATTEST:_____
Secretary

The_____is a corporation

organized and existing under the laws of _____and (has) (has not) been granted a certificate of authority to do business in Pennsylvania, as required by the Business Corporation Law, approved May 5, 1933, P. S. 364, as amended.

****

When the Bidder is trading under a fictitious name:

The_____is an individual, partnership, or corporation trading under a fictitious or assumed name and has (has not) registered under the Fictitious Name Act of Pennsylvania – namely, the Act of May 24, 1945, P. S. 967.

****

END OF DOCUMENT 00 4116

DOCUMENT 00 4313 – BID SECURITY

STANDARD FORM: See sample AIA A310-Bid Bond, 2010 Ed., following this Document page.

As a Proposal Guaranty, a certified check, bank cashier's check, trust company treasurer's check, bid bond on AIA A310 or other approved form, or other form of security permitted by applicable law, in an amount of not less than ten percent (10%) of the Bidder's Base Bid Proposal amount, payable to or indemnifying the WESTMORELAND INTERMEDIATE UNIT 7 (Owner). Proposal Guaranty will be forfeited to and retained by the Owner, as liquidated damages, if this proposal or any part thereof is acceptable by the Owner, and the Bidder fails to furnish approved bonds, other required documents, and the executed contract within the time period required.

END OF DOCUMENT 00 4313

DRAFT

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

« »« »
« »

SURETY:
(Name, legal status and principal place of business)

« »« »
« »

OWNER:
(Name, legal status and address)

«Westmoreland Intermediate Unit 7
102 Equity Drive
Greensburg, PA 15601
724-836-2460»

BOND AMOUNT: $ « »

PROJECT:
(Name, location or address, and Project number, if any)

«Project No. S50-25-02
Paging System Replacement, Clairview School
215 Donohoe Road, Hempfield Township Westmoreland County, Pennsylvania »

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

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

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

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

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User Notes: (792817754)

furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this « » day of « » , « »

	« »
	(Contractor as Principal) *(Seal)*
	« »
(Witness)	*(Title)*
	« »
	(Surety) *(Seal)*
	« »
(Witness)	*(Title)*

DRAFT

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ADDRESS
470 WASHINGTON ROAD
PITTSBURGH, PA 15228

DRAWCOLLECTIVE.COM

CONTACT
PHONE 412.561.7117
FAX 412.561.9025

00 4325	PRE-BID SUBSTITUTION REQUEST	
Project:	**Paging System Replacement South Fayette Intermediate School**	**Date:**
DRAW Project No.:	**S50-25-02**	**To:** Steffanie Bako Sbako @ Tower-Engineering.com **cc:** Daniel Engen DanielE @ DRAWcollective.com
Contract No.:	S50-25-02 – **01**	
Contract Type:)	**Electrical Construction**	DRAW Redirect to: Date:
From: Company Name: Contact Person:		E-mail Address: Telephone: Fax:

Section No.	Paragraph	SPECIFIED ITEM	PROPOSED SUBSTITUTION

Signature: Date:

Note: Request for Substitutions received less than five days prior to the Bid Date or by entities other than registered Prime Bidders may be summarily rejected.

Supporting documentation: (required)
The attached data includes product description, specifications, drawings, photographs, and performance and test data and warranty information, as applicable, adequate for evaluation of the request; applicable portions of the data are clearly identified and variation from the specified products are clearly identified.

The attached data also includes a description of changes to the proposed Contract Documents which the requested substitution will require for its proper installation and/or coordination with other work.

The Bidder certifies that the following paragraphs are correct unless clearly noted otherwise in the attachments.

1. The requested substitution does not affect the dimensions shown on the Drawings.
2. The requested substitution does not change the building design, including engineering design or detailing.
3. The requested substitution has no adverse effect (including additional scope of work or cost increase) on any other trades, the contractor's Construction Schedule or any specified warranty requirements.

APPROVED	NOT APPROVED	COMMENTS

Name:
Company: Date:

State of _____:

:s.s.

County of _____:

I state that I am _____ of
(Title)

_____ and that I am authorized to
(Name of my firm)

make this affidavit on behalf of my firm, and its owners, directors, and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

(1) The price(s) and amount of this bid have been arrived at independently and without consultation, communication, or agreement with any other contractor, bidder, or potential bidder.

(2) Neither the price(s) nor the amount of this bid, and neither the appropriate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.

(3) No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.

(4) The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.

(5) _____
(Name of my firm)

its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows:

INSTRUCTIONS FOR NON-COLLUSION AFIDAVIT

1. This Non-Collusion Affidavit is material to any contract awarded pursuant to this bid. According to the Pennsylvania Antibid-Rigging Act, 73 P.S. §§ 1611 et. seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.

2. This Non-Collusion Affidavit must be executed by the member, officer, or employee of the bidder who makes the final decision on prices and the amount quoted in the bid.

3. Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval, or submission of the bid.

4. In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.

5. The term "complementary bid" as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high on noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.

6. Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

I state that _____
(Name of my firm)

understands and acknowledges that the above representations are material and important, and will be relied on by Westmoreland Intermediate Unit 7 in awarding the contracts for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and is treated as fraudulent concealment from Westmoreland Intermediate Unit 7 the true facts relating to the submission of bids for this contract.

_____
(Name and Company Position)

SWORN TO AND SUBSCRIBED BEFORE ME THIS_____DAY

OF_____2025.

_____
Notary Public My Commission Expires

END OF DOCUMENT 00 4519

SECTION 00 5213 - AGREEMENT

PART 1 - GENERAL

1.1 DOCUMENTS

A. "Standard Form of Agreement Between Owner and Contractor", AIA Document A101-2017, Articles 1 through 9 inclusive, standard form as amended for this project, will form the basis of Contract between the Owner and each Prime Contractor.

B. Additions or revisions to standard form text, are incorporated in the modified Document A101 attached.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

DOCUMENT CONTINUES ON NEXT PAGE

AIA® Document A101® – 2017

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

AGREEMENT made as of the TBD day of TBD in the year 2023
(In words, indicate day, month and year.)

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

Westmoreland Intermediate Unit 7
102 Equity Drive
Greensburg, PA 15601
724-836-2460

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

TBD

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

Project No. S50-25-002
Paging System Replacement, Clairview School
215 Donohoe Road,
Hempfield Township Westmoreland County, Pennsylvania

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

DRAW Collective
470 Washington Road
Pittsburgh, PA 15228
412-561-7117
DanielE@DRAWcollective.com

The Owner and Contractor agree as follows.

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

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

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

Init.
/

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TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Paragraphs deleted)
A date set forth in a notice to proceed issued by the Owner.

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

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire
(Paragraphs deleted)
Work as stated in the Project Manual Section 01 1100 "SUMMARY", subject to adjustments of this Contract Time as provided in the Contract Documents.

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates as stated in the Project Manual Section 01 1100 "SUMMARY", subject to adjustments of this Contract Time as provided in the Contract Documents.
(Table deleted)
§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

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ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be TBD ($ TBD), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

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

Item	Price
TBD	TBD

(Table deleted)
(Paragraphs deleted)

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

Item	Price
None	None

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

Item	Units and Limitations	Price per Unit ($0.00)
TBD	TBD	TBD

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

None.

(Paragraphs deleted)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the first day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the fifteenth day of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than forty five (45) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

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

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

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§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

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

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

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

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Ten percent (10%)

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

All items subject to retainage

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

Retainage at 10% until Project is 51% complete. Thereafter, retainage at 5% until Project reaches Full and Final Completion. Owner reserves the right at all times to withhold an amount, in its discretion, that is sufficient to complete and / or correct Contractor's Work.

(Paragraphs deleted)

§ 5.2 Final Payment

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

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

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment.

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

6 % simple interest

ARTICLE 6 DISPUTE RESOLUTION
§ 6.1 Initial Decision Maker
The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

This space left blank.

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

(Paragraphs deleted)
[X] Litigation in the Court of Common Pleas of Westmoreland County, PA

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

ARTICLE 7 TERMINATION OR SUSPENSION
§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

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

The Contractor shall be entitled to receive payment for all accepted and / or approved work, and expenses actually earned and incurred.

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

ARTICLE 8 MISCELLANEOUS PROVISIONS
§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Tammy Good, Financial Services Director
Westmoreland Intermediate Unit #7
102 Equity Drive, Greensburg, PA 15601
724-836-2460 x2330
tgood@wiu7.org

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

TBD

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

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A201™–2017, General Conditions and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A201™–2017 and elsewhere in the Contract Documents.

(Paragraphs deleted)

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

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

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

(Paragraph deleted)

.3 Drawings

Number
All drawings identified on Cover Sheet 001, and as modified by Addenda.

.4 Specifications

Section
All Documents and Sections identified in the Project Manual, Table of Contents Document 00 0110, and as modified by Addenda.

.5 Addenda, if any:

Number	Date	Pages
TBD	TBD	TBD

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

(Paragraphs deleted)

.7 Other Exhibits:

Document	Title	Date	Pages
None			

(Paragraphs deleted)

.9 Other documents, if any, listed below:

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

None

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Dr Jason Conway, Executive Director Westmoreland Intermediate Unit 7	TBD
(Printed name and title)	*(Printed name and title)*

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DOCUMENT 00 6100 – BOND FORMS

PERFORMANCE AND PAYMENT BOND FORMS

STANDARD FORM: See the following AIA standard forms following this page:

1. PERFORMANCE BOND (AIA Document A312 – 2010).
2. PAYMENT BOND (AIA Document A312 – 2010).

Submit the appropriate bond forms, properly executed, after notification of award, in accordance with Articles 6 and 7 of the Instructions to Bidders. Separate Performance and Payment Bond forms will be required.

Performance Bond and Payment Bonds shall each be written in full contract amount for the benefit of Owner.

Alternatively, AIA Document A312 Payment Bond, December 1984 edition may be acceptable, modified as follows:

Change Paragraph 6 to read as follows:

6. After the Claimant has satisfied the conditions of Paragraph 4, and has submitted all supporting documentation, sworn statement, or other such substantiation of its claim as requested by the Surety, the Surety shall, within a reasonable period of time but not exceeding one year from receipt of initial claim in compliance with Paragraph 4, take the following actions:

6.1 Notify the Claimant of the amounts that are undisputed and the basis for challenging any amounts that are disputed, including, but not limited to, the lack of substantiating documentation to support the claim as to entitlement or amount.

6.2 Pay or make arrangements for payment of undisputed amounts; provided, however, that the failure of the Surety to timely dispute or identify any specific defense to all or any part of a claim shall not be deemed to constitute a waiver of the Contractor's or Surety's defenses to, or right to dispute, such claim. Rather, the Claimant shall have the immediate right, without further notice, to bring suit against the Surety to enforce any remedy available to it under this Bond.

END OF DOCUMENT 00 6100

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

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

(FOR INFORMATION ONLY — Name, address and telephone)

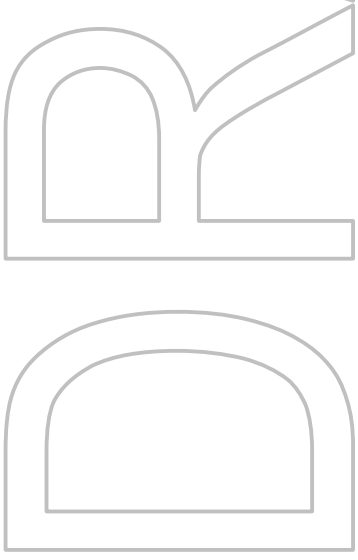
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

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

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

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



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

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

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

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

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

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

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

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

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

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

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

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

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

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User Notes: (1667986223)

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

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

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

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

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

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

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

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

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

§ 14 Definitions

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

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

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

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

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

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

§ 16 Modifications to this bond are as follows:

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

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

DRAFT

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User Notes: (1667986223)

ADDRESS
470 WASHINGTON ROAD
PITTSBURGH, PA 15228

DRAWCOLLECTIVE.COM

CONTACT
PHONE 412.561.7117
FAX 412.561.9025

00 6313	REQUEST FOR INTERPRETATION		
Project:	**Paging System Replacement** **South Fayette Intermediate School**	**Date:**	
DRAW Project No.:	**S50-25-02**	**To:** Steffanie Bako Sbako @ Tower-Engineering.com **cc:** Daniel Engen DanielE @ DRAWcollective.com	
Contract No.:	S50-25-02 – **01**		
Contract Type:	**Electrical Construction**	DRAW Redirect to:	
From:		Date:	
Company Name:		E-mail Address:	
Contact Person:		Telephone:	Fax:

PLEASE USE ONE RFI FORM PER QUESTION

Ref: Section/ Drawing No.	QUESTION

Signature: Date:

RESPONSE

Name:

Company: Date:

ADDRESS
470 WASHINGTON ROAD
PITTSBURGH, PA 15228

DRAWCOLLECTIVE.COM

CONTACT
PHONE 412.561.7117
FAX 412.561.9025

00 6325	SUBSTITUTION REQUEST DURING CONSTRUCTION	
Project:	**Paging System Replacement** **South Fayette Intermediate School**	**Date:**
DRAW Project No.:	**S50-25-02**	**To:** Steffanie Bako Sbako @ Tower-Engineering.com **cc:** Daniel Engen DanielE @ DRAWcollective.com
Contract No.:	S50-25-02 – **01**	
Contract Type:	**Electrical Construction**	DRAW Redirect to: Date:
From: Company Name: Contact Person:		E-mail Address: Telephone: Fax:

Section No.	Paragraph	SPECIFIED ITEM	PROPOSED SUBSTITUTION
Signature:			Date:

Attach necessary supporting documentation: (required)

1. Reason for not providing the specified item.
2. Product description, specifications, drawings, samples, photographs, and performance and test data, and warranty information, as applicable, adequate for evaluation of the request; applicable portions of the data are clearly identified and point-by-point variation from the specified products are clearly identified.
3. A description of changes to the Contract Documents which the requested substitution will require for its proper installation and/or coordination with other Work.
4. Proposed reduction in Contract Sum, Contract Time, or both, for accepting the substitution.

The Requesting Contractor certifies that the following paragraphs are correct unless clearly noted otherwise in the attachments.

1. The requested substitution is equal or superior in all respects to the specified item, and does not affect dimensions and functional clearances shown on the Drawings.
2. Changes to the Work made necessary by the substitution, including increased coordination, will be complete in all respects.
3. Proposed cost data are complete; claims for additional costs or time related to accepted substitution will be waived.
4. Requesting Contractor will pay for changes to the building design, including engineering design or detailing, and construction costs to any Prime Contracts caused by the substitution.
5. The requested substitution has no adverse effect on any other trades, the Contractors' Construction Schedule or any specified warranty requirements.

APPROVED	APPROVED AS NOTED	NOT APPROVED	COMMENTS
Name: Company:			Date:

SECTION 00 7213 - GENERAL CONDITIONS

PART 1 - GENERAL

1.1 DOCUMENTS

A. "General Conditions of the Contract for Construction", AIA Document A201-2017, Articles 1 through 16 inclusive, as modified for this Project, attached following this document, will be incorporated as part of the Contract.

B. Supplementary Conditions of the Contract, in the form of additions or revisions to standard form text, are integral with the modified Document A201 attached.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

DOCUMENT CONTINUES ON NEXT PAGE

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Project No. S50-25-002
Paging System Replacement, Clairview School
215 Donohoe Road,
Hempfield Township Westmoreland County, Pennsylvania

THE OWNER:
(Name, legal status and address)

Westmoreland Intermediate Unit 7
102 Equity Drive
Greensburg, PA 15601
724-836-2460

THE ARCHITECT:
(Name, legal status and address)

DRAW Collective
470 Washington Road
Pittsburgh, PA 15228
412-561-7117

TABLE OF ARTICLES

1 GENERAL PROVISIONS
2 OWNER
3 CONTRACTOR
4 ARCHITECT
5 SUBCONTRACTORS
6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7 CHANGES IN THE WORK
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9 PAYMENTS AND COMPLETION
10 PROTECTION OF PERSONS AND PROPERTY
11 INSURANCE AND BONDS
12 UNCOVERING AND CORRECTION OF WORK
13 MISCELLANEOUS PROVISIONS
14 TERMINATION OR SUSPENSION OF THE CONTRACT
15 CLAIMS AND DISPUTES
16 EQUAL EMPLOYMENT OPPORTUNITY

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

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

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

Init.
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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Contractor's Qualification Statement, Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements. Prime contractors shall require each and every one of their subcontractors to be bound by the terms of these Contract documents and shall make them available to subcontractors at the time of bidding and as necessary throughout construction to complete Project work.

§ 1.1.2 The Contract

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

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

§ 1.1.3 The Work

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

§1.1.3.1 The Work shall include the obligation of the Contractor to visit the site of the project before submitting a proposal. Such site visit shall be for the purpose of familiarizing the Contractor with the conditions as they exist and the character of the operations to be carried on under the Contract Documents, including all existing site conditions, access to the site, physical characteristics of the site and surrounding areas.

§ 1.1.4 The Project

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

(Paragraphs deleted)

§ 1.1.5 Contractors. Contractors are persons or entities, other than Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect.

§ 1.1.6 Separate Contractors. Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect.

§ 1.1.7 The Drawings

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

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

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

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

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

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

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

§ 1.2.3 Unless otherwise stated in the Contract Documents or otherwise defined in Division 01 Section "References", words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings .

§ 1.2.4 Sections of Division 01 – General Requirements govern the execution of all Work of all sections of the Specifications.

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

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

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

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely

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and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

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

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

§ 1.7 Digital Data Use and Transmission

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

(Paragraphs deleted)

ARTICLE 2 OWNER

§ 2.1 General

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

§ 2.1.2 The Owner may enter into a contract for services with an independent Construction Project Representative for the purpose of reporting to the Owner and the Architect as to the progress of the Work. Such appointment by the Owner shall not relieve the Architect of any of his responsibilities entered into in the Owner-Architect Agreement. In the case of dispute, relative to the quality of materials or work, he shall inform the Architect who shall have authority to reject materials until the questions at issue can be decided by the Architect. The Owner's Construction Project Representative is not authorized to revoke, alter, enlarge, relax or release any requirements of the Contract, nor approve or accept any portion of the work nor issue instructions contrary to such provisions. The Owner's Construction Project Representative shall not act as foreman or perform any duties for the Contractor, nor interfere with the management of the Work by the Contractor. The failure of the Owner's Construction Project Representative to discover or comment upon any work or materials which are not in compliance with the Contract Documents shall not relieve the Contractor or the Architect of their obligations to fully perform the Work in accordance with their respective contracts. The Architect and the Contractor shall be considered to be incidental beneficiaries of the contract between the Owner and its Construction Project Representative

(Paragraphs deleted)

§ 2.3 Information and Services Required of the Owner

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

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

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

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

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness.

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

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

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

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.1.4 Mutual Responsibility of Contractors Should the Contractor, in the performance of this Contract, cause or allow to be caused, damage to any persons, property or work of another prime Contractor working on this Project, they shall upon due notice to do so from the Owner or other party to the damage, arrange for prompt and amicable settlement thereof. It is agreed by all parties herein that such disputes shall not delay completion of the Work, nor be cause for claims against the Owner. Work shall be continued by the party claiming damages at his expense, subject to such damages as may be obtained by due course of law.

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§3.1.5 Separate Contracts The Owner reserves the right to let other contracts in connection with this Project. If any part of a Contractor's work depends upon Work being done by another not under the jurisdiction of the Contractor, the latter shall inspect and promptly report to the Architect, any defects in the Work done or being done by the other as well as delays in the progress of the Work. Failure on the part of the Contractor to so inspect and report such defects of delays in sufficient time to prevent any added costs or damage therefrom shall constitute an acceptance of this Work by the Contractor and the Contractor shall be liable for such increased cost or damage.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

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

§ 3.3 Supervision and Construction Procedures

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

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

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

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§ 3.4 Labor and Materials

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

§ 3.4.2 After the Contract has been executed, the Owner the Architect shall consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 01 of the Specifications). By making requests for substitutions, the Contractor:

.1 represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

.2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;

.3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and

.4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

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

§ 3.4.4 The Owner is entitled to deduct from the Contract Sum amounts paid to the Architect to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

§ 3.5 Warranty

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

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

§ 3.5.3 All material and workmanship shall be guaranteed for a minimum of eighteen (18) months from date of acceptance, except where a longer period is specified, and each Contractor shall make good without cost to the Owner any defective portion of the Work of which the Contractor is notified within eighteen (18) months of the date of final payment of the Contract. Repair or replacement of such defects shall extend to other work damaged thereby. Owner's rights and remedies hereunder shall be in addition to any other rights and remedies which Owner may have pursuant to law or this Contract. Owner shall be entitled to all other rights and remedies provided by this Contract and by law, in addition to the Warranty rights and remedies set forth in this paragraph.

§ 3.5.4 The Contractor shall forward guarantee and warranty registration cards to the manufacturers in the name of the Owner showing date of acceptable substantial completion of the Work as the beginning date for the guarantee and warranty periods.

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§ 3.6 Taxes

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

§3.6.1 The Contractor pays wage and occupation taxes as required by local municipality at project site.

§3.6.2 The Contractor must not pay sales or use tax on "building machinery and equipment" (or services to such property) which is transferred to the Owner under this Contract. Remit any tax savings not contemplated in the Contractor's original bid from the Contractor to the Owner as each Application for payment is submitted to the Owner for payment or upon earlier or later identification. In the event that the Owner identifies property that was or could have been purchased exempt from tax by the Contractor for which the Owner has not received a refund, the Owner is authorized to reduce the Final payment by the amount of the sales and use tax savings that was or should have been realized on "building machinery and equipment." Building machinery and equipment are defined as generation equipment, storage equipment, conditioning equipment, distribution equipment, and termination equipment, whether or not: (a) the item constitutes a fixture or is otherwise affixed to the real estate; (b) damage would be done to the item or its surroundings upon removal; (c) the item is physically located within a real estate structure. The exemption is limited to the following types of machinery and equipment:

.1 air conditioning limited to heating, cooling, purification, humidification, dehumidification, and ventilation;
.2 electrical (not including wire, conduit, receptacle and junction boxes);
.3 plumbing (not including pipes, fittings, pipe supports and hangers);
.4 communications limited to voice, video, data and sound;
.5 alarms limited to fire, security, and detection;
.6 control systems limited to energy management, traffic, and parking lot and building access;
.7 medical systems limited to diagnosis and treatment, medical gas, nurse call, and doctor paging;
.8 laboratory system;
.9 cathodic protection system;
.10 furniture, cabinetry, and kitchen equipment.

§3.6.3 The Contractor checks all materials, equipment, and labor entering into the Work and keeps full and detailed accounts and exercises such controls as may be necessary for proper financial management under this Contract; the accounting and control systems must be satisfactory to the Owner. The Owner and the Owner's Representative must be afforded access to the Contractor's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to this Contract, and the Contractor preserves these for a period of 3 years after final payment, or for such longer period as may be required by law.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. The Contractor shall at all times observe, comply with, and post as required all Federal, State, and local laws, ordinances, and regulations in any manner affecting conduct of work or applying to employees on project, as well as all orders or decrees which have been or may be promulgated or enacted by any legal bodies or tribunals having authority or jurisdiction over work, materials, employees, or contract. Contractor protects and indemnifies Owner and its representatives, and Architect and its representatives against any claim or liability arising from or based on violation of any such law, ordinance, regulation, order, or decree, whether by contractor or its employees.

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

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§ 3.7.4 Concealed or Unknown Conditions

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

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

§ 3.8 Allowances

Not Applicable

(Paragraphs deleted)

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall provide continuous supervision at the project site by a duly authorized and competent superintendent, who shall be acceptable to the Owner, when any work is being performed at the project site by any Prime Contractor or any Subcontractor. At the Owner's request, the Contractor shall assign a different superintendent to the Project. The assignment of a new superintendent shall be without cost to the Owner. The Contractor shall submit to the Owner the name and qualifications of their superintendent at the Initial Job Conference. The Contractor shall not change their superintendent without written approval of the Owner, and must submit to the Owner, in writing, justification for the change, along with the name and qualifications of the individual whom the Contractor proposes to be the new superintendent. The Owner may withhold any payments which are pending or may suspend the work at the Contractor's expense, if the Contractor fails to comply with the provisions of this paragraph.

§ 3.9.2 The Superintendent shall represent the Contractor and all directions and communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

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

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall be cooperative in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

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§ 3.10.1.1 By submitting its bid and by executing the Contract, the Contractor represents that it understands that the scheduling requirements are intended to place the burden of early planning, active coordination and communication regarding the planned work on the Contractor and that the purpose of the scheduling requirements is an essential part of meeting that contractual burden. Any failure by the Contractor to comply with any scheduling requirement shall be a material breach of this Contract and if the Contractor fails to comply strictly with any such requirements, the Contractor shall not be entitled to make any claim for any damages that occur because of impacts to its Work, inefficiencies or delays, whether or not the Owner has also materially breached its contract by failing to perform in accordance with its obligations or by actively interfering with the Contractor's Work on the project.

Further, by submitting an application for payment, Contractor represents that it has met each and every scheduling requirement up to that period covered in the application. Contractor agrees that no waiver of any scheduling requirement can occur unless the Contractor indicates in writing that it does not intend to perform such requirement before such requirement is due to be met and Owner acknowledges in writing that the Contractor is relieved of its obligation to perform the requirement.

§3.10.1.2 Contractor and its subcontractors are expected to execute their work in accordance with the schedule and to maintain the dates indicated in the schedule. If after updating the schedule and in the opinion of the Architect, the Contractor is not maintaining the planned progress for the work according to the updated schedule, the Contractor may be required to submit to the Architect within 7 days of the request, a schedule for the recovery of the progress for that portion of the Work. The Contractor shall provide any and all resources that are required to maintain the progress of the Work according to the updated schedule at no additional cost to the Owner. These resources include but are not limited to personnel, material, and equipment, extended working hours or workdays, additional crews and additional shift work in order to maintain the required progress at no additional cost to the Owner. Any requests for payment from that Contractor will be held in suspense until the recovery schedule is submitted and approved by the other Contractors, and the Architect.

§3.10.1.3 The Owner shall have the right to use or occupy any completed or partially completed portions of the Work, whether or not the time may have expired for completing the entire Work or said portions of Work, but such use or occupancy shall not be deemed as acceptance of the Work or portion thereof. Prior to such use or occupancy, an inspection shall be made by the Owner to determine conformity of the Work with the Contract, and any subsequent damage thereto due solely to the use and occupancy of the completed portion, will not be the responsibility of the Contractor.

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

§ 3.10.3 The Contractor shall participate with other Contractors and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Architect to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect, and incorporated into the approved Project schedule.

§3.10.5 The Prime Contractors and their subcontractors are expected to execute their work in accordance with the Project schedule and to maintain the dates indicated in the schedule. If after updating the schedule and in the opinion of the Owner or the Owner's representative, the Prime Contractor is not maintaining the planned progress for the work according to the updated schedule, the Prime Contractor may be required to submit to the Architect within 3 days of the request, a schedule for the recovery of the progress for that portion of the Work. The Prime Contractor shall provide any and all resources that are required to maintain the progress of the Work according to the updated schedule at no additional cost to the Owner. These resources include but are not limited to personnel, material, and equipment, extended working hours or workdays, additional crews and additional shift work in order to maintain the required

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progress at no additional cost to the Owner. Any requests for payment from that Prime Contractor will be held in suspense until the recovery schedule is submitted and approved by the other Prime Contractors.

§3.10.6 The Lead Contractor for this Project is as identified in the Project Manual Division 01 Section "Summary" 01 1000. The Lead contractor is responsible for making all coordination decisions not mutually agreed to by the affected Prime Contractors. Disputes between the Lead Contractor and one or more other Prime Contractors, and disputes between two or more Prime Contractors pertaining to the creation of the Project schedule, the furnishing of additional resources to meet the Project schedule, job coordination, and all aspects of the coordination, means and methods of construction shall be submitted promptly to the Lead Contractor for final construction decision.

§3.10.7 The final construction decision of the Lead Contractor must at all times be consistent with the Contract Documents. The final construction decision of the Lead Contractor will be observed, accepted, and fully followed by all Prime Contractors and their Subcontractors and Sub-Subcontractors on the Project. The progress of the Work in accordance with the final construction decision of the Lead Contractor shall not be delayed, pending any Court proceedings against other Prime Contractor(s). The damage remedy through litigation in the Court of common Pleas shall be the exclusive remedy for disputes between the Contractors. The Contractors, including the Lead Contractor, shall have no right of action against the Owner in connection with any such disputes. Each Prime Contractor is financially responsible to the other Prime Contractors for undue delay. Each Prime contractor shall defend and hold harmless the Owner for any claims, losses or delays of any kind whatsoever made by other Contractors arising from delays caused by such Prime Contractor.

§3.10.8 The Owner, its officers, Board members, agents and employees shall not be liable to any Prime contractor for any increased costs or damages resulting from defective work, interference, or delays of other prime contractors or their subcontractors. The Owner, its officers, Board members, agents and employees, and the Architect shall not be a party to disputes or actions between prime contractors or subcontractors concerning such additional expense, damage or other claims or disputes. It is agreed by all parties that disputes or actions between Contractors concerning the additional expense or damage mentioned above shall not delay completion of the Project.

§ 3.11 Documents and Samples at the Site

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

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal

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schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

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

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

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

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

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

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

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

§ 3.13 Use of Site

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

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§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by insurance supplied by either the Owner, the Contractor, or the Subcontractors as required by Article 11 of this Contract, Contractor shall indemnify, defend (at Owner's request and through counsel reasonably acceptable to Owner), and hold harmless the Owner, the Architect, Architect's consultants, and agents and employees of any of them from and against any and all claims, damages, losses and expenses, including, but not limited to, attorneys' fees and defense costs, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused in whole or in part by the negligent or wrongful acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused whole or in part by a party indemnified hereunder, even if caused in whole or in part by the Owner. A Contractor or Subcontractor's obligation to defend and/or indemnify the Owner hereunder shall not be limited by the immunity provisions of the Worker's Compensation Act or similar statute. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.1. The Owner requires Contractor to execute a Covenant to Indemnify, in form included in Project Manual.

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

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§3.18.3 The Contractor and each Subcontractor, of whatever tier, hereby certifies to the Intermediate Unit (Owner) that it complies with all employment related laws and regulations governing employment or collective bargaining agreements, if any. Nothing in this agreement shall be construed as divesting any contractor or Subcontractor of its sole and exclusive right to control the means, manner or method of performance of the Work of any contractor or their employees. Nothing in this Agreement shall be construed in a manner that would be violative of the legal or contractual rights of the Owner against and from any and all claims, demands, suits, actions, costs and expenses including reasonable attorneys' fees, arising out of or resulting from any claims by an employee or independent contractor of any Contractor or Subcontractor alleging the violation of any of the individuals' employment rights, whether legal, constitutional or contractual in nature even if caused in whole or in part by the acts or omissions of the Owner. This provision shall be accorded the broadest meaning permitted by law.

§3.18.4 The Contractor agrees to indemnify, defend and hold harmless the Owner from and against any and all administrative and judicial actions (including reasonable attorneys' fees related to any such actions) and judgments incurred by the Owner in connection with any labor-related activity arising from the Contractor's performance of the Work. As used in these Contract Documents, "labor-related activity" includes, but is not limited to, strikes, walk-outs, informational or organizations picketing, use of placards, distribution of hand-outs, leaflets or other similar acts at or in the vicinity of the Project or in the vicinity of any other facility where the Owner conducts business. The Owner shall advise the Contractor if any labor-related activity occurs and the contractor shall arrange for the legal representation necessary to protect the Owner's interest, provided such representation is approved by the Owner in advance.

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

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

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

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

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and

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with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

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

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

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

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

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

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

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

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

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

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

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ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

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

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.**§5.2.1.1** Not later than ten days after date of commencement, the contractor must furnish in writing to the Owner and Architect, the names of persons or entities proposed as manufacturers for each of the products specified in the Project Manual and, where applicable, the name of the installing Subcontractor.

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

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

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

§ 5.3 Subcontractual Relations

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

§ 5.4 Contingent Assignment of Subcontracts

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

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.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

(Paragraph deleted)

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

(Paragraphs deleted)

§ 6.2 Mutual Responsibility

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

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

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

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

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

§6.2.6 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.

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§6.2.6.1 Should the contractor, either itself or by its subcontractor or subcontractors or their respective agents, servants, or employees, cause damage or injury to the property or Work of any other Prime Contractor or Contractors, or by failing to perform its Work (including the Work of its subcontractor or subcontractors) with due diligence, delay any Prime Contractor or Contractors, which suffer additional expense or damage as a result the parties involved shall resolve any disputes by agreement or by litigation between said parties. The Owner will not be a party to disputes or actions between Prime Contractors or subcontractors concerning such additional expense or damage. It is agreed by all parties that disputes or actions between Contractors concerning the additional expense or damage will not delay completion of the Work, which shall be continued by the parties, subject to the rights hereinbefore provided. It is agreed by the parties to this Contract (the Owner as promise and the Contractor as promisor) that the intent of this clause is to benefit the other Prime Contractors on the Project or related Projects and to serve as an indication of the mutual intent to the Owner and the Contractor that this clause raise such other Prime Contractors to the status of third party beneficiaries only as to the terms and conditions of Subparagraph 6.2.3. The Contractor agrees that Subparagraph 6.2.3 is provided as a benefit to the Contractor and that they specifically exclude claim against the Owner for delay or other damages

§ 6.3 Owner's Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

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

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

§ 7.2 Change Orders

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

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

§ 7.2.2 A Change Order for adjustments of cost, other than the unit price method, shall include overhead and profit calculated in accordance with Section 7.5.

§ 7.3 Construction Change Directives

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

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

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

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

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.5. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

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

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

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

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

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

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

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

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the

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Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

§ 7.5 Overhead and Profit Rates

§ 7.5.1 For any adjustments to the Contract Sum based on other than the unit price method, overhead and profit combined shall be calculated at the following percentage of the cost attributable to the Change in the Work:

.1 For work performed by the Contractor with its own forces, 15 percent of the cost.

.2 For work performed by the Contractor's Subcontractor, 5 percent of the amount due the Subcontractor.

.3 Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraphs 7.3.4.1 through 7.3.4.5

.4 When both additions and credits are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any. Overhead and profit shall be reduced-accordingly when the net change results in a credit.

.5 To facilitate checking of quotations for extras or credits, all proposals shall be accompanied by a complete itemization of costs including labor, material, fees, overhead and profit, and subcontracts. When major cost items are Subcontracts, they shall be likewise itemized.

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

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

§ 8.2 Progress and Completion

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

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

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

§8.2.4 The Contractor hereby agrees that said sums shall be deducted from monies due the Contractor under the Contract or if no money is due the Contractor, the Contractor hereby agrees to pay to the Owner as liquidated damages, and not by way of Payment or Performance Bond, such total sum as shall be due for such delay.

§ 8.2.5 The remedies provided herein are not exclusive and are in addition to any other rights and remedies provided by law or under the Contract and the Contractor remains liable for damages caused.

§ 8.2.6 To the extent that the Owner permits the Contractor to work after the date scheduled for either substantial or full and final completion, the Owner does not waive its rights to pursue liquidated damages from the Contractor.

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§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Architect may determine, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine. Temporary delays in the work due to seasonal inclement weather shall not be considered as sufficient cause for extension of time. Where the delay arises from acts, omissions, or defaults of another Prime Contractor or the other Prime's subcontractors and suppliers, then the Contractor will be entitled to no extension of time and their sole remedy will be a proceeding pursuant to Article 15 of these General Conditions.

§8.3.1.1 No such Change Order extending the Contract time shall result in any increased payments to the Contractor for overhead, extended overhead, or for any other amounts of any nature.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15. Request for extension of Contract Completion Date shall be submitted in writing to the Architect not more than seven (7) days after the commencement of the delay; otherwise, it shall be waived. This request shall contain at a minimum the following information: (1) date of start of delay; (2) specific cause of delay; (3) effect of delay on construction progress; (4) date of termination of delay; (5) statement of bonded surety concurring in request for extension of Contract Completion Date and the Agreement to extend coverages for the requested extension; (6) evidence of notification of this request having been given to the Owner and the Architect; (7) evidence of notification of this request having been given to all Contractors engaged on the project and their concurrence to such extension of time.

§ 8.3.3 The Architect and Owner will not be liable to any contractor or any subcontractors engaged on this project in any manner for any expenses, damages, loss of profits, anticipated or otherwise, or any other charges whatsoever arising out of an extension in the Completion Date for the work of either the Contractor or of any subcontractor engaged on this project, or arising out of any hindrance or delay from any cause whatsoever in the progress of the work, whether such hindrance or delay be avoidable or unavoidable.

§ 8.3.4 The Contractors are required to submit at any construction conference considering any claim and at any proceeding considering an extension of time and in all subsequent administrative proceedings, all files, records, and the documents of whatever kind pertaining to the Contractor's performance of the Project Work, the job budget, the summary of all supporting data worksheets and other materials related to the estimate, material and labor scheduling details, and other documents prepared in connection with the submittal of the Contractor's successful bid.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

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

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§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. If the manner of completion of the Work and its progress do not remain satisfactory to the Architect, or if any other good and sufficient reason arises, the amount retained by the Owner may be increased up to 1-1/2 times the amount of any possible withholding. If a dispute arises between Owner and Contractor based upon increased costs claimed by Contractor occasioned by delays or other actions of any Contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Contractor causing the additional claim furnishes a bond satisfactory to owner to indemnify Owner against the claim.

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

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

§ 9.3.1.3 Until the Work is 51 percent completed, the Owner pays 90 percent of the amount due the Contractor on account of progress payments. When the work is 50 percent completed, 1/2 of the amount retained by the Owner is returned to the Contractor provided that the Architect approves the application for payment and the Contractor is making satisfactory progress and there is no specific cause for greater withholding. Thereafter the Owner pays 95 percent of the amount due the Contractor on account of progress payments. If the manner of completion of the Work and its progress are not satisfactory to the Architect, or if any other good and sufficient reason arises, the amount retained by the Owner may be increased up to 1-1/2 times the amount of any possible payments. If a dispute arises between Owner and Contractor based upon increased costs claimed by Contractor occasioned by delays or other actions of any Contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the Contractor causing the additional claim furnishes a bond satisfactory to Owner to indemnify Owner against the claim.

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

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

§ 9.3.4 The Contractor for itself and for its Subcontractors, laborers and material suppliers and all other directly or indirectly acting for, through or under it or any of them covenants and agrees that no mechanic's liens or claims will be filed or maintained against the Project, the Premises, or any part thereof, or any interest therein or any improvements thereon, or the Owner or against any monies due or to become due from the Owner to the Contractor, for or on account of any work, labor, services, materials, equipment and other items provided under any Change Order or supplemental agreement for extra or additional work in connection with the Project as to the original work covered by the Contract

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Documents. This Project is purely for a public purpose and as such, mechanics' lien are expressly prohibited under the PA Mechanics' Lien Law, 49 Pa. C.S.A. §1303, *et. seq.* If any Subcontractor, laborer or material supplier of the Contractor or any other person directly or indirectly acting for, through or under it or any of them files or maintains a mechanic's lien or claim as aforesaid, the Contractor agrees to cause such liens and claims be satisfied, removed or discharged at its own expense by bond, payment or otherwise within ten (10) days from the date of the filing thereof, and upon its failure to do so, the Owner shall have the right, in addition to all other rights and remedies provided under the Contract Documents or by law, to cause such liens or claims to be satisfied, removed or discharged by whatever means the Owner chooses, at the entire cost and expense of the Contractor (such cost and expense to include reasonable attorney's fees and disbursements). The Contractor agrees to indemnify, defend, save and hold harmless the Owner from and against any and all such liens and claims and actions brought or judgments rendered thereon, and from and against any and all loss, damages, liability, costs and expenses, including reasonable attorney's fees and disbursements, which the Owner may sustain or incur in connection therewith.

§ 9.4 Certificates for Payment

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

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

§ 9.5 Decisions to Withhold Certification

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

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

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

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

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

§ 9.6 Progress Payments

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

.1 Such payment by the Owner shall not constitute approval or acceptance of any item or cost in the Application for payment. No partial payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the work to which such partial payment relates or relieves the Contractor of any of its obligations hereunder with respect thereto.

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

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

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

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

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

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

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

(Paragraphs deleted)

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§ 9.8 Substantial Completion

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

§ 9.8.1.1 The Contractor shall achieve Substantial Completion of the entire Work pursuant to AIA Document A101.

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

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

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

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents. The payment will be sufficient to increase the total payments to 95 percent of the Contract Sum, less such amounts as the Architect determines for incomplete Work and unsettled claims pursuant to § 9.3.1.

§ 9.9 Partial Occupancy or Use

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

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

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

§ 9.9.4 As portions of the Project are completed, and occupied, Contractor shall ensure the continuing construction activity will not unreasonably interfere with the use, occupancy and quiet enjoyment of the completed portions thereof.

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§ 9.9.5 The Contractor agrees to coordinate the Work with the Architect and the Owner in order to minimize disturbance to occupied portions of the structure. In the event performances or tests are conducted in close proximity to the work in progress, the Contractor agrees to cease all work which may disturb the Owner's occupants at the site.

§ 9.10 Final Completion and Final Payment

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

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

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

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the
(Paragraphs deleted)
Owner.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

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§ 10.2 Safety of Persons and Property

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

.1 employees on the Work, the public, the Owner and its officers, directors and employees, students, visitors, and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;

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

.4 construction or operations by the Owner, Separate Contractors, or other Contractors.

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

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

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall give the Owner reasonable advance notice and the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and in strict compliance with all applicable requirements of applicable laws, codes, regulations, ordinances, and orders.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

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

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

§ 10.2.8 Injury or Damage to Person or Property

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

§ 10.3 Hazardous Materials and Substances

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

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§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

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

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

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

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

§ 10.4 Emergencies

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Westmoreland Intermediate Unit 7, Greensburg Central Catholic, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents. Contractor shall maintain insurance for, in a minimum, the following

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed including private entities performing Work at the site and exempt from the coverage on account of number of employees or occupation, which entities must maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the

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duration of the Project;

.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees or persons or entities excluded by statute from the requirements of Clause 11.1.1.1 but required by the Contract Documents to provide the insurance required by the Clause;

.3 Claims for damages because of bodily injury, personal injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.5 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.6 Claims for bodily injury or property damage arising out of completed operations; and

.7 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.1.8 Liability insurance includes all major divisions of coverage and is on a comprehensive basis including:

1. Premises-Operations (including X. C and U coverages as applicable).
2. Independent Contractors' Protective.
3. Products-Completed Operations.
4. Personal Injury Liability with Contractual Liability Exclusion deleted.
5. Contractual Liability, including specified provision for Contractor's obligation under paragraph 3.18.
6. Owned, Non-Owned, and Hired Motor Vehicles.
7. Broad Form Property Damage including Completed Operations.

§11.1.1.9 If the General Liability coverages are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date must predate the Contract, the termination date of the policy or applicable extended reporting period must be no earlier than the termination date of coverages required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

§ 11.1.1.10 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§11.1.1.11 Provide the required insurance by a company or companies licensed to do business in the Commonwealth of Pennsylvania, which have a minimum Best rating of "A-" and a minimum policy holder's surplus of $100 million and against which the Owner has no reasonable objection.

§11.1.1.12 Write the insurance required by Subparagraph 11.1.1 for not less than the following limits, or greater if required by law:

1. Workers' Compensation and Employer's liability.
   (a) State: Statutory.
   (b) Applicable Federal (e.g., Longshoremen's): Statutory.
   (c) $ 500,000 each accident.
   (d) $ 500,000 disease policy limit.
   (e) $ 500,000 disease each employee

2. Commercial General Liability (Occurrence) including Owner's and Contractor's Protective.
   (a) $ 3,000,000 general aggregate.
   (b) $ 3,000,000 products/completed operations aggregate.
   (c) $ 1,000,000 personal and advertising injury.
   (d) $ 1,000,000 each occurrence.
   (e) $ 50,000 fire damage, any one fire.

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(f) $ 5,000 medical expense, any one person.

3. Business Auto Liability.
   (a) Any vehicle, hired vehicles, and non-owned vehicles.
   (b) $ 1,000,000 combined single limit.

4. Excess or Umbrella Liability.
   (a) $ 1,000,000 each occurrence.
   (b) $ 3,000,000 aggregate.
   (c) $ 10,000 retention for self-insured hazards, each occurrence.

5. Provide a "Project Aggregate" CG 25 03 endorsement for all insurance policies.

§ 11.1.1.13 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness. If this insurance is written on the Comprehensive General Liability policy form, the Certificates must be AIA Document G705, Certificate of Insurance. If this insurance is written on a Commercial General Liability policy form, ACORD form 25S is acceptable. Furnish 2 copies of Certificates herein required; furnish 2 copies of any endorsements that are subsequently issued amending coverages or limits; and furnish 2 copies of Certificates at time of policy renewal indicating such renewal. The Certificates must set forth evidence of all coverages required by the Contract Documents, and must specifically certify the following:

.1 The coverage afforded under these policies will not be cancelled, non-renewed materially changed, with the limits reduced without a minimum of 60 days prior written notice, by certified mail, being given to the Owner (the certificate holder named in the lower left hand corner of ACORD Form 25S).

.2 The Owner, the Architect, and the Architect's Consultants are named as additional insureds for all required coverages except workers' compensation, in and as their interests appear.

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

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

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.1.5 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

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procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Liability Insurance

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

(Paragraphs deleted)

§ 11.3 Property Insurance

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

(Paragraph deleted)

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss. The form of policy for this coverage must be Completed Value.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

(Paragraphs deleted)

§ 11.3.1.3 This Property Insurance shall be written with no deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.1.6 The insurance required by paragraph 11.3 is not intended to cover machinery, tools or equipment owned or rented by the Contractor which are utilized in the performance of the Work but not incorporated into the permanent improvements. The Contractor must, at the Contractor's own expense, provide insurance coverage for owned or rented machinery, tools or equipment which are subject to the provisions of Subparagraph 11.3.7

§ 11.3.2 Boiler and Machinery Insurance

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds .

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§ 11.3.3 Loss of Use Insurance
The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

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

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 If the Contractor so requests, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 Waivers of Subrogation
The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with litigation in the Court of Common Pleas of Westmoreland County, PA, as set forth in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.9 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved by litigation in the Court of Common Pleas of Westmoreland County, PA, the method selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement.

§ 11.4 Performance Bond, Payment Bond and Maintenance Bond
§ 11.4.1 Contractors shall furnish to the Architect for the benefit of the Owner, a Performance Bond as security for the faithful performance of the Contract. Contractors shall furnish to the Architect, for the benefit of the Owner, a separate Labor and Materials Payment Bond as security for the payment of all persons performing labor and furnishing materials in connection with this Contract. Contractors shall furnish to the Owner a Maintenance Bond, as security for

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correction of all defective material or workmanship. The Performance and Payment Bonds shall be in an amount at least equal to the 100 percent of the Contract Sum. The Maintenance Bond shall be in an amount equal to 10% of the Contract Sum. The Bonds shall be written by a surety company approved by the Owner and Architect and licensed to do business in the Commonwealth of Pennsylvania and otherwise comply with the requirements of applicable laws. All Bonds signed by an agent must be accompanied by a certified copy of the authority for the agent to act. The Performance and Payment Bonds shall remain fully in effect for a period commencing prior to the commencement of Contractor's Work and ending 1 year after Final Completion.

§ 11.4.1.1 Provide the required bonds by a company or companies licensed to do business in the Commonwealth of Pennsylvania, which have a minimum Best rating of "A-," a minimum policy holder's surplus of $100 million, are listed on the current U.S. Treasury Circular No. 570 (sureties acceptable for federally financed construction projects), and against which the Owner has no reasonable objection.

§ 11.4.1.2 The Contractor must deliver the required Bonds to the Owner before the Agreement is executed.

§ 11.4.1.3 The Contractor requires the attorney-in-fact who executes the required Bonds on behalf of the surety to affix thereto a certified and correct copy of the Power of Attorney.

§ 11.4.1.4 The performance bond, in the event of a default of the Contractor, obligates the surety to take over and complete the Work up to the penal sum of the bond. The performance bond provided must not allow for the surety to pay over funds to the Owner to complete the Project nor allow the surety to tender a replacement Contractor.

§ 11.4.2 The Contractor must furnish a bond covering correction of defects in the Work. Bonds may be obtained through the Contractor's usual source and the cost thereof must be included in the Contract Sum. The amount of the Maintenance Bond equals 10 percent of the Contract Sum.

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

§ 11.4.4 If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or if its right to do business in the Commonwealth is terminated or if it ceases to meet the requirements set forth in Subparagraph 11.4.1 Contractor shall promptly (without additional cost to the Owner), but in all events within five (5) days after the occurrence of any such event, substitute another Bond and Surety in compliance with the requirements of this Paragraph.

§11.5 Insurance Carriers

§ 11.5.1 If any party is damaged by the failure of the other to purchase or maintain insurance required under Article 11 and so notifies the other party, then the party who failed to purchase or maintain the insurance shall bear all reasonable costs properly attributable thereto.

§ 11.5.2 Whenever the Contractor is required under these Contract Documents to furnish insurance coverage, all policies of insurance so furnished shall be issued by an insurance company or by insurance companies qualified to do business in the Commonwealth of Pennsylvania.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

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

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§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

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

§ 12.2.2.2 In the event the contractor corrects any deficiency or furnishes any new equipment or material as a consequence of a breach of any special warranty or if any of the Work is found to be defective, a new 1-year period of warranty commences with the completion of the correction of the defective Work of the replacement of the defective equipment or material.

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

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

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

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

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

§ 12.2.6 The obligations under this Section 12.2 shall cover any repairs and replacement to any part of the Work or other property caused by the defective Work.

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the laws of the Commonwealth of Pennsylvania, Westmoreland County, Pennsylvania.

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§ 13.2 Successors and Assigns

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

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

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

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

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

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

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

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

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

§ 13.5 Interest

The final payment due the Contractor from the Owner bears interest at a rate of 6 percent per annum for all contracts with provisions for retainage, such interest to begin after the date that such payment becomes due and payable to the Contractor, provided, however, that where the contracting body has issued bonds to finance the project, interest is

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payable to the Contractor at the rate of interest of the bond issue or at the rate of interest of the bond issue, or 6% whichever is less.

§ 13.6 Written Notice
Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice

§ 13.7 Time Limits on Claims
The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law.

§ 13.7 CLEARANCES
§ 13.7.1 All Contractors and subcontractors on this Project must have clearances related to Child Abuse History Act 33/151; Pennsylvania State Police Act 34; Fingerprinting; a Clearance Affidavit; and Federal Criminal History Record Act 114 Clearance and must present them to the Owner's representative on or prior to the time directed by the Owner A badge attesting to those Clearances should be carried by each individual workman when on the premises or in the buildings. The cost of obtaining these "clearances" and required badges shall be the responsibility of the Contractor.

§ 13.7.2 Public Works Employment Verification Act: All Contractors and Subcontractors of whatever tier are required to comply with the Public Works Employment Verification Act, 43 P.C. §§167.1-167.11 and its Chapter 66 implementing guidelines. All Contractors and Subcontractors performing work on this project are required to comply with Federal Employment Eligibility Requirements through the United States Department of Homeland Security's E-Verify Program. For each employee hired on or after January 1, 2013, Contractors and subcontractors must submit a Public Works Employment Verification Form to the Intermediate Unit (Owner) prior to being awarded a Public Works Contract and throughout the duration of the Project, regardless of whether such employees will work onsite or offsite. Contractors and subcontractors shall update the Verification Forms throughout the duration of the Project. Contractors shall include the requirement to comply with this Act in each and every subcontract into which they enter on this Project. The Intermediate Unit will maintain the Form for the duration of the Project. The Form may be accessed at: www.dgs.state.pa.us. The Chapter 66 implementing guidelines are located at http://www.pabulletin.com/secure/data/vol42/42-52/index.html.

§ 13.8 PREVAILING WAGE RATES
If the total estimated project sum is greater than $25,000.00, this regulation and the general Pennsylvania prevailing minimum wage rates, (Act 442 of 1961, P.L., 987, amended) as determined by the Secretary of Labor and Industry, which shall be paid for each craft or classification of all workers needed to perform the contract during the anticipated term therefore in the locality in which public work is performed, are made part of this Contract.

§ 13.8.1 No workmen shall be employed on this work except in accord with the classifications set forth in the decision of the Secretary of Labor and Industry. If additional or different classifications are necessary, the procedure set forth in Section 7 of the Regulations for Pennsylvania Prevailing Wage Act shall be followed.

§ 13.8.2 All workmen employed or working on this work shall be paid unconditionally, regardless of whether any contractual relationship exists or the nature of any contractual relationship which may be alleged indirectly, except authorized deductions, the full amounts due at the time worked in the appropriate classification. This Contract does not prohibit payment of more than the general prevailing minimum wage rates as determined by the Secretary of Labor and Industry.

§ 13.8.3 Each Contractor and Subcontractor shall post for the entire period of construction the wage determination decisions of the Secretary of Labor and Industry, including the effective date of any changes thereof, in a prominent and easily accessible place or places at th site of the work and at such place or places used by them to pay workmen their wages. Subcontractors need not post such decisions in the same places where they are posted by Contractors. The posted notice of wage rates shall contain the following information:

.1 Name of the Project.

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.2 Name of the Public Body for which it is being constructed.

.3 The crafts and classifications of workmen listed in the Secretary's general prevailing minimum wage rate determination for the particular project.

.4 The general prevailing minimum wage rates determined for each craft and classification and the effective date of any changes.

.5 A statement advising workmen that if they have been paid less than the general prevailing minimum wage for their job classification, or if the Contractor or Subcontractor or both are not complying with the Act or the Regulations in any manner whatsoever, they may file a protest, in writing, with the Secretary of Labor and Industry within three months of the date of the occurrence, objecting to the payment of any Contractor or Subcontractor to the extent of the amount or amounts due or to become due to them as wages for work performed on the public work project. Any workmen paid less than the rate specified in the Contract shall have a civil right of action for the difference between the wage paid and the wages stipulated in the Contract, which right of action shall be exercised within six months from the occurrence of the event creating such right.

§ 13.8.4 The Contractor and each Subcontractor shall keep accurate records showing the name, craft, classification, number of hours worked per day and actual hourly rate of wage paid (including employee benefits) to each workman employed by him in connection with work. Such records shall include any deduction from each workman. The records shall be preserved for three years from the date of payment and shall be open at all reasonable hours to the inspection of the public body awarding the Contract and to the Secretary of Labor and Industry or his duly authorized representative.

§ 13.8.5 Apprentices shall be limited to such numbers as shall be in accord with a bonfide apprenticeship program registered with and approved by the Pennsylvania Apprenticeship and Training Council and only apprentices whose training and employment are in full compliance with the provisions of the Apprenticeship and Training Act approved July 14, 1961 (Act No. 304) and the Rules and Regulations issued pursuant thereto shall be employed on the public work project. Any workman using the tools of a craft who does not qualify as an apprentice within the provisions of this Section shall be paid the rate predetermined for journeymen in that particular craft and classification.

.1 Wages shall be paid without any deductions except authorized deductions. Employers not parties to a contract requiring contributions for employee benefits which the Secretary has determined to be included in the general prevailing minimum wage rate shall pay the monetary equivalent thereof directly to the workmen.

.2 Payment of compensation to workmen for work performed on public work on a lump sum basis, or a piece work system, or a price certain for the completion of a certain amount of work, or the production of a certain result shall be deemed a violation of the act and these Regulations, regardless of the average hourly earning resulting therefrom.

.3 Each Contractor and each Subcontractor shall file a statement each week and a final statement at the conclusion of the work on the contract with the contracting agency, under oath, and in form satisfactory to the Secretary, certifying that all workmen have been paid wages in strict conformity with the provisions of the contract as prescribed by this section 3 of these Regulations, or if any wages remain unpaid to set forth the amount of wages due and owing to each workman respectively.

§ 13.9 DISCRIMINATION PROHIBITED

According to 62 Pa. C.S.A. §3701, the Contractor agrees:

(1) In the hiring of employees for the performance of Work under the contract or any subcontract, no contractor, subcontractor, or any person acting on behalf of the contractor or subcontractor shall by reason of gender, race, creed, or color, discriminate against any citizen of this Commonwealth who is qualified and available to perform the Work to which the employment relates;

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(2) no Contractor, Subcontractor, Sub-Subcontractor or any person on their behalf shall in any manner discriminate against or intimidate any employee hired for the performance of Work under the contract on account of gender, race, creed, or color;
(3) The contract may be canceled or terminated by the government agency, and all money due or to become due under the contract may be forfeited for a violation of the terms or conditions of that portion of the contract.
(4) Contractors are bound by Appendix F to Exhibit a to the parties' Agreement, in its entirety as it relates to the Contractor's work on the Project.

§ 13.10 HUMAN RELATIONS ACT

The provisions of the Pennsylvania Human Relations Act, Act 222, of October 27, 1955 (P.L. 744)(43 P.S. Section 951, et. seq.) of the Commonwealth of Pennsylvania prohibit discrimination because of race, color, religious creed, ancestry, age, sex, national origin, handicap or disability, by employers, employment agencies, labor organizations, contractors and others. The Contractor shall agree to comply with the provisions of this Act as amended that is made part of this specification. Your attention is directed to the language of the Commonwealths' non-discrimination clause in 16 PA. Code 49.101.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

(Paragraphs deleted)

§ 14.1.2 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other person performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the contractor may, upon seven additional days' written notice to the Owner and the Architect, suspend performance under the Contract and, when work resumes, recover from the Owner costs of the Work completed, actually earned and incurred, through the date of the termination.

(Paragraphs deleted)

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is in breach of a provision of the Contract Documents.

.5 fails to abide by the Project Construction Schedule, and/or fails, within seven days after receipt of written notice to correct or recover the schedule, to provide required scheduling information;

.6 institutes proceedings or consents to proceedings requesting relief under the Federal Bankruptcy Code or if a Petition under the Federal Bankruptcy code is filed against the contractor and such Petition is not dismissed within sixty (60) days from the date of said filing; or

.7 abandons the work.

§ 14.2.2 When any of the above reasons exist, the Owner upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, three days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

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

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

§ 14.3 Suspension by the Owner for Convenience

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

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption as commencing upon the thirty-first (31st) day of such suspension, delay or interruption. Adjustment of the Contract Sum shall include compensation for actual expenses incurred as a result of the suspension delay or interruption. No adjustment shall be made to the extent:

.1 that performance is, was, or would have been so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

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

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

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work as accepted and/or approved and expenses actually earned and incurred.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

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

§15.1.1.1 In the event of unresolved disputes that proceed to dispute resolution, the form of dispute resolution shall be litigation in the Court of Common Pleas of Westmoreland County, Pennsylvania.

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

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

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

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

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

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

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

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

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

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

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

§ 15.1.8 DISPUTES OR ACTIONS BETWEEN CONTRACTORS

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§ 15.1.8.1 Should the Contractor either itself or by its subcontractor or subcontractors of its agents, servants, or employees, cause damage or injury to the property or Work of any other Prime Contractor or Contractors, or by performing or failing to perform his Work including the Work of his subcontractor or subcontractors hereunder with due diligence, delay or interfere with any Prime Contractor or contractors who shall suffer additional expense or damage thereby, the parties involved in such dispute shall settle by agreement or litigate said claim dispute or disputes in the Court of Common Pleas of Westmoreland County, Pennsylvania.

§ 15.1.8.2 Neither the Architect nor Owner shall be a party to disputes or actions between Prime Contractors or subcontractors concerning such additional expense or damage. It is agreed by all parties that disputes or actions between Contractors concerning the additional expense or damage hereinbefore mentioned shall not delay completion of the work which shall be continued by the parties, subject to the rights hereinbefore provided.

§ 15.2 Initial Decision

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

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

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

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

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

§ 15.2.6 Either party may file for mediation of an initial decision at any time. Mediation is a condition precedent to litigation.

(Paragraph deleted)

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

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(Paragraph deleted)

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to litigation in the Court of Common Pleas of Westmoreland County, Pennsylvania.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation. The parties shall agree upon a private third party mediator. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of litigation but, in such event, mediation shall proceed in advance of litigation proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

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

(Paragraphs deleted)

§ 16.1 EQUAL EMPLOYMENT OPPORTUNITY

§ 16.1.1 The Contractor shall maintain policies of employment as follows:

§ 16.1.1.1 The contractor, Contractor's Subcontractors and Sub-Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

§16.1.1.2: The Contractor, Contractor's Subcontractors and Sub-Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin**.**

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DOCUMENT 00 7346 - WAGE DETERMINATION SCHEDULE

PART 1 - GENERAL

1.1 DOCUMENTS

A. The Prevailing Minimum Wage Predetermination, included herein below, as determined by the Secretary of Labor and Industry of the Commonwealth of Pennsylvania, is a part of the Contract documents for this Project.
   1. Serial Number: 25-08833.
   2. Determination Date: 9/24/2025

B. Submit a Certified Payroll Certificate each week directly to the Owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 ELECTRONIC DOCUMENTS

A. See www.dli.pa.gov to search and view Prevailing Wage Project Rates **or view the Project Rates attached.**

   1. Wage rate determination search:
      www.pa.gov/en/agencies/dli/resources/forms-and-documents/labor-law/prevailing-wage.html

   2. Weekly Payroll Certification Form:
      www.pa.gov/content/dam/copapwp-pagov/en/dli/documents/documents/mandatory-postings/llc-25.pdf

DOCUMENT CONTINUES ON NEXT PAGE

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project Name:	Paging System Replacement, Clairview School
General Description:	Replacement of building-wide public address system
Project Locality	Hempfield Township
Awarding Agency:	Westmoreland Intermediate Unit 7
Contract Award Date:	10/30/2025
Serial Number:	25-08833
Project Classification:	Building
Determination Date:	9/24/2025
Assigned Field Office:	Pittsburgh
Field Office Phone Number:	(412)565-5300
Toll Free Phone Number:	(877)504-8354
Project County:	Westmoreland County

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 25-08833 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2024		$43.40	$29.51	$72.91
Asbestos & Insulation Workers	8/1/2025		$45.10	$30.31	$75.41
Boilermakers	6/1/2016		$40.90	$27.61	$68.51
Bricklayer	12/1/2024		$40.55	$25.36	$65.91
Bricklayer	6/1/2025		$41.05	$25.86	$66.91
Carpenters - Piledriver/Welder	1/1/2024		$42.13	$21.97	$64.10
Carpenters - Piledriver/Welder	1/1/2025		$43.38	$22.72	$66.10
Carpenters - Piledriver/Welder	1/1/2026		$44.63	$23.47	$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2024		$41.49	$19.93	$61.42
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2025		$43.34	$19.93	$63.27
Cement Mason/Concrete Finisher	6/1/2019		$31.27	$19.39	$50.66
Cement Masons	7/1/2024		$34.57	$25.09	$59.66
Cement Masons	6/1/2025		$35.52	$25.64	$61.16
Drywall Finisher	1/1/2025		$34.01	$24.63	$58.64
Drywall Finisher	6/1/2025		$35.16	$25.98	$61.14
Electricians & Telecommunications Installation Technician	12/27/2024		$50.86	$32.69	$83.55
Electricians & Telecommunications Installation Technician	12/26/2025		$54.16	$32.69	$86.85
Elevator Constructor	1/1/2024		$58.55	$43.87	$102.42
Elevator Constructor	1/1/2025		$61.07	$40.05	$101.12
Glazier	9/1/2024		$37.06	$31.89	$68.95
Glazier	9/1/2025		$38.70	$33.75	$72.45
Iron Workers	6/1/2024		$39.89	$36.47	$76.36
Iron Workers	6/1/2025		$41.50	$37.36	$78.86
Laborers (Class 01 - See notes)	1/1/2025		$27.32	$19.96	$47.28
Laborers (Class 01 - See notes)	1/1/2026		$27.82	$20.46	$48.28
Laborers (Class 02 - See notes)	1/1/2025		$27.47	$19.96	$47.43
Laborers (Class 02 - See notes)	1/1/2026		$27.97	$20.46	$48.43
Laborers (Class 03 - See notes)	1/1/2025		$30.47	$19.96	$50.43
Laborers (Class 03 - See notes)	1/1/2026		$30.97	$20.46	$51.43
Landscape Laborer (Skilled)	1/1/2024		$24.79	$18.53	$43.32
Landscape Laborer (Skilled)	1/1/2025		$25.79	$18.78	$44.57
Landscape Laborer (Skilled)	1/1/2026		$26.79	$19.03	$45.82
Landscape Laborer (Tractor Operator)	1/1/2024		$25.09	$18.53	$43.62
Landscape Laborer (Tractor Operator)	1/1/2025		$26.09	$18.78	$44.87
Landscape Laborer (Tractor Operator)	1/1/2026		$27.09	$19.03	$46.12
Landscape Laborer	1/1/2025		$25.37	$18.78	$44.15
Landscape Laborer	1/1/2026		$26.37	$19.03	$45.40
Millwright	6/1/2020		$41.68	$20.32	$62.00
Operators (Class 01 - see notes)	6/1/2024		$41.69	$24.39	$66.08
Operators (Class 01 - see notes)	6/1/2025		$42.72	$24.79	$67.51
Operators (Class 01 - see notes)	6/1/2026		$43.74	$25.29	$69.03
Operators (Class 02 -see notes)	6/1/2024		$35.62	$24.39	$60.01

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 25-08833 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 02 -see notes)	6/1/2025		$36.67	$24.79	$61.46
Operators (Class 02 -see notes)	6/1/2026		$37.67	$25.29	$62.96
Operators (Class 03 - See notes)	6/1/2024		$32.83	$24.39	$57.22
Operators (Class 03 - See notes)	6/1/2025		$33.88	$24.79	$58.67
Operators (Class 03 - See notes)	6/1/2026		$34.88	$25.29	$60.17
Painters Class 6 (see notes)	6/1/2024		$32.14	$24.93	$57.07
Painters Class 6 (see notes)	6/1/2025		$34.16	$25.81	$59.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		$62.82	$22.72	$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		$64.70	$23.47	$88.17
Piledrivers	1/1/2025		$41.88	$22.72	$64.60
Piledrivers	1/1/2026		$43.13	$23.47	$66.60
Plasterers	6/1/2024		$33.14	$21.04	$54.18
Plumbers and Steamfitters	6/1/2024		$40.02	$27.01	$67.03
Plumbers and Steamfitters	6/1/2025		$41.47	$27.71	$69.18
Plumbers and Steamfitters	6/1/2026		$42.92	$28.45	$71.37
Pointers, Caulkers, Cleaners	12/1/2024		$39.69	$21.61	$61.30
Pointers, Caulkers, Cleaners	6/1/2025		$40.66	$21.99	$62.65
Roofers	6/2/2024		$38.00	$20.67	$58.67
Roofers	6/1/2025		$39.91	$20.76	$60.67
Sheet Metal Workers	7/1/2024		$43.00	$33.96	$76.96
Sheet Metal Workers	7/1/2025		$45.00	$35.16	$80.16
Sign Makers and Hangars	7/15/2024		$32.32	$25.82	$58.14
Sign Makers and Hangars	7/15/2025		$33.48	$26.41	$59.89
Sprinklerfitters	4/1/2024		$46.45	$28.62	$75.07
Sprinklerfitters	4/1/2025		$49.75	$29.21	$78.96
Steamfitters	6/1/2024		$48.15	$29.57	$77.72
Steamfitters	6/1/2025		$50.20	$31.02	$81.22
Stone Masons	12/1/2022		$38.56	$23.61	$62.17
Terrazzo Finisher	12/1/2024		$41.04	$18.72	$59.76
Terrazzo Finisher	6/1/2025		$41.73	$19.03	$60.76
Terrazzo Mechanics	12/1/2024		$40.39	$21.02	$61.41
Terrazzo Mechanics	6/1/2025		$41.13	$21.28	$62.41
Tile Finisher	12/1/2024		$32.51	$17.99	$50.50
Tile Finisher	6/1/2025		$33.24	$18.36	$51.60
Tile Setter	12/1/2024		$39.41	$22.44	$61.85
Tile Setter	6/1/2025		$40.15	$22.80	$62.95
Truckdriver class 1(see notes)	1/1/2025		$36.43	$23.21	$59.64
Truckdriver class 1(see notes)	1/1/2026		$37.93	$23.71	$61.64
Truckdriver class 2 (see notes)	1/1/2025		$36.89	$23.52	$60.41
Truckdriver class 2 (see notes)	1/1/2026		$38.39	$24.02	$62.41
Window Film / Tint Installer	10/1/2019		$25.00	$2.63	$27.63

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 25-08833 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	1/1/2025		$41.35	$22.09	$63.44
Carpenter	1/1/2026		$42.60	$22.84	$65.44
Carpenter Welder	1/1/2025		$42.85	$22.09	$64.94
Carpenter Welder	1/1/2026		$44.10	$22.84	$66.94
Carpenters - Piledriver/Welder	1/1/2024		$42.13	$21.97	$64.10
Carpenters - Piledriver/Welder	1/1/2025		$43.38	$22.72	$66.10
Carpenters - Piledriver/Welder	1/1/2026		$44.63	$23.47	$68.10
Cement Finishers	1/1/2024		$35.14	$26.30	$61.44
Cement Finishers	1/1/2025		$35.94	$27.50	$63.44
Cement Masons	1/1/2020		$32.84	$21.10	$53.94
Electric Lineman	5/27/2019		$47.38	$26.30	$73.68
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2024		$39.89	$36.47	$76.36
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2025		$41.50	$37.36	$78.86
Laborers (Class 01 - See notes)	1/1/2024		$32.20	$25.50	$57.70
Laborers (Class 01 - See notes)	1/1/2025		$33.70	$26.00	$59.70
Laborers (Class 01 - See notes)	1/1/2026		$34.70	$27.00	$61.70
Laborers (Class 02 - See notes)	1/1/2024		$32.36	$25.50	$57.86
Laborers (Class 02 - See notes)	1/1/2025		$33.86	$26.00	$59.86
Laborers (Class 02 - See notes)	1/1/2026		$34.86	$27.00	$61.86
Laborers (Class 03 - See notes)	1/1/2024		$32.75	$25.50	$58.25
Laborers (Class 03 - See notes)	1/1/2025		$34.25	$26.00	$60.25
Laborers (Class 03 - See notes)	1/1/2026		$35.25	$27.00	$62.25
Laborers (Class 04 - See notes)	1/1/2024		$33.20	$25.50	$58.70
Laborers (Class 04 - See notes)	1/1/2025		$34.70	$26.00	$60.70
Laborers (Class 04 - See notes)	1/1/2026		$35.70	$27.00	$62.70
Laborers (Class 05 - See notes)	1/1/2024		$33.61	$25.50	$59.11
Laborers (Class 05 - See notes)	1/1/2025		$35.11	$26.00	$61.11
Laborers (Class 05 - See notes)	1/1/2026		$36.11	$27.00	$63.11
Laborers (Class 06 - See notes)	1/1/2024		$30.45	$25.50	$55.95
Laborers (Class 06 - See notes)	1/1/2025		$31.95	$26.00	$57.95
Laborers (Class 06 - See notes)	1/1/2026		$32.95	$27.00	$59.95
Laborers (Class 07 - See notes)	1/1/2024		$33.20	$25.50	$58.70
Laborers (Class 07 - See notes)	1/1/2025		$34.70	$26.00	$60.70
Laborers (Class 07 - See notes)	1/1/2026		$35.70	$27.00	$62.70
Laborers (Class 08 - See notes)	1/1/2024		$34.70	$25.50	$60.20
Laborers (Class 08 - See notes)	1/1/2025		$36.20	$26.00	$62.20
Laborers (Class 08 - See notes)	1/1/2026		$37.20	$27.00	$64.20
Millwright	6/1/2024		$47.59	$23.72	$71.31
Millwright	6/1/2025		$49.72	$23.72	$73.44
Operators (Class 01 - see notes)	1/1/2024		$38.59	$24.03	$62.62
Operators (Class 01 - see notes)	1/1/2025		$40.39	$24.23	$64.62
Operators (Class 01 - see notes)	1/1/2026		$41.96	$24.66	$66.62
Operators (Class 02 -see notes)	1/1/2024		$38.33	$24.03	$62.36

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 25-08833 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 02 -see notes)	1/1/2025		$40.13	$24.23	$64.36
Operators (Class 02 -see notes)	1/1/2026		$41.70	$24.66	$66.36
Operators (Class 03 - See notes)	1/1/2024		$34.68	$24.03	$58.71
Operators (Class 03 - See notes)	1/1/2025		$36.48	$24.23	$60.71
Operators (Class 03 - See notes)	1/1/2026		$38.05	$24.66	$62.71
Operators (Class 04 - See notes)	1/1/2024		$34.22	$24.03	$58.25
Operators (Class 04 - See notes)	1/1/2025		$36.02	$24.23	$60.25
Operators (Class 04 - See notes)	1/1/2026		$37.59	$24.66	$62.25
Operators (Class 05 - See notes)	1/1/2024		$33.97	$24.03	$58.00
Operators (Class 05 - See notes)	1/1/2025		$35.77	$24.23	$60.00
Operators (Class 05 - See notes)	1/1/2026		$37.34	$24.66	$62.00
Operators Class 1-A	1/1/2024		$41.59	$24.03	$65.62
Operators Class 1-A	1/1/2025		$43.39	$24.23	$67.62
Operators Class 1-A	1/1/2026		$44.96	$24.66	$69.62
Operators Class 1-B	1/1/2024		$40.59	$24.03	$64.62
Operators Class 1-B	1/1/2025		$42.39	$24.23	$66.62
Operators Class 1-B	1/1/2026		$43.96	$24.66	$68.62
Painters Class 1 (see notes)	6/1/2022		$34.45	$22.82	$57.27
Painters Class 2 (see notes)	6/1/2024		$38.09	$24.93	$63.02
Painters Class 2 (see notes)	6/1/2025		$40.36	$25.81	$66.17
Painters Class 3 (see notes)	6/1/2024		$40.66	$24.93	$65.59
Painters Class 3 (see notes)	6/1/2025		$43.68	$25.81	$69.49
Painters Class 4 (see notes)	6/1/2019		$28.20	$20.06	$48.26
Painters Class 5 (see notes)	6/1/2019		$22.91	$20.06	$42.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		$62.82	$22.72	$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		$64.70	$23.47	$88.17
Piledrivers	1/1/2025		$41.88	$22.72	$64.60
Piledrivers	1/1/2026		$43.13	$23.47	$66.60
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		$48.43	$40.28	$88.71
Truckdriver class 1(see notes)	1/1/2024		$34.93	$22.71	$57.64
Truckdriver class 1(see notes)	1/1/2025		$36.43	$23.21	$59.64
Truckdriver class 1(see notes)	1/1/2026		$37.93	$23.71	$61.64
Truckdriver class 2 (see notes)	1/1/2024		$35.39	$23.02	$58.41
Truckdriver class 2 (see notes)	1/1/2025		$36.89	$23.52	$60.41
Truckdriver class 2 (see notes)	1/1/2026		$38.39	$24.02	$62.41

DOCUMENT 00 7393 - COVENANT TO INDEMNIFY

1.1 STATEMENT

A. In addition and supplemental to all other agreements of the undersigned Contractor, relating to **Project No. 25-S50-02 Paging System Upgrades at Clairview School** (hereinafter referred to as the "Work") by the undersigned for Westmoreland Intermediate Unit 7 (hereinafter referred to as the "Owner"), the undersigned Contractor, intending to be legally bound hereby does hereby agree as follows:

B. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner and Architect and consultants, agents, and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to, attorneys' fees and defense costs, arising out of or resulting from performance of the Work, to the extent caused in whole or in part by the acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts or omissions they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph. The Contractor agrees to and does hereby assume on behalf of the Owner and Architect the defense of any action at law or in equity which may be brought against such indemnities by reason of claims for which indemnity is owed hereunder, and will pay on behalf of such indemnities, upon their demand, the amount of any judgment that may be entered against such indemnities in any such action. In the event that any such claim, loss, cost, expense, liability, damage, or injury arises or is made, asserted, threatened against the Owner for which the Contractor or its insurer does not admit coverage, or if the Owner reasonably determines such coverage to be inadequate, the Owner shall have the right to withhold from any payments due to or become due to the Contractor an amount sufficient to protect the Owner from such claim, loss, cost, expense, liability, damage, or injury, including attorneys' fees and expenses reasonably necessary for the defense thereof.

C. IN WITNESS WHEREOF, the undersigned has duly executed this Covenant of Indemnity this _____ day of _____, 2025.

(SEAL)

_____
President

_____
Contractor's company name

END OF DOCUMENT 00 7393

SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification:
DRAW Project No. S50-25-02
Paging System Replacement, Clairview School
215 Donohoe Road, Hempfield Township, Westmoreland County, Pennsylvania.

B. Owner: Westmoreland Intermediate Unit 7, 102 Equity Drive, Greensburg, PA 15601.

1. Owner's Representative: Tammy Good, Financial Services Director
Westmoreland Intermediate Unit #7
102 Equity Drive, Greensburg, PA 15601
724-836-2460 x2330
tgood@wiu7.org

C. Architect: DRAW Collective, 470 Washington Road, Pittsburgh PA 15228-2811, Telephone: 412-561-7117.

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

1. Electrical Engineer: Tower Engineering, 115 Evergreen Heights Drive, Suite 400, Pittsburgh, PA 15229, Telephone: 412-931-8888

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of communication system replacement at Clairview School. The work will be constructed under a single prime contract as follows:

1. Electrical Construction Contract S50-25-02-01

B. The Work of the Project includes replacement of existing building-wide paging system with new IP-based paging system. Scope of work includes, but not limited to, demolition of existing system, new interior and exterior speakers, new cabling, patch panels, new head-end equipment, connection to existing phone system, equipment rack, and rack grounding.

1.4 PROJECT TIMELINE

A. The following timeline is based upon the first regularly scheduled Board of Director's meeting following the advertised bid opening date. As the advertised bid opening date is subject to revision by addendum, the Contract Award date

listed below may change accordingly. The dates listed below do not alter the Owner's right to award a contract within 60 days of the bid opening. Should the date of Contract Award not occur prior to 21 days of the date that on-site work may begin, the Contract Time will be adjusted by mutual agreement.

B. The following dates are subject to completion of the bidding period, the Owner's evaluation of bid results, and award of contracts at the regularly scheduled **October 2025** board meeting.

1. Anticipated Contract Award……..**October 2025**
2. Start On-site work…… **June 15, 2026**
3. Overall Project Substantial Completion ……**July 17, 2026**
4. Date of Full & Final Completion ……**July 31, 2026**

C. The Contractor's bid is to include the cost of executing the work between the "start-on-site" date and the "Date of Substantial Completion". No adjustment to the contract sum will be made for work required beyond the "normal work day" (Monday through Friday, 7:00AM to 4:00PM) in order to meet the timeline stated.

1. Contractors must anticipate that Contractors must cooperate with the Owner's staff to allow simultaneous use of space.
2. To the degree permissible by North Franklin Township ordinance, the Owner will cooperate with the Contractor to allow access to the Work during evening and weekend hours. The Contractor is to include the cost of premium/overtime/second shift work required to execute the work in the time line indicated.

D. In the event that work is not able to "start on-site" by the date listed or modified by addendum, a mutually agreed upon revision to the Date of Substantial Completion will be considered, at no additional cost to the contract sum.

1.5 ACCESS TO SITE

A. General: Contractor has limited use of Project site for construction operations as indicated on Drawings and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Confine storage of materials and support facilities to Owner-designated areas. Use of other areas of site for construction storage and support facilities is prohibited.
2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
    c. On-site parking is available in Owner-designated area of parking lots.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1. Superimposed Loads: Before proceeding with Work, obtain loading limitations for existing structure. Keep superimposed loads within these limits. Do not endanger structure in any way.

1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.

2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
3. Student services have priority over the Work. While Owner makes every reasonable effort to accommodate the Work in an orderly manner, it reserves the right to adjust or change any work schedule if necessary to maintain proper student services.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to normal business working hours of 7:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated, or agreed upon with local authorities.

1. Weekend Hours: Coordinate and agree upon with the Owner in advance.
2. Early Morning Hours: Coordinate and agree upon with the Owner in advance.
3. Hours for Utility Shutdowns: Coordinate and agree upon with the Owner in advance.
4. Hours for Core Drilling of noisy activity: Coordinate and agree upon with the Owner in advance.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Construction Manager and Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Construction Manager and Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Use of tobacco products of any kind is prohibited on School District property.

F. Controlled Substances: Use of illegal controlled substances on Project site is not permitted.

G. Employee Identification: Owner will provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site, including COVID-19 protocols.

1. Maintain list of approved screened personnel with Owner's representative.

I. Employee Ingress and Egress: Have personnel enter and exit building through Owner-designated entrance(s).

J. Food and Beverages: Food and beverages are prohibited in Work areas.

K. Food Service Facilities: Personnel may not use building’s food service facilities.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

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

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

D. Measurement Units: Values stated in inch-pounds are the Contract requirement. Values given in parentheses are for information only.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

SECTION 01 2300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

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

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

1.3 PROCEDURES

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

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

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

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

D. Schedule: See Part 3 "Schedule of Alternates" Article below. Specification Sections, if referenced in schedule, contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **ALTERNATE E-1 – CALL-IN SWITCHES**

1. **Base Bid:** Provide all Work as shown and specified.
2. **Alternate Bid**: OMIT call-in switches and associated cabling as indicated on Drawings from the Work scope .

END OF SECTION 01 2300

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions after award of Contract.

1.2 DEFINITIONS

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

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

    a. Substitutions for Convenience will not be considered under this Contract without a corresponding reduction in Contract Sum or Contract Time.

1.3 ACTION SUBMITTALS

A. Substitution Requests:

1. Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
2. Substitution Request Form: Use form provided by or otherwise acceptable to Architect.
3. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

    a. Statement indicating why specified product or fabrication or installation method cannot be provided, or relative advantages of proposed substitution with regard to quality, performance, cost or project scheduling.
    b. Coordination of 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 substitutions 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.

        1) Evaluation criteria may also include reference standards, warranty, operation, finishes, manufacturer's or supplier's history and capability, history and competence of product representatives, installer availability, history and competence.

    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 as well as names and addresses of architects and owners.
    h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions 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 requested, 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.

4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 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.

1.5 PROCEDURES

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

B. Contractor may submit a request for substitution (other than for cause) only as part of a Change Order request to reduce the Contract Sum, or Contract Time, or both.

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. Requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial net advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume in accepting the substitution. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents, in the judgment of the Architect or its consultants.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor’s construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. Requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500

SECTION 01 2926– MODIFICATION AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements necessary to prepare and process Contract Modifications and Applications for Payment.

1.2 DEFINITIONS

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

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Prepare and submit Schedule of Values using AIA G703 form.
2. Correlate line items in the Schedule of Values with Application for Payment forms and construction schedule.
3. Correlate line items in Schedule of Values with Construction Phases and major portions of the Project, as appropriate.
4. Separate the line item values for Labor and Materials.
5. Submit the Schedule of Values at earliest possible date but no later than 30 days before the date scheduled for submittal of initial Applications for Payment.
6. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Owner's Project number.
    c. Name of Architect
    d. Architect's Project number.
    e. Contractor's name and address.
    f. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703. or other equivalent form approved by Architect at the initial Job Conference.
3. Show a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Show Labor and Materials as separate line items. Coordinate with the Project Manual table of contents. Show several line items for principal subcontract amounts, in excess of five percent of the Contract Sum, or where otherwise appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Show a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

        1) Include evidence of insurance or bonded warehousing, a copy of the invoice for said materials, the location of materials, and a photograph of the materials showing the materials clearly labeled for this Project.

6. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and, except as otherwise indicated, proportionate share of general overhead and profit for each item.
7. In addition to detail described above, show separate line items to indicate values, subject to approval by Architect, for the following activities and overhead items:

    a. Schedule
    b. Schedule Sign-off
    c. Monthly Schedule updates
    d. Submittals Schedule
    e. Bonds
    f. Insurance premiums
    g. Temporary facilities
    h. Temporary utilities
    i. Coordination drawings
    j. Project Closeout:

        1) Record drawings
        2) Final cleaning
        3) Demobilization
        4) Close out documents - O & M and warranties
        5) Trailer staging and parking area restoration

C. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1. Include at least one separate line item for each Change Order and Construction Change Directive.

1.4 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on form provided as part of web-based Project management software. Construction 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.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.6 ADMINISTRATIVE CHANGE ORDERS

A. Unit-Price Adjustment: See Division 01 Section "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.7 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 20 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.

B. Contractor-Initiated 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.

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. Proposal Request Form: Use form provided as part of web-based Project management software.

1.8 CHANGE ORDER PROCEDURES

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

1. Change Order contains a description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

1.9 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Period: The period for each progress payment is approximately thirty days in length. The period shall start on the same day each month and end on the same day of the following month, as indicated in the Agreement, with the period ranging from 28 days through 31 days.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment and Schedule of Values form specified herein.

D. Application Preparation: Complete every entry on form. Submittal deadline for timely processing is indicated in the Agreement. At least seven calendar days prior to indicated deadline for submittal of Application, submit a pencil copy to the Architect for preliminary approval. Upon receipt of approved pencil copy, prepare ink copy notarized and executed by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit four signed original copies of each Application for Payment to Architect by a method ensuring receipt on or before the day indicated in the Agreement. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Schedule of unit prices.

6. Action Submittals schedule (preliminary if not final):

    a. Schedule of Shop Drawing Submittals.
    b. Schedule of Data Submittals.
    c. Schedule of Sample Submittals.

7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies (unless submitted before executing Contract).
14. Performance and payment bonds (unless submitted before executing Contract).
15. Data needed to acquire Owner's insurance (unless submitted before executing Contract).

H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

    a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 01 7700 "Closeout Procedures."

2. This application shall reflect Certificate(s) of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
6. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
7. AIA Document G707 “Consent of Surety to Final Payment.”
8. Evidence that claims have been settled.
9. Operation and Maintenance Manuals.
10. Warranties.
11. Accepted schedule for demonstration and training.
12. Proof that taxes, fees, and similar obligations are paid.
13. Waivers and releases.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2926

SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Requests for Information (RFIs).
3. Project meetings.

1.2 DEFINITIONS

A. RFI: Request from Owner, Architect or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Each contractor coordinates its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance of and accessibility to required components, including but not limited to mechanical, electrical, plumbing, communication, fire protection.

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. Preinstallation conferences.
7. Project closeout activities.
8. Checking, Startup, testing and adjustment of components and systems.

1.5 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form provided by Architect at the Preconstruction Conference.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be rejected 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 and Architect's Project Number.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
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 suggested resolution 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.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI forms and protocols have been established for the Project. Verify standards and procedures with Architect prior to beginning work.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow ten working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.

f. Requests for interpretation of Architect's actions on submittals.
g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 working 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 at each progress meeting. Software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.6 PROJECT MEETINGS

A. General: Architect will 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 of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting records significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting. Distribution will by electronic mail, US mail, or facsimile machine as agreed upon by participants.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a mutually agreed upon time between Owner, Architect and Contractor.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference must be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Commissioning requirements
m. Preparation of record documents.

n. Use of the premises and existing building.
o. Work restrictions.
p. Working hours.
q. Owner's occupancy requirements.
r. Responsibility for temporary facilities and controls.
s. Procedures for moisture and mold control.
t. Procedures for disruptions and shutdowns.
u. Construction waste management and recycling.
v. Parking availability.
w. Office, work, and storage areas.
x. Equipment deliveries and priorities.
y. First aid.
z. Security.
aa. Progress cleaning.

4. Minutes: Architect will record and distribute meeting minutes.

C. Preinstallation Conferences: Contractor shall 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 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 requirements.
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. Commissioning requirements
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.
z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Contractor shall 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: Architect conducts progress meetings at regular intervals.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities must be represented at these meetings. All participants at the meeting must be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Discuss how to maintain planned progress of the work and construction behind schedule per requirements of the Division 01 Supplementary Conditions; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of Submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.
        18) Documentation of commissioning related requirements.
        19) Documentation of information for payment requests.

3. Minutes: The Architect will record and distribute the meeting minutes to each Contractor and to parties requiring information.

    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: Contractor will conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities must be represented at these meetings. All participants at the meetings must 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. Discuss how to maintain planned progress of the work and construction behind schedule per requirements of the Division 01 Supplementary Conditions;

secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are 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) Commissioning requirements
4) Status of submittals.
5) Deliveries.
6) Off-site fabrication.
7) Access.
8) Site utilization.
9) Temporary facilities and controls.
10) Work hours.
11) Hazards and risks.
12) Progress cleaning.
13) Quality and work standards.
14) Change Orders.

3. Reporting: Contractor to record meeting results and distribute copies to each Contractor, the Owner and the Architect and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3100

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. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Material location reports.
5. Site condition reports.
6. Special reports.

1.2 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. PDF electronic file.

B. Startup construction schedule.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

D. Construction Schedule Updating Reports: Submit with Applications for Payment and at progress meetings.

E. Material Location Reports: Submit with Applications for Payment.

F. Site Condition Reports: Submit at time of discovery of differing conditions.

G. Special Reports: Submit at time of unusual event.

1.3 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review submittal requirements and procedures.
7. Review time required for review of submittals and resubmittals.
8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to the date of Substantial Completion and final completion.

1. Contract completion date is not changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat work 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 10 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 30 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "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 under More Than One Contract: Include a separate activity for each contract.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
3. 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. Use of premises restrictions.
    e. Seasonal variations.
    f. Environmental control.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, Notice to Proceed, Substantial Completion, and final completion and the following:

1. Last day of school;
2. Staff's return at the end of summer.
3. First day of student's return to school.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. 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. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 STARTUP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 30 days of construction. Include skeleton diagram for the remainder of the Work.

2.3 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 the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.4 REPORTS

A. Material Location Reports: With each Application for Payment, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

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.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at the 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. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in 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 01 3200

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

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

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

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

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Contractor shall submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Submit submittal schedule within 30 days of Award of Contract.
2. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
3. Initial Submittal Schedule: Submit within 14 days of Notice to Proceed. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
4. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
5. Format: Arrange the following information in a tabular format:
    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

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

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.5 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as required by Architect.
    a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

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.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

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

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Indicate revision number as a suffix to unique submittal number.
4. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

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

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

1.6 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts, technical data sheets, product specifications.
    b. Standard color charts.
    c. Statement of compliance with specified referenced standards.
    d. Testing by recognized testing agency.
    e. Application of testing agency labels and seals.
    f. Notation of coordination requirements.
    g. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams that show factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
4. 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 two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

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 two sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manu-

facturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

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

1.7 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files may be provided to Contractor, for Contractor's use in connection with Project shop drawings, subject to the conditions on the request form.

1. Obtain request form from Architect and complete the information requested on the form.

1.8 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

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

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

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 printed 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, making appropriate reference to specification Section Number, Article and Paragraph.
3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.

d. Manufacturer's color charts, as required by Contract Documents
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Standard product operating and maintenance manuals.
h. Compliance with recognized trade association standards.
i. Notation of coordination requirements.

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 of drawings adapted from Architect's CAD/BIM Drawings are otherwise permitted.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Roughing-in and setting diagrams.
d. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
e. Compliance with specified standards.
f. Notation of coordination requirements.
g. Relationship to adjoining construction clearly indicated.
h. Seal and signature of professional engineer, if specified.
i. Notation of coordination requirements.
j. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. 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 40 inches.

D. Coordination Drawings: Comply with requirements in Division 01 Section "Project Management and Coordination."

E. Samples: Prepare physical units of materials or products, including the following:

1. 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.
2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the 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. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
b. Submit a single sample where assembly characteristics, workmanship, fabrication techniques, connections, or operations are to be demonstrated. Sample will be retained by Architect.

3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:

a. Generic description of Sample.
b. Product name or name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.

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.

F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
2. Number and name of room or space.
3. Location within room or space.

G. Delegated-Design Submittal: Comply with requirements in Division 01 Section "Quality Requirements."

H. Application for Payment: Comply with requirements in Division 01 Section "Modification and Payment Procedures."

I. Schedule of Values: Comply with requirements in Division 01 Section "Modification and Payment Procedures."

J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

A. Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit electronically, as with Action Submittals, except that Architect will log and acknowledge receipt but is not obligated to return processed Informational Submittal.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 01 Section "Quality Requirements."

B. Contractors Combined Construction Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

L. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations.

1. 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.

M. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01 Section “Operation and Maintenance Data.”

N. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

O. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement as to whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

P. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

Q. Construction Photographs and/or Video recordings: Comply with requirements in Division 01 Section Selective Demolition.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with indication in web-based Project management software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect and Architect’s consultants will not review submittals received from Contractor that do not have Contractor's review and approval.

3.2 ARCHITECT'S AND REVIEW

A. Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

F. Submittals received from sources other than Contractor will be returned by Architect without action.

G. Submittals not required by the Contract Documents will be returned by Architect without action.

END OF SECTION 01 3300

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed either as freestanding temporary built elements or as part of permanent construction.

1. Mockups are constructed to:

a. Verify selections made under Sample submittals
b. Demonstrate aesthetic effects and qualities of materials and execution
c. Review coordination, testing, or operation
d. Show interface between dissimilar materials
e. Demonstrate compliance with specified installation tolerances.

2. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
3. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements, consisting of multiple products, assemblies, and subassemblies, with cutaways enabling inspection of concealed portions of the Work.

a. Include each system, assembly, component, and part of the exterior wall and roof to be constructed for the Project. Colors of components shall be those selected by the Architect for use in the Project.

b. Where directed, sequence construction of mockup to allow for interim viewing and acceptance of stages of the Work.

4. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
5. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 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.

B. Delegated-Design Services Statement: Submit a statement 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, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are

minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, 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, indicating that the products and systems comply with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement of whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.8 QUALITY ASSURANCE

A. 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. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

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, applying, 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 licensed to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is 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 in the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical 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. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing, when required: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:

1. Provide test specimens representative of proposed products and construction.

2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
4. When required, build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
5. When required, build laboratory mockups at testing facility, using personnel, products, and methods of construction indicated for the completed Work.
6. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.
7. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, 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.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated. Refer to 'Mockup Notes' on Drawings.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding Work, fabrication, or construction.
    a. Allow seven days for initial review and each re-review of each mockup.
7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

L. Integrated Exterior Mockups, as required: Construct integrated exterior mockup as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.

1. Coordinate construction of the mockup to allow observation of air barrier installation, flashings, air barrier integration with fenestration systems, and other portions of the building air/moisture barrier and drainage assemblies, prior to installation of veneer, cladding elements, and other components that will obscure the work.

1.9 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 inspection 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, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

    a. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

2. Engage a qualified testing agency to perform quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
7. Special tests and inspections performed by the Owner shall not negate the Contractor’s responsibility for Contractor’s testing and reporting.

C. 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.

D. Testing Agency Responsibilities: Cooperate with Architect, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations 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 duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."

1. Manufacturer’s authorized representative shall attend applicable pre-installation conferences and at intervals necessary to ensure components are installed according to the Manufacturer’s standards and according to the Manufacturer’s instructions.

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives 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 inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies, unless testing agency is contracted to pick up samples from site.
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 inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Contractor-engaged Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Notifying Architect, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.

3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 4100 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This section specifies Federal and State statutes, rules, and regulations that must be followed during execution of Project Work.

1.2 REGULATORY REQUIREMENTS

A. Abide by and follow applicable Federal, State and local codes.

B. Access for Persons with Physical Disabilities: Follow ICC/ANSI A117.1 and ADA including ADA Accessibility Guidelines.

C. Fully comply with Act 247 of 1972 Session of General Assembly of Commonwealth of Pennsylvania, and ensure compliance by lower tier contractors.

D. Discrimination Prohibited: According to 62 Pa. C.S.A. § 3701, Contractor agrees that:

1. In the hiring of employees for the performance of Work under the Contract or any subcontract, no contractor, subcontractor, or any person acting on behalf of the Contractor or subcontractor may by reason of gender, race, creed, or color discriminate against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.
2. No Contractor or subcontractor or any person on their behalf may in any manner discriminate against or intimidate any employee hired for the performance of Work under the Contract on account of gender, race, creed, or color.
3. The Contract may be cancelled or terminated by the Owner and all money due or to become due under the Contract may be forfeited for a violation of the terms or conditions of that portion of the Contract.

E. Human Relations Act: The provisions of the Pennsylvania Human Relations Act, Act 222 of October 27, 1955 (P.L. 744) (43 P.S. Section 951, et. seq.) of the Commonwealth of Pennsylvania prohibit discrimination because of race, color, religious creed, ancestry, age, sex, national origin, handicap, or disability, by employers, employment agencies, labor organizations, contractors, and others. The Contractor agrees to comply with the provisions of this Act as amended that is made part of these Contract Documents. Your attention is directed to the language of the Commonwealth's non-discrimination clause in 16 PA. Code 49.101.Pennsylvania Prevailing Wage Rates: This regulation and the general Pennsylvania prevailing minimum wage rates (Act 442 of 1961, P.L. 987, amended), as determined by the Secretary of Labor and Industry, which must be paid for each craft or classification of workers needed to perform the Contract during the anticipated term thereof in the locality in which public work is performed, are made part of these Contract Documents.

F. Standard of Quality: The various materials and products specified in the Contract Documents by name or description are given to establish a standard of quality and of cost for bid purposes. It is not the intent to limit the bidder, the bid, or the evaluation of the bid to any one material or product specified but rather to describe the minimum standard. When proprietary names are used, they are followed by the words “or alternatives of the quality necessary to meet the requirements of the Contract Documents.” A bid containing an alternative which does not meet the requirements of the Contract Documents may be declared non-responsive. A bid containing an alternative may be accepted but, if an award is made to that a bidder, the bidder is required to replace any alternatives which do not meet the requirements of the Contract Documents.

G. Provision for the Use of Steel and Steel Products Made in the U.S.: In accordance with Act 3 of the 1978 General Assembly of the Commonwealth of Pennsylvania, if any steel or steel products are to be used or supplied in the performance of the Contract, only those produced in the United States as defined therein may be used or supplied in the performance of the Contract or any subcontracts thereunder.

1. In accordance with Act 161 of 1982, cast iron products are also included and must be produced in the United States. Act 144 of 1984 further defines "steel products" to include machinery and equipment. The act also provides clarifications and penalties.

H. No Cash Allowances: Cash allowances are prohibited under this Contract.

I. FBI Federal Criminal History Records for Prospective Employees:

1. (Act No. 114 of 2006; Section 111, Public School Code of Pennsylvania amended effective 1 April 2007). Act 114 of 2006 requires that independent contractors and their employees must provide to their employer a copy of their Federal Criminal History Record from the FBI. Therefore, any person working on this Project and entering upon School District property must present an official Record to the District's Business Office before beginning work. Cost of obtaining an official Record, which may not be more than 1 year old, is the responsibility of Contractors' and lower-tier contractors' employees. Notify lower-tier contractors of these requirements.

   a. PDE contracted with Cogent Systems to manage this program for the Commonwealth of Pennsylvania. The management process includes establishing a website, manning a help desk, and establishing fixed site locations for the taking of and transmitting of applicants' fingerprints.

2. Act 114 of 2006 specifies that employees (independent contractors and their employees) of public and private schools, Intermediate Units, and area vocational-technical schools hired as of 1 April 2007 must have an FBI Federal Criminal History Record. Employees must follow the multiple-step process described below.

   a. The applicant registers before going to the fingerprint site. Walk in service without prior registration is not provided at any fingerprinting location. Registration is completed online or over the phone. Registration is available online 24 hours per day seven days per week at www.pa.cogentid.com. Telephonic registration is available at 1.888.439.2486 Monday through Friday 8 am to 6 pm EST. During the registration process, demographic data for the applicant is collected (name, address, SSN, etc.) so there is no data entry required at the fingerprint collection site.
   b. The applicant pays a $40.00 fee for the fingerprint service and to secure the Criminal History Record. Applicants may make their payment online at www.pa.cogentid.com using a credit card or debit card. Money orders or cashiers checks payable to Cogent Systems are accepted on site for those applicants who do not have the means to pay electronically. No cash transactions or personal checks are accepted.

      1) Cogent Systems establishes a billing procedure for these services from an appropriate requesting agency that is willing to pay the applicant's fee. Billing only occurs after the requesting agency has completed the Cogent Systems' Agency Pay Agreement. To establish a billing account, visit the website www.pa.cogentid.com and download an application. The billing account must be established before sending applicants to the fingerprint site.

   c. The applicant proceeds to the fingerprint site of their choice for fingerprinting. The location of the fingerprint sites and days and hours of operation for each site are posted on Cogent Systems' website www.pa.cogentid.com. Fingerprint site locations may change over time therefore applicants are encouraged to confirm the site location they plan to visit.
   d. At the fingerprint site the Applicant Livescan Operators (ALO) manage the fingerprint collection process.
   e. The fingerprint transaction begins when the ALO reviews the applicant's qualified State or Federal photo ID before processing the applicant's transaction. An approved ID types list can be found on the Cogent Systems' website www.pa.cogentid.com. Applicants will not be processed if they do not produce an acceptable photo ID.
   f. After the identity of the applicant has been established, all fingers and thumbs are scanned to complete the process. The entire fingerprint capture process should take no more than 3 to 5 minutes.

g. The applicant's scanned fingerprints are electronically transmitted to the Pennsylvania State Police who in turn submits the fingerprints and demographic information to the FBI as required by federal statute.

h. PDE receives the Federal Criminal History Record from the FBI. PDE's School Services Unit returns the Federal Criminal History Record to the applicant. The Record is printed on standard 8.5-by 11-inch paper with the Commonwealth Seal imbedded in the paper. This document constitutes the official Record. If an applicant presents their Federal Criminal History Record and the Commonwealth Seal is not embedded in the paper, it is invalid and cannot be accepted as an official Record. If the applicant does not receive the Criminal History Record from PDE within 8 weeks after being fingerprinted, they should call 717.783.3750 or email PDE at dwolfgang@state.pa.us.

i. The applicant then provides the Federal Criminal History Record to their prospective employer (the School District).

3. The Act allows Administrators to employ applicants on a provisional basis for a single period not to exceed 90 days, except during a lawful strike proceeding under the provisions of the act of 23 July 1970, known as the "Public Employee Relations Act", when all of the following conditions are met:

a. the applicant has applied for the information required under subsection (b) and, where applicable, subsection (c) or (c.1) and the applicant provides a copy of the appropriate completed request forms to the Administrator;

b. the Administrator has no knowledge of information pertaining to the applicant which would disqualify them from employment pursuant to subsection (e);

c. the applicant swears or affirms in writing that they are not disqualified from employment pursuant to subsection (e);

d. if the information obtained pursuant to subsection (b), (c), or (c1) reveals that the applicant is disqualified from employment pursuant to subsection (e), the applicant must be suspended and subject to termination proceedings as provided for by law; and

e. the Administrator requires that the applicant not be permitted to work alone with children and that the applicant work in the vicinity of a permanent employee.

4.Fingerprint Corrections and Resubmissions: In circumstances where a classifiable fingerprint record was not or could not be obtained and immediately upon indication, Cogent Systems takes corrective action to resubmit or reprint the applicant at no cost to the applicant. This corrective action is completed at the earliest possible time and, when applicable, that is convenient for the applicant. Cogent Systems contacts the applicant directly if this occurs. Reprinting can be applied to each applicant one time only. If fingerprinting must take place a third time the applicant must pay the full fee.

5. Group Fingerprinting Support: When there is a requirement to fingerprint a large group of applicants (i.e. a contractor's entire staff of 120 employees). Cogent Systems and the fixed site providers try to accommodate that request. Some fingerprint service sites have the ability to bring portable equipment to your site. If you need Group Fingerprinting Support, visit www.pa.cogentid.com. Service sites in your area that have mobile equipment are listed. This mobile service requires the visited site to provide broadband internet access and access through any firewall. The sites that offer mobile services can provide you instructions in advance of their visit that allow fingerprinting at your site. Requirements for hosting a mobile Livescan operation are found at www.pa.cogentid.com.

a. We encourage you to utilize this service, but you must plan ahead. Please do not overwhelm the service by sending large groups of applicants to the fixed site locations. If you must send a large group of applicants to a fixed site, please plan for their arrival to occur over days and weeks, not over hours.

6. Confidentiality (Security) of Applicant Information: On-site access to the Livescan equipment and the data traveling from the equipment is comprehensively secured and regulated by both Cogent Systems and the regulations governing the use of that data.

a. The Computer System: Is housed within a secured network that is protected by firewall devices configured explicitly to allow only permissible protocols and traffic. Cogent Systems ensures that devices procured under this process continue to adhere to the Commonwealth's security requirements. Systems are configured to provide a point of defense with controlled access from both inside and outside the network. The Livescan systems are configured to support logging and audit capability. The Livescan system supports 128 bit encryption.

J. State Police Background Checks of Prospective Employees:

1. (Act No. 34 of 1985; Section 111, School Laws of Pennsylvania). Act 34 of 1985 requires that Contractor's employees, subcontractors, and subcontractors' employees produce reports of criminal history record from Pennsylvania State Police, or a statement from State Police that State Police central repository contains no criminal history before beginning work on School District Projects. (Different procedures apply with regard to out-of-state employees.) Thus, any person working on this Project and entering upon School District property must produce original of said statement to, and leave a copy with, the District's Business Office prior to beginning work. Cost of obtaining said statement, which may not be more than 1 year old, is responsibility of employees of Contractor or lower tier contractors (or their employers), but in no event are they responsibility of School District. Notify subcontractors of these requirements.
2. Act 34 of 1985 specifies that employees of public and private schools hired as of January 1, 1986, must undergo background checks. Job applicants must follow procedures listed below.

    a. Procedure for Pennsylvania Residents

        1) Secure Form SP4-164 - Pennsylvania State Police "Request for Criminal History Record Information." Form SP4-164 is available from School Districts and at State Police stations.
        2) Complete Parts I and IV only.

            a) Part I - Ignore SID No. and OTN or OCA No. if none or not known.
            b) Part I - Aliases includes Maiden Name.
            c) Part I - Check boxes for Noncriminal Justice Agency - Individual (Requestor Identification) and Noncriminal Justice Employment (Reason for Request).
            d) Part IV - Check box for Individual - Noncriminal Justice Agency - $10 fee enclosed. Information in Part IV is job applicant's name, address, and telephone number.

        3) Submit completed Form SP4-164 along with a check for $10 to address on reverse side of form.

            a) Make checks payable to "Commonwealth of Pennsylvania."
            b) Personal checks are acceptable.

        4) State Police return background check directly to applicant within 4 weeks.
        5) Present background checks information to prospective employer. Background check is good for 1 year from date of return to applicant.

    b. Procedure for Non-Residents.

        1) Follow same procedures outlined in Steps 1.a. and 1.b. for Pennsylvania residents, filing Form SP4-164 - Pennsylvania State Police "Request for Criminal History Record Information."
        2) Secure an FBI Fingerprint Card from School District or Pennsylvania Department of Education, Bureau of Basic Education Support Services, 333 Market Street, Harrisburg, PA 17126-0333, Telephone 1.717.783.3755.

3. (Act No. 151 of 1994; amendment to Pennsylvania Child Protective Services Law (23 Pa. C.S.A. § 6301 et seq.). Act 151 of 1994 requires that Contractor's employees, subcontractors, and subcontractors' employees produce an "Official Clearance Statement (OCS)" before beginning work on School District Projects. Thus, any person working on this project and entering upon School District property must produce original of OCS to, and leave a copy with, the District's Business Office prior to beginning work. Cost of obtaining OCS, which may not be more than 1 year old, is responsibility of employees of Contractor or lower tier contractors (or their employers), but in no event are they responsibility of School District. Notify subcontractors of these requirements.

K. Owner's Compliance in Retaining Payments: Owner retains payments in accordance with 62 Pa. C.S.A. § 3921.

L. Civil Rights Act of 1964, As Amended

1. Contractor agrees to be bound by and comply with provisions of Act of Congress of United States of July 2, 1964, commonly known as "Civil Rights Act of 1964," P.L. 88-352; 42 U.S.C.A. Section 2000a, et seq., and any and all amendments thereto, together with all Rules, Regulations, and Executive Orders issued pursuant

thereto, insofar as said Act, Rules, Regulations, and Executive Orders may be applicable to work performed under its Contract.

M. According to Act of October 26, 1972 (P.L. 1017, No. 247), 53 P.S. Section 1611, of the Commonwealth of Pennsylvania must include in all advertisements and invitations for bids for construction projects a list of those provisions of Federal and State statutes, rules, and regulations dealing with prevention of environmental pollution and preservation of public natural resources that affect a project.

1. The Contractor is hereby notified that this Project is subject to those statutes, rules, and regulations shown below or enacted since this list was complied and must be carried out in compliance with those statutes, rules, and regulations.

a. State Law

1) I. Purdon's Statutes - Title 3 (Agriculture)

a) Soil Conservation Law, Act of May 15, 1945 (P.L. 547, No.), as amended, 3 P.S. 849 et seq.

2) IX. Purdon's Statutes - Tile 35 (Health and Safety)

a) The Public Bathing Law, Act of June 23, 1931 (P.L. 899, No.), as amended, 35 P.S. 672 et seq.
b) The Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No.), as amended, 35 P.S. 691.1 et seq. and Department of Environmental Protection regulations promulgated thereunder.
c) Worker and Community Right-to-Know Act, Act of October 5, 1984 (P.L. 734, No. 159), as amended, 35 P.S. 7301 et seq. and regulations promulgated pursuant thereto.

3) XII. Purdon's Statutes - Title 52 (Mines and Mining)

a) PA Bituminous Coal Mine Act, Act of July 17, 1961 (P.L. 659, No.), as amended, 52 P.S. 701-101 et seq.
b) (Related to Abandoned Mines), Act of May 7, 1935 (P.L. 141, No.), as amended, 52 P.S. 809 et seq.
c) (Related to maps and plans), Act of June 15, 1911 (P.L. 954, No.), as amended, 52 P.S. 823.
d) Surface Mining Conservation and Reclamation Act, Act of May 31, 1945 (P.L. 1198, No.), as amended, 52 P.S. 1396.1 et seq. and Department of Environmental Resources Promulgated thereunder.
e) The Bituminous Mine Subsidence and Land Conservation Act, Act of April 27, 1966 (P.L. 31, 1st Sp. Sess., No.), 52 P.S. 1406.1 et seq.
f) (Related to cave-in or subsidence of surface above mines), Act of July 2, 1937 (P.L. 2787, No.), as amended, 52 P.S. 1407 et seq.

4) IXX. Purdon's Statutes - Title 73 (Trade and Commerce)

a) (Related to Explosives), Act of July 1, 1937 (P.L. 2681, No.), as amended, 73 P.S. 151 et seq.
b) (Related to Explosives), Act of July 10, 1957 (P.L. 685, No.), as amended, 73 P.S. 164 et seq.
c) (Related to Black Powder), Act of May 31, 1974 (P.L. 304, No. 96), as amended, 73 P.S. 169 et seq.
d) (Related to excavation and demolition), Act of December 10, 1974 (P.L. 852, No. 287), as amended, 73 P.S. 176 et seq.

5) XX. Purdon's Statutes - Title 75 (Vehicles)

a) Vehicle Code, Act of June 17, 1976 (P.L. 162, No. 81), as amended, 75 Pa. C.S.A. 101 et seq. and regulations promulgated thereto.
b) Hazardous Substances Transportation Act, Act of November 9, 1965 (P.L. 657), 75 P.S. 2401 et seq. and regulations promulgated pursuant thereto.

6) XXI. Purdon's Statutes - Title 77 (Workmen's Compensation)

a) PA Workmen's Compensation Act, Act of June 21, 1939 (P.L. 1520, No.), as amended, 77 P.S. 1 et seq.
b) PA Occupational Disease Act, Act of June 21, 1939 (P.L. 566, No. 284), as amended, 77 P.S. 1201 et seq.

7) XXII. Other Statutes

a) Amending Act 484 (August 23, 1961) bringing clay mines within the scope (Subsidence Insurance) of the Act, Act of July 1, 1971.
b) Act limiting the amount of noise produced by motor vehicles, providing noise testing and fixing penalties, Act of January 26, 1972.
c) Act regulating vehicle emission systems, Act of June 16, 1972.

b. Federal Law

1) Asbestos Hazard Emergency Response Act of 1986 [see Toxic Substances Control Act Secs. 201-214 (15 U.S.C. 2641-2654)].
2) Asbestos School Hazard Abatement Act of 1984, 20 U.S.C. 4011 et seq.
3) Asbestos School Hazard Detection and Control Act of 1980, 20 U.S.C. 3601 et seq.
4) Clean Air Act (42 U.S.C. 7401-7642) and regulations promulgated pursuant thereto.
5) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601-9675) as amended by Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499, approved 10-17-86; and regulations promulgated pursuant thereto.
6) Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001-11050).
7) Endangered Species Conservation Act of 1969, 16 U.S.C. 668aa, et seq.
8) Energy Supply and Environmental Coordination Act of 1974 (15 U.S.C. 791-798).
9) Environmental Quality Improvement Act of 1970 (42 U.S.C. 4371-4375).
10) Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136-136v) and regulations promulgated pursuant thereto.
11) Hazardous Material Transportation Act, 49 U.S.C. 1801 et seq. and regulations promulgated pursuant thereto.
12) Hazardous Substance Response Revenue Act of 1980 (see 26 U.S.C. 4611, 4612, 4661, 4662).
13) Lead-Based Paint Poisoning Prevention Act of 1971, 42 U.S.C. 4801 et seq.
14) Low-Level Radioactive Waste Policy Act (42 U.S.C. 2021b-2021d).
15) National Emission Standards Act, 42 U.S.C. 7521 et seq. and regulations promulgated thereto.
16) National Energy Conservation Act, Pub. L. No. 95-619, 92 Stat. 320b (1978) (codified in various sections of Titles 12, 15 and 42 U.S.C.).
17) National Environmental Policy Act of 1969 (42 U.S.C. 4321-4370a) and regulations promulgated pursuant thereto.
18) Noise Control Act of 1972 (42 U.S.C. 4901-4918).
19) Radon Gas and Indoor Air Quality Research Act of 1986.
20) Soil and Water Resources Conservation Act of 1977 (16 U.S.C. 2001-2009).
21) Solid Waste Disposal Act (42 U.S.C. 6901-6991i) and regulations promulgated pursuant thereto.
22) Toxic Substances Control Act (15 U.S.C. 2601-2654) and regulations promulgated pursuant thereto.
23) Wetlands Acquisition Act, 16 U.S.C. 715k-3 to 715k-5, as amended et seq. and regulations promulgated pursuant thereto.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4100

SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

1. For standards referenced by applicable building codes, comply with dates of standards as listed in prevailing building codes, as defined by applicable code enforcement authority.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities listed here, unless superseded as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities listed here, unless superseded as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations listed here, unless superseded as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.govinfo.gov.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
6. MILSPEC - Military Specification and Standards; (See DOD).

7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities listed here, unless superseded as of the date of the Contract Documents.

1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservice.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 USE CHARGES

A. General: Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide temporary generation, connections, and extensions of electrical service as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Fire safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Storage and Fabrication Facilities: Provide facilities sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Facility Protection: Conduct activities to minimize the possibility that existing facilities might be damaged from performance of the Work. Provide protective structures where necessary. Restore or repair anything damaged by construction activities to the Owner's satisfaction at no cost to the Owner.

D. Do not subject roof surfaces to traffic nor use them for material storage. Where some activity on roof surfaces is necessary, provide adequate protection such as temporary walkways.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of Owner's existing toilet facilities must be coordinated with Owner. If allowed by Owner, the facilities shall be cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that does not have a harmful effect on completed installations or elements being installed.

D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.

a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
b. Maintain negative air pressure within work area using HEPA equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
3. Perform daily construction cleanup and final cleanup using approved, HEPA filter equipped vacuum equipment.

E. Electric Power supply: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

G. Telephone Service: Provide temporary telephone service for use by construction personnel.

1. Post a list of important telephone numbers:

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Contractor's emergency after-hours telephone number.
e. Architect's office.
f. Engineers' offices.
g. Owner's office.
h. Principal subcontractors' field and home offices.

2. Provide superintendent with cellular telephone or portable two-way radio.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Maintain access for fire fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Waste Disposal Facilities: Provide waste collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."

E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

F. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

G. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Division 01 Section "Summary."
2. Comply with regulations of local municipality.

C. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

F. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire retardant treated plywood on construction operations side.
2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire retardant treated plywood.
    a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
3. Where fire resistance rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
4. Insulate partitions to control noise transmission to occupied areas.
5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
6. Protect air handling equipment.
7. Provide walk-off mats at each entrance through temporary partition.

G. Temporary Fire Protection: Install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Selection of products for use in Project
2. Product delivery, storage, and handling
3. Manufacturers' standard warranties on products
4. Special warranties
5. Comparable products

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
4. Products may also include existing materials or components required for reuse, if so specified.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not, in the judgement of the Architect, meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Division 01 Section "Submittal Procedures."

F. Whenever the words "or equal" appear in the Contract Documents, they shall be interpreted to mean "or alternatives of quality necessary to meet the specifications."

G. Substitution: Refer to Division 01 Section "Substitution Procedures" for definition and limitations on substitutions.

1.3 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

B. Provide material and equipment for incorporated into the Work that:

1. Conforms to applicable specifications and standards.
2. Complies with size, make, type, and quality specified, or as specifically approved in writing by the Architect.

C. Manufactured and Fabricated Products; Generally observe the following, unless otherwise indicated:

1. Design, fabricate, and assemble in accord with specified standards and current standard of care.
2. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
3. Two or more items of the same kind shall be identical, by the same manufacturer.
4. Products shall be suitable for service conditions.
5. Meet or exceed specified equipment capacities, and adhere to sizes, and dimensions shown or specified, unless variations are specifically approved in writing.

D. Do not use material or equipment for any purpose other than that for which it is designed or specified.

E. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

F. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.

    a. Observe referenced industry standards and prevailing building code requirements.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.
    d. Speed.
    e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, 26, 27 and 28 for additional equipment identification requirements.

1.4 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Contractor shall be responsible for the properly located, secure, and weather resistant storage as required of materials. Place materials so as not to obstruct passage on site or within building structures or in any way which causes impediment or obstruction to normal building operations.

C. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

D. Staging and Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment. Coordinate location with Owner.
2. Store products to allow for inspection and measurement of quantity or counting of units.
3. Store and protect products with manufacturer's seals and labels intact and legible.
4. Store materials in a manner that will not endanger Project structure.
    a. Do not allow excessive loads on building structure.
5. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
6. Store loose granular materials on solid surfaces such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.
    a. Provide surface drainage to prevent flow or ponding of rainwater.
    b. Prevent mixing with refuse, chemically injurious materials, or liquids.
7. Protect stored products from damage and liquids from freezing.
    a. Store cementitious products and materials on elevated platforms.
    b. Protect foam plastic and other UV- and sunlight-sensitive materials from exposure to sunlight, except to extent necessary for period of installation and concealment.
    c. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
    d. Provide substantial platforms, blocking, or skids to support fabricated products above ground, prevent soiling, or staining.
    e. For exterior storage of fabricated products, place on sloped supports, above ground.
    f. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings.
8. Provide off-site storage and protection at no additional cost to Owner when site does not permit on-site storage or protection.

E. Coordination: Coordinate delivery and storage on the jobsite of all significant materials by subcontracts and suppliers. Coordinate delivery and storage of materials on the site with the Owner.

1. Contractor is required to properly instruct material suppliers and vendors to address deliveries to them specifically by named responsible party at the jobsite and require advance notice.

2. Deliveries addressed to the project, in general, the Owner, or Architect, will be refused and returned to shipper.

    a. Owner will not be responsible for receipt, handling, and loss of materials shipped to the Owner in error and received unknowing of relationship to the project.

3. Arrange deliveries of products in accord with project construction schedules, each Contractor to coordinate the deliveries to avoid conflict of work, and to suit site conditions. Notify Owner 48 hours in advance of major deliveries.
4. Promptly inspect shipments to assure that products comply with requirements, are in manufacturer's original containers with identifying labels intact, quantities are correct, and products are undamaged.
5. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

    a. Enforce transporting and handling of products in accord with manufacturer's instructions.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Warranty Period and Timing: Comply with requirements in Division 01 Section "Closeout Procedures."

D. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or alternatives of quality necessary to meet the specifications," or "or approved equal," or "or as otherwise approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Limited List of Products “Available Products”: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

2. Non-Limited List of Products (“Products”): Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

3. Limited List of Manufacturers (“Available Manufacturers”): Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

    a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

4. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.

    a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

    a. For approval of products by unnamed manufacturers, comply with requirements in Division 01 Section "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase “match sample” or "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with requirements. Architect will select

color, gloss, pattern, density, or texture from manufacturer's product line that includes either standard or standard and premium items, as indicated.

1. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
2. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Division 01 Section "Submittal Procedures."

1. Form of Approval of Submittal: As specified in Division 01 Section "Submittal Procedures."
2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Installation of the Work.
2. Cutting and patching.
3. Progress cleaning.
4. Protection of installed construction.
5. Correction of the Work

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

C. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".

D. "Selective Demolition" is recognized as related but separate category of work, which may or may not include cutting and patching as defined in this specification.

1.3 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

    a. Contractor's superintendent.
    b. Trade supervisor responsible for cutting operations.
    c. Trade supervisor(s) responsible for patching of each type of substrate.
    d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 ACTION SUBMITTALS

A. Request for Instructions:

1. Submit a written request prior to cutting, coring, or alteration which may affect the structural safety or operational performance, including weather tightness, of any portion of the project, or for the following reasons:

    a. To uncover portions of the work for observation of covered work.
    b. To remove samples of installed materials for testing beyond that specified.
    c. To remove work to provide for alteration of previously installed work.

2. Include the following at a minimum:

    a. Identification of the project.
    b. Description of the affected work.
    c. The necessity for doing the cutting, coring, or alteration.
    d. The effect on the work of any separate contractor, or on the structural integrity or operational performance of the project.
    e. Description of the proposed work:

        1) The scope of cutting, patching, coring, or alteration.
        2) The Contractor and trades who will execute the work.
        3) Product proposed to be used.

    f. Alternatives to cutting, coring, or patching.
    g. Designation of the responsibility for the cost of cutting and patching.

3. Submit a written notice designating the date and the time the work will be uncovered.

1.5 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
    b. Provide notification to Owner in advance of service interruptions, as required in General Conditions of the Contract, Summary Sections of Division, and elsewhere in the Contract Documents.

1.6 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: Refer to Section 01 4000 "Quality Requirements."

C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Submit a plan for cutting and patching for the following types of systems and equipment:

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Plumbing piping systems.
    f. Mechanical systems piping and ducts.
    g. Control systems.
    h. Communication systems.
    i. Fire-detection and -alarm systems.
    j. Conveying systems.
    k. Electrical wiring systems.
    l. Security systems including CCTV and duress alarms.
    m. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Submit a plan for cutting and patching the following types of miscellaneous elements:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Exterior curtain-wall construction.
    d. Sprayed fire-resistive material.
    e. Fire stopping
    f. Equipment supports.
    g. Piping, ductwork, vessels, and equipment.
    h. Noise- and vibration-control elements and systems.
    i. Insulating systems.

4. Visual Elements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

E. Cutting and Patching Conference: Before proceeding, meet at the Jobsite with parties involved in cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.7 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

B. Roofing Warranty: The following warranty is in effect for this Project. Contact the manufacturer and follow its direction to keep this warranty in effect.

1. The roof section "G" at Greensburg Central Catholic High School was replaced in 2022 and is under a manufacturer's warranty. Tremco KEE roof system (fully adhered)

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. Where materials needed to comply with requirements to match adjacent work are not specified in other Sections, request additional direction, or Contract modification where appropriate, from the Architect.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; fiberoptics, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

E. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 01 3100 "Project Management and Coordination."

E. Temporary Support: Provide temporary support of Work to be cut. Confirm structural adequacy and applicable regulatory compliance of temporary supports prior to proceeding with Work.

F. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

G. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

H. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.3 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Repair or remove and replace damaged, defective, or nonconforming Work.

1. Comply with Section 01 7700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.4 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting, coring, fitting, infill, and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
2. Cut and patch existing construction damaged or defaced during new construction as required to restore to existing or better condition at the time of award of Contract.
3. Cut and patch as required to:

    a. Install or correct non-coordinated or ill-timed Work.
    b. Remove and replace defective and non-conforming Work.
    c. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit
    d. Remove samples of installed Work for testing.

4. Restore the integrity of fire rated construction at cutting and patching work.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Containment: Comply with applicable dust, noise, pollution, fire resistance, and security requirements in Section 01 5000 “Temporary Facilities and Controls”

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with Owner’s Use and notification requirements in Section 01 1000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete in compliance with coordination and other requirements of Section 01 2000 “Summary of Multiple Contracts”

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing. New work shall be indistinguishable from existing.
    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as indicated and as necessary to provide an even-plane surface of uniform appearance.
5. Structural Modifications: Where not shown on Drawings, provide work in accordance with delegated-design provisions specified, subject to Architect’s approval, or request additional information, or Contract modification, from Architect.
6. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 5000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION AND REPAIR OF INSTALLED and EXISTING CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work, Work in progress, and existing construction affected by construction activities, are without damage or deterioration at time of Substantial Completion.

1. Use proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration Work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Contain dust and debris generated by Work, and prevent it from reaching the public or adjacent surfaces.
5. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
6. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
7. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

D. Comply with manufacturer's written instructions for temperature and relative humidity.

E. Utility and Communications Services:

1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by Work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

F. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only liquid to pass.

G. Existing Roofing: Prior to the start of Work in an area, provide adequate roofing protection acceptable to Architect.

1. Where existing roofing is covered by a manufacturer's warranty, perform work in compliance with applicable manufacturer requirements.

H. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Owner's Responsibility for Fire Protection."
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

    a. If combustible material cannot be removed, provide fire blankets to cover such materials.

I. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Architect's and Owner's approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Architect and Owner at least 72 hours before each occurrence, indicating location of such work.
2. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
3. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
4. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
5. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:

    a. Train each fire watch in the proper operation of fire-control equipment and alarms.
    b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
    c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
    d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

J. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

3.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 7300

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Closeout submittals
2. Maintenance materials
3. Substantial Completion procedures.
4. Final completion procedures.
5. Punch List
6. Record Documents
7. Warranties.
8. Final adjustment of accounts
9. Final cleaning.
10. Correction and Protection of Work

1.2 DEFINITIONS

A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: Evidence of compliance with requirements of governing authorities.

1. Certificate of Occupancy.
2. Certificates of Inspection, as follows or as otherwise applicable:

a. Mechanical.
b. Electrical.
c. Food Service Equipment.
d. Fire Marshall.

B. Operating and Maintenance Data: Per requirements of Division 01 Section “Operation and Maintenance Data”.

C. Warranties and bonds.

D. Keys and Keying Schedules.

E. Spare parts and Maintenance materials.

F. Contractor's Affidavit of Payment and Debts and Claims (AIA G706) and Affidavit of Release of Liens (AIA G706A): Per requirements of General Conditions of the Contract for Construction.

G. Final Contractors Weekly Payroll Certifications.

H. Consent of Surety Company to Final Payment (AIA G707).

I. Certificate of Insurance: For continuing coverage.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Make final changeover of permanent locks and deliver keys to Owner, as specified. Advise Owner's personnel of changeover in security provisions.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
6. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
7. Advise Owner of changeover in utility services.
8. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
10. Advise Owner in changeover of heat and other utilities.
11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Complete final cleaning requirements, including touchup painting.
13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
14. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
15. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
16. Prepare and submit Project Record Documents, Operation and Maintenance Manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. At least one authorized, responsible representative of each Prime Contractor requesting inspection, with full authority to make decisions on behalf of the Contractor, shall accompany the Architect during the entirety of the inspection. Such Contractor's representatives shall consist of at least one of the following:

   a. Contractor's on-site superintendent
   b. Contractor's project manager

2. The Owner shall be invited, but not required to attend inspections.
3. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

   a. Re-inspection may result in additional costs to Contractor, to reimburse Owner for fees and costs incurred by Architect and its consultants.

4. Results of completed inspection will form the basis of requirements for Final Completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 01 2900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit Final Completion photographic documentation, where required by Contract.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will request Contractor to prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be requested.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
1. If more than one re-inspection is required, the Contractor shall be charged for the Architect's fees, in accordance with the Contract Documents.

1.7 LIST OF INCOMPLETE ITEMS (Punch List)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor, listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

    a. MS Excel Electronic File: Architect will return annotated file.

1.8 PROJECT RECORD DOCUMENTS

A. General: Submit record documents as specified in Section 01 7839 “Project Record Documents.”

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Except as otherwise indicated, submit written warranties as follows.

1. On request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or
2. When delay in submittal of warranties might limit Owner's rights under warranty, or
3. On request of Architect for designated portions of the Work that have been determined to be substantially complete, or
4. At Project Closeout for otherwise unsubmitted warranties.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit on digital media acceptable to Architect or by email to Architect.

1.10 FINAL ADJUSTMENT OF ACCOUNT

A. Submit a final statement of accounting to Architect.

B. Statement shall reflect adjustments to the Contract Sum:

1. The original Contract Sum.
2. Additions and deductions resulting from:

    a. Previous Charge Orders.
    b. Unit Prices.
    c. Deductions for uncorrected work.
    d. Deductions for liquidated damages.
    e. Deductions for re-inspection payments.
    f. Other adjustments.

3. Total Contract Sum, as adjusted.
4. Previous Payments.
5. Sum remaining due.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

C. Unless otherwise directed in writing, complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Remove tools, construction equipment, machinery, and surplus material from Project site.
4. Clean exposed exterior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
5. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
6. Remove labels that are not permanent.
7. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
8. Wipe surfaces of mechanical and electrical equipment and similar equipment.
9. Clean strainers.
10. Leave Project clean and ready for occupancy.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 PROTECTION AND REPAIR OF THE WORK

A. Provide final protection, maintain conditions that ensure that Work and existing construction are without damage or deterioration, and complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

END OF SECTION 01 7700

SECTION 01 7823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

B. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.
2. Submit three paper copies. Architect will return two copies.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

E. Comply with Section 01 7700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.5 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Architect.
7. Name and contact information for Commissioning Authority.
8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.

9. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

A. Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

1. Organization: Include a section in the directory for each of the following:

a. List of documents.
b. List of systems.
c. Table of contents, coordinated with the Project Manual.

2. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
3. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
4. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

3.2 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

1. Include emergency information that must be immediately available during emergency situations to protect life and property and to minimize disruptions to building occupants

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

3.3 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures. Include information needed for daily operation and management of systems and equipment.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.

7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

3.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

    a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts (if required): Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of maintenance manuals.

3.5 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

END OF SECTION 01 7823

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:

1) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned record prints and three set(s) of file prints.
2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files and paper copies of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories and three paper copies of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer,

subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.
f. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Architect's RFI responses.
n. Supplemental, Clarification, and Field Sketches issued during the Project
o. Field records for variable and concealed conditions.
p. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect and Owner's Representative. When authorized, assemble one full set of corrected Record Contract Drawings and Shop Drawings for submission to the Owner.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.

C. Record Electronic Files: Upon completion of the Record Drawings, scan the full set of Record Drawings into a PDF format and forward to Architect by uploading to project FTP site. Properly label with project name, number, date, and title "Final Record Drawings."

D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.

3. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

3.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file and paper copies.

3.3 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file and paper copies.

1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

3.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file and paper copies.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

3.5 RECORDING AND MAINTENANCE

A. Recording:

1. Maintain one copy of each submittal during the construction period for Project Record Document purposes.
2. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples:

1. Store Record Documents and Samples in the field office apart from the Contract Documents used for construction.
2. Do not use Project Record Documents for construction purposes.
3. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss.
4. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01 7839

SECTION 01 7900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Demonstration and training video recordings.

B. Related Sections include the following:

1. Division 01 Section “Operation and Maintenance Data” for manuals required as teaching and training materials.

1.2 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit an electronic copy of the outline for instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: For facilitator, instructor,and factory-authorized representative.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. List of training modules and duration of each.

E. Evaluations: For each participant and for each training module, submit results and documentation of performance based test.

1.3 CLOSEOUT SUBMITTALS

A. Demonstration and Training Recordings (in approved format): Submit two copies within seven days of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

a. Name of Project and Architect’s Project Number.
b. Name and address of videographer.
c. Name of Architect.
d. Name of Construction Manager.
e. Name of Contractor.
f. Name of training module(s).
g. Date of video recording.
h. Systems or operations on the recording.

2. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching operation and maintenance manuals or in PDF electronic file format on flash drive.

1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Review items of Work that require demonstration and training.
2. Review instructional procedures, including videography requirements.
3. Inspect and discuss locations and other facilities required for instruction.
4. Identify who will be instructed, and their availability.
5. Establish instruction schedule.
6. Review and verify availability of instructional materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
7. Review required content of instruction.
8. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.
9. Inspect and discuss locations and other facilities required for instruction.
10. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
11. Review required content of instruction.
12. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.5 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals.

D. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect and Construction Manager.

E. It is recognized that training systems that include equipment installed in this phase of Work but made operational in subsequent phases will necessitate training and demonstration in conjunction with completion of subsequent construction phases.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections, and as follows

1. Paging and classroom voice amplification system.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Operations manuals.
    c. Maintenance manuals.
    d. Project record documents.
    e. Identification systems.
    f. Warranties and bonds.
    g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.
    d. Regulation and control procedures.
    e. Control sequences.
    f. Safety procedures.
    g. Instructions on stopping.
    h. Normal shutdown instructions.
    i. Operating procedures for emergencies.
    j. Operating procedures for system, subsystem, or equipment failure.
    k. Seasonal and weekend operating instructions.
    l. Required sequences for electric or electronic systems.
    m. Special operating instructions and procedures.

5. Adjustments: Include the following:

    a. Alignments.
    b. Checking adjustments.
    c. Noise and vibration adjustments.
    d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

    a. Diagnostic instructions.
    b. Test and inspection procedures.

7. Maintenance: Include the following:

    a. Inspection procedures and schedule.
    b. Types of cleaning agents to be used and methods of cleaning.
    c. List of cleaning agents and methods of cleaning detrimental to product.
    d. Procedures for routine cleaning
    e. Procedures for preventive maintenance.
    f. Procedures for routine maintenance.
    g. Instruction on use of special tools.

8. Repairs: Include the following:

    a. Diagnosis instructions.
    b. Repair instructions.
    c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
    d. Instructions for identifying parts and components.
    e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Division 01 Section "Operations and Maintenance Data."

B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner, through Construction Manager, will furnish Contractor with names and positions of participants for each training session.
2. Construction Manager will coordinate between Owner and Contractor for number of participants, instruction times, and locations.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
2. One training session to be provided for each type of system, subsystem or equipment used on Project.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Using a high resolution cell phone or similar device, record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.
2. Provide video file to Construction Manager after each training.

B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.

1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training video that describes the following for each subcontractor involved on the Project, arranged according to Project table of contents:

    a. Name of Contractor.
    b. Name of installer, if different than Contractor.
    c. Business address for Contractor and for installer.
    d. Business phone number for Contractor and for installer.
    e. Point of contact for Contractor and for installer.
    f. E-mail address for Contractor and for installer.
    g. Name of subcontractor/Installer.
    h. Business address.
    i. Business phone number.
    j. Point of contact.
    k. E-mail address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.

E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.

F. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 01 7900

SECTION 27 0100 - BASIC COMMUNICATIONS SYSTEM REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 27.

B. This section is a Division 27 COMMUNICATIONS section, and is a part of each Division 27 Section.

1.2 SUMMARY

A. This Section includes general administrative and procedural requirements for Telecommunications installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 01 - reference individual sections for further expansion of these requirements:

1. Abbreviations and Definitions
2. Contractor Qualifications
3. Permits, Codes, and Inspections
4. Visiting Premises
5. Project Drawings and Specifications
6. Nameplate Data
7. Cooperation and Coordination with Other Trades
8. Submittals
9. Product Listing
10. Delivery, Storage, and Handling
11. Sequence of Work
12. Installations
13. Cleaning
14. Testing
15. Instructions to the Owner
16. Warranty
17. Operation Manuals
18. Record Documents

1.3 ABBREVIATIONS

A. General: Utilize the following abbreviations and definitions for discernment within the Drawings and Specifications.

1. Abbreviations:

a.	ANSI	American National Standards Institute
b.	ASA	American Standards Association
c.	ASTM	American Society of Testing Materials
d.	BICSI	Building Industry Consulting Services International
e.	CBM	Certified Ballast Manufacturers
f.	EC	Electrical Contractor
g.	EIA	Electronic Industries Association
h.	ETL	Electrical Testing Laboratories, Inc.
i.	GC	General Contractor
j.	HVAC	Heating, Ventilating, Air Conditioning Contractor

k.	ICEA	International Cable Engineers Association
l.	IEEE	Institute of Electrical and Electronics Engineers
m.	MC	Mechanical Contractor
n.	NEC	National Electrical Code
o.	NEMA	National Electrical Manufacturers Association
p.	NFPA	National Fire Protection Association
q.	OEM	Original Equipment Manufacturer
r.	OSHA	Occupational Safety and Health Act
s.	PC	Plumbing Contractor
t.	TIA/EIA	Telecommunications Industry Association/Electronic Industries Association
u.	UL	Underwriters' Laboratories, Inc.

1.4 DEFINITIONS

A. PROVIDE means to furnish, place, erect, connect, test, and turn over to Owner, complete and ready for the regular operation, the particular work referred to.

B. INSTALL means to join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to Owner, complete and ready for regular operation, the particular work referred to.

C. FURNISH means to supply all materials, labor, equipment, testing apparatus, controls, tests, accessories, and all other items customarily required for the proper and complete application for the particular work referred to.

D. WIRING means the inclusion of all raceways, fittings, conductors, connectors, tape, junction and outlet boxes, connections, splices, and all other items necessary and/or required in connection with such work.

E. CONDUIT means the inclusion of all fittings, hangers, supports, sleeves, etc.

F. AS DIRECTED means as directed by the Architect or their representative.

G. CONCEALED means embedded in masonry or other construction, installed behind wall furring or within double partitions or installed within hung ceilings.

H. ACCEPTED means as accepted by the Architect or their representative.

I. APPROVED means as approved by the Architect or their representative.

J. EQUAL means equivalent as approved by the Architect or their representative.

K. CONTRACTOR as stated herein shall mean Communication Contractor.

1.5 CONTRACTOR QUALIFICATIONS

A. The apparent low bidder shall demonstrate their qualifications by providing the following documents for the local area network cabling:

1. A listing of the LAST five (5) Local Area Network (LAN) systems that were installed by the bidder:

   a. The listing shall include only LANs that included the installation of fiber optic cable, unshielded twisted pair (UTP) cable, and Gigabit Ethernet equipment.
   b. The listing shall be for the last five projects, regardless of size or location, which are operational and have been turned over to the Owner.
   c. The listing shall include a brief description of the project, type of LAN, size of the system, Owner's name and address and representative, date started, and date of completion.

d. The listing shall include a letter from the Owner of each of the 5 projects. The letter shall be on the Owner's letterhead and shall be signed by an officer or authorized agent of the Owner. The letter shall state the overall satisfaction or dissatisfaction with the performance of the Contractor, and the quality of workmanship in regards to installation of the cabling, hardware, and software.

2. The bidder shall furnish a list of the names of all full-time employees that the Contractor plans to use on the project.

   a. The listing shall include each person's title, length of current employment with the company, training, and certification.
   b. The listing shall also include a resume for the Project Manager.
   c. The listing shall also include registration number and a copy of the current BICSI certificate for each RCDD.

B. All bidders shall be certified and registered by the applicable cable/connector manufacturer and submit certifications of training in the installation and maintenance of the specified systems.

C. The bidder shall furnish a list of all test equipment that will be used in the installation and testing of the fiber optics cable and the twisted pair cable.

D. All of the above documents shall be submitted within 48 hours (excluding weekends and holidays) following the Bid due date/time.

1.6 PERMITS, CODES, AND INSPECTIONS

A. General: Contractor shall obtain and pay for all permits and inspections required by laws, ordinances, rules, and regulations having jurisdiction for work included under this Contract, and shall submit approval certificates to the Architect.

B. Codes: The installation shall comply fully with all local, county, and state laws, ordinances and regulations applicable to local area network and related communication installations.

C. The installation shall be in compliance with the requirements of the latest revisions of:

1. Building Communication International (BISCI)
2. Telecommunications Industry Association/Electronic Industries Association (TIA/EIA)
3. Occupational Safety and Health Act (OSHA)
4. Institution of Electrical and Electronic Engineers (IEEE)
5. National Electric Code (NEC)
6. Underwriter's Laboratories, Inc. (UL)
7. National Electrical Manufacturer's Association (NEMA)
8. National Electrical Contractors Association (NECA)
9. National Safety Code
10. Legislative Act 235 (1965) - Handicapped
11. Legislative Act 287 (1974) - Excavation
12. International Building Code (IBC) 2003
13. Americans with Disabilities Act (ADA)
14. All approved published instructions set forth by equipment manufacturers.

D. The installation shall be in compliance with the requirements of:

1. Middle Department Inspection Agency (MDIA)

   a. Exception: Where the regulations of the local municipality require inspection services by an agency other than MDIA.

2. All local codes and ordinances in effect and having jurisdiction.

E. Submit certificates issued by approved authorized agencies to indicate conformance of all work with the above requirements, as well as any additional certificates as may be required for the performance of this contract work.

F. Should any change in Drawings or Specifications be required to comply with governmental regulations, the Contractor shall notify Architect prior to execution of the work. The work shall be carried out according to the requirements of such code in accordance with the instructions of the Architect and at no additional cost to the Owner.

G. Certificate of Inspection: The Contractor shall procure and pay for the Certificate of Inspection from MIDA, or other required inspection agency, and deliver it to the Architect before final payment is made.

1.7 VISITING PREMISES

A. General: The Bidder shall visit the project site before submitting his/her bid, in order to familiarize him/herself with existing conditions that may affect the work. It is the Contractor's responsibility to analyze existing conditions. Sufficient allowances shall be provided in the Contractor's bid to cover work, due to existing conditions, that will be required to complete this contract work.

B. By submission of a bid the Contractor is attesting that responsible personnel did, in fact, visit the site during the bidding period and verified all existing pertinent conditions.

C. Contractor shall verify all measurements and dimensions at the site prior to submitting a bid.

1.8 PROJECT DRAWINGS AND SPECIFICATIONS

A. Contractor shall carefully examine the Drawings and Specifications of all trades and report all discrepancies to the Architect in writing to obtain corrective action. No departures from the Contract Documents will be made without prior written approval from the Architect.

B. Questions or disputes regarding the intent or meaning of Contract Documents shall be resolved by the interpretation of the Architect. The Architect's interpretation is final and binding.

C. The Drawings and Specifications are not intended to define all details, finish materials, and special construction that may be required or necessary. The Contractor shall provide all installations complete and adequate as implied by the project documents.

D. Drawings are diagrammatic only and do not show exact routes of cabling and locations of equipment. The Contractor shall verify the work of all other trades and shall arrange his work to avoid conflicts. In the event of a conflict, the Contractor shall obtain corrective action from the Architect.

E. All work shall be considered new, unless noted otherwise.

PART 2 - PRODUCTS

2.1 GENERAL

A. The contractor shall not provide any products that have been discontinued or are otherwise no longer supported by the manufacturer. If a specified product has been discontinued, the contractor shall provide an equivalent product by the same manufacturer with no fewer features or functionality than that which was originally specified.

B. Major items of equipment shall have manufacturer's name, address and catalog number on a plate securely attached in a convenient place. All equipment or apparatus of any one system must be the product of one manufacturer, or approved equivalent products of a number of manufacturer's that are suitable for use in a unified system.

C. All materials and equipment for which Underwriter's Laboratories have established standards shall bear a UL label of approval.

D. In all cases where a device, function or item of equipment is herein referred to in the singular, such reference shall apply to as many such items as are required to complete the installation.

E. All listed materials and equipment shown on drawings and/or specified herein, are indicative of complete and whole units and shall be furnished as such.

F. In certain instances, specific manufacturer/model/type and catalog numbers are set out herein or on the drawings for the purpose of indicating required criteria for quality, function, and acceptable physical size. Specifications, performance data, and descriptive data published by the designated manufacturer shall be taken as minimum requirements for the item to be provided.

G. Comply with manufacturer's printed instructions and recommendations as minimum criteria for the installation of equipment.

H. Where proprietary names are used, whether or not followed by the words "or as approved", they shall be subject to substitution only as approved by the Architect.

I. Where the contractor proposes substitute equipment, he shall submit acceptable evidence to indicate compliance with all requirements of the documents, including performance rating, equivalent to the specified item. In instances where substituted equipment requires additional material or work beyond that shown or required by the specified item, said additional material or work shall be the responsibility of this Contractor, regardless of the trade involved.

J. All materials and equipment provided under this Contract shall be completely satisfactory and acceptable in operation, performance and capacity. No approval, either verbal or written, of any drawing, descriptive data or samples of such materials, equipment and/or appurtenances, shall relieve this Contractor of his responsibility to turn over all items in perfect working order at completion of the work.

2.2 NAMEPLATE DATA

A. Provide permanent operational data nameplate on each item of power operated equipment, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data. Locate nameplate in an accessible location.

PART 3 - EXECUTION

3.1 GENERAL

A. All construction under this contract shall be completed in a neat and craftsman-like manner. Work that, in the judgement of the Architect, is not satisfactorily installed shall be removed and replaced to the Architect's satisfaction, at the Contractor's expense.

B. Throughout construction, all work areas and storage areas shall be kept clean. The Contractor shall keep all items clean of dirt, rust, dust and fingermarks.

C. The Contractor shall furnish, set, erect, and maintain all scaffolding, aerial equipment and ladders required in the installation of this Contract work.

D. Install temporary platforms so as to be supported only by the existing steel truss framework. Do not allow any additional loading from construction operations to transfer to suspended lath and plaster ceilings.

E. Painting: Provide in accordance with Division 09 FINISHES Sections and as stated below.

1. Except in Mechanical Rooms, Electrical Rooms, attics, and chase spaces all exposed items provided or installed under this Contract shall be painted.
2. Unless painting is provided by others as elsewhere specified, all painting for items furnished or installed under this Contract shall be the responsibility of this Contractor.
3. Factory-painted equipment cabinets and trim shall not be field-painted except for touching up scratches or damage where necessary to achieve like-new finish. Touching up shall be done after equipment is in its final location.
4. Paint for metal surfaces shall be Rust-o-leum or as approved, one prime coat and two finish coats of color selected by Architect.
5. Items to be painted shall be cleaned and degreased and shall be free of dirt, rust and corrosion prior to application of paint. All paint shall be applied in accordance with all the manufacturer's recommendations (i.e., temperature, dew point, ventilation).

F. All patchwork performed under this Contract shall be painted. Color shall match the color of adjacent walls, ceilings and floors in which patchwork occurs. Area to be painted shall extend a minimum of 24" all around patchwork; however, final limit shall be set by the Architect. Blend new paint work with existing painted surfaces. Where existing finish is stained or varnished woodwork, all damaged or patched surfaces shall be restored to match the existing adjacent surface, as approved. Paint, stain, varnish and method of application shall be as set out in the specifications for General Construction, or as otherwise approved. Except where painting of patchwork is provided by others, as elsewhere specified, all painting of patchwork required under this Contract shall be the responsibility of this Contractor.

3.2 COOPERATION AND COORDINATION WITH OTHER TRADES

A. This Contractor shall cooperate completely and coordinate work with the contractors of other trades. Due to the Project Schedule this Contractor will be required to phase the installation in accordance with the Electrical Contractor's work.

B. Prepare floor plans, elevations, sections, and details to conclusively coordinate and integrate all installations. Indicate locations where space is limited, and where sequencing and coordination of installations are of importance to the efficient flow of the Work, including (but not necessarily limited to) the following:

1. Specific equipment installations, including, but not limited to racks for LAN equipment, racks for sound system equipment, cable television equipment, etc.
2. Where additional conduit sleeves are required in order to limit UTP cable length to 90 meters.
3. Wiring diagrams: Indicating field installed communication wiring and cabling layouts, equipment, and equipment connections.

3.3 SUBMITTALS

A. General: Follow the procedures specified in Division 1 and as stated below.

B. The Contractor shall submit a complete set of Project Documents and complete product data for the proposed system to the system vender for review prior to submission to the Architect/Engineer. The System Vender shall review the complete system package and provide documentation attesting to the system compliance with the extended system product and performance warranty. This documentation must accompany all submittals to the Architect/Engineer. Submittals will not be reviewed by the Architect/Engineer without the System Vender approval documentation.

C. Submit for approval a complete Material Source of Supply and Subcontractor list for all work required under this project. Shop drawing submittals will not be reviewed until a complete Material Source of Supply and Subcontractor list is received.

D. Submittal of shop drawings, product data, and samples will be accepted only when submitted by the Contractor. Data submitted from subcontractors and material suppliers directly to the Architect, will not be processed.

E. Prepare and submit detailed shop drawings for materials, systems, and equipment as listed herein, including locations and sizes of all required openings in floor decks, walls and floors.

F. All shop drawings must be produced electronically with digital font. Hand written notes are not allowed.

G. The work described in any shop drawing submission shall be carefully checked for all clearances (including those required for maintenance and servicing), field conditions, maintenance of architectural conditions and proper coordination with all trades on the job. Each submitted shop drawing shall include a certification that all related job conditions have been checked and that no conflict exists.

H. All shop drawings shall be stamped by the Contractor, indicating approval, and space shall be provided for the Engineer's stamp and the Architect's stamp.

I. All drawings shall be submitted sufficiently in advance of field requirements to allow ample time for checking and re-submittal as may be required. All submittals shall be complete and contain all required and detailed information.

J. Acceptance of any submitted data or shop drawings for material, equipment apparatus, devices, arrangement and layout shall not relieve the Contractor from responsibility of furnishing all items of proper dimensions, weight, capacities, sizes, quantity and quality as intended by the Contract. Such acceptance shall not relieve the Contractor from responsibility for errors, omissions, or inadequacies of any sort on submitted data or shop drawings.

K. Each shop drawing shall contain job title and reference to the applicable drawing and specification article, including the Contractor’s drawings, specifications, and verification of compatibility with the systems involved.

L. Individual shop drawing submittals shall be provided for each specific material, system or equipment as identified herein. Submittals provided in other than this manner will be return without review.

M. All nameplate data shall be complete at time of equipment submittals - refer to other sections for identification requirements.

N. For each room or area of the building containing sound system cabinets, telephone backboards, consoles, etc., coordination drawings are required to be submitted for review and acceptance at the time of the equipment submittal.

O. Equipment shall not be purchased until the shop drawing approval is received.

P. Shop Drawings shall show conformance with specified equipment characteristics, or Contractor shall assume responsibility for all deviations including all additional costs involved for the deviations.

Q. The following is a list of some important material, equipment and systems that require shop drawing approval, refer to each section of this specification for additional submittal requirements:

1. Raceways and Boxes
2. Sleeves and Seals
3. Communications Cabling
4. Intercommunications and Program System

R. Submittals shall include plan, riser and wiring diagrams complete with all wiring and required equipment.

S. Product Options:

1. The product manufacturers listed in each section are either the product the design is based on or a product that the Engineer feels would be an acceptable substitution if that product can meet the intent of the written specifications and the scheduled capacities. The Communication Contractor is responsible for ensuring that the substituted product complies with the intent of the specifications, the scheduled capacities and the drawings. Substitutions of manufacturers not listed are not permitted unless prior approval is obtained from the Engineer as required by Part 2.2, SUBSTITUTIONS, of this specification section.

2. It will be the responsibility of the Communication Contractor to pay any and all costs associated with any approved substitutions that impact the architectural layout, structure, electrical system(s), mechanical systems, and/or the plumbing systems, due to an increase in physical dimensions, weight, electrical requirements, connection sizes, etc., between the approved substitution item and the equipment item scheduled and/or indicated as the basis of design.

T. In order for the manufacturer to certify this local area network cabling system, the system components must meet the requirements of the manufacturer. Review the system with the manufacturer in accordance with their system certification program and provide a letter from the manufacturer documenting the following;

1. That the Contractor is a manufacturer certified installer.
2. That all the materials in the submittal are in accordance with the manufacturer's certification program.
3. That the manufacturer has reviewed the entire system in accordance with their certification program and the system is in compliance.

U. A system that does not have a manufacturer's certification will not be accepted.

3.4 PRODUCT LISTING

A. Prepare a listing of equipment and materials for the project.

B. Submit this listing as a part of the submittal requirement specified in Division 1.

C. When two or more items of same material or equipment are required, they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials, fasteners, and similar items used in work, except as otherwise indicated.

D. Provide products that are compatible within systems and other connected items.

3.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for distinct identification; adequately packaged and protected to prevent damage during shipment, storage and handling.

B. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect stored equipment and materials from damage.

C. Coordinate deliveries of materials and equipment to minimize construction site congestion. Limit each shipment of materials and equipment to the items and quantities needed for the smooth and efficient flow of installations.

3.6 SEQUENCE OF WORK

A. Construct work in a sequence in accordance with Division 01.

B. Due to current Project Schedule, the Contractor will be required to phase the installation in accordance with the Electrical Contractor's work.

3.7 INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work.
4. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
5. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
6. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components.
7. Coordinate the cutting and patching of building components to accommodate installation of equipment and materials.
8. Coordinate the installation of materials and equipment above ceilings with suspension system, mechanical equipment and systems, and structural components.
9. Install equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations.

3.8 CLEANING

A. Refer to the Division 1 Section for general requirements for final cleaning.

3.9 TESTING

A. Contractor, at his own expense, shall make any and all tests directed by an inspection authority, or connector manufacturer, or the Architect, and shall provide all equipment, instruments and materials to make such tests.

B. Unless otherwise approved, all terminations shall be made and all components shall be in place, complete and operational, at time of final inspection and tests.

C. Time of such tests, the manner in which they are made and the results of the tests, shall be subject to approval.

D. Upon completion of work, all component parts, both singularly and as a whole, shall be set, calibrated, adjusted, and left in satisfactory operating condition to suit load conditions, by means of instruments furnished by the Contractor.

E. Complete testing of equipment and systems shall be provided throughout this project.

F. Industry standards shall apply except as otherwise specified.

G. Provide all labor, premium labor, and materials required by field-testing as specified in the Contract Documents and as required.

H. Notify the Architect seven (7) days prior to the testing dates. Upon completion of a test, a statement of certification shall be forwarded to the Architect for his approval.

I. Conduct tests at a time agreeable to the Architect. Provide premium labor as necessary.

J. Products that are found defective or do not pass such tests shall be removed and replaced at the Contractor's expense. Tests shall be repeated.

3.10 INSTRUCTIONS TO THE OWNER

A. After the tests and adjustments have been made, approved factory-authorized system representatives and the Contractor shall fully instruct Owner in all details of operation and maintenance of equipment installed under this Contract. Dates and times of such instructions shall be as directed by Owner, including any necessary weekend or after-hours instruction.

B. Additional instruction requirements are included in each section of the Specifications.

C. The Contractor shall video tape all instruction sessions. Prepare a separate video for each system as shown on the schedule below. Clearly label the file with the title “INSTRUCTIONS FOR THE USE OF …”. Provide a copy of each video to the Owner at the completion of the Contract, ensure each video gets to the maintenance staff and the administrative staff.

D. Prepare an instructional training form indicating the topic of instruction, the date, the time, the purpose of instruction and lines for signatures of attendees. Each person attending the instruction shall print their name and sign the form. Provide a copy of the completed form to the Owner in the O&M manual as proof of instructional training. The Contractor shall keep the original in the Contractor’s project file.

E. Refer to individual system specification sections for training session length requirements.

3.11 WARRANTIES

A. Refer to the Division 1 for procedures and submittal requirements for warranties and to individual equipment specifications for additional warranty requirements. If a contradiction exists, the most demanding requirements shall prevail.

B. Compile and assemble the warranties specified in Division 27 into a separated set of vinyl covered, three-ring binders, tabulated and indexed for easy reference.

C. Provide complete warranty information for each item to include date of beginning of warranty or bond; duration of warranty or bond; and names, address, and telephone numbers and procedures for filing a claim and obtaining warranty services.

D. Warranty and Certification of the Data Network Wiring and connectors:

1. The Contractor shall provide a minimum 20-year performance and product warranty that all cable, connectors, and connecting hardware shall be free from defects in material, workmanship, and fabrication.
2. The system shall be certified by the cable/connector manufacturer and warranted for the specified performance for a minimum of 20 years. The Contractor shall conform to the manufacturer's certification program including testing and the submittal of all required documentation to the manufacturer.
3. The Contractor shall obtain from the manufacturer, a “systems application assurance” warranty for a minimum of 20 years.
4. The Contractor shall obtain, from the manufacturer, a Registration Document and Certificate for the specific installation. Upon receipt of the Registration Document and Certificate the Contractor shall forward a copy to the Engineer and deliver the original to the Owner.

E. Submit a single warranty stating that all portions of the work are in accordance with Contract requirements. Warrant all work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Owner, except that where guarantees or warranties for longer terms are specified herein, such longer term shall apply. Within 24 hours after notification, correct any deficiencies that occur during the warranty period at no additional cost to Owner, all to the satisfaction of the Owner. Obtain similar warranties from subcontractors, manufacturers, suppliers, and sub-trade specialists.

F. Any material, equipment or appurtenance whose operation or performance does not comply with the requirements of the Contract Documents or which are damaged prior to acceptance will be held as defective and shall be removed and properly replaced at no additional cost to the Owner.

3.12 OPERATION MANUALS

A. Prepare operation manuals in accordance with Division 1. In addition to the requirements specified in Division 1, include the following information for equipment items:

1. Description of function, normal operating characteristics and limitations, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's data of each piece of equipment including:

    a. Installation instructions.
    b. Drawings and Specifications.
    c. Parts list, including recommended items to be stocked.
    d. Complete wiring diagrams.
    e. Marked or changed prints locating all concealed parts and all variations from the original system design.
    f. Test and inspection certificates.

B. Format:

1. Provide five (5) copies of each manual.
2. Manuals to be 8-1/2 inches x 11 inches size in hard back 3-ring loose-leaf binders. Use more than one volume if required. Do not overfill binders.
3. Submit one (1) copy to Architect. After review and acceptance, assemble other copies.
4. Manuals to be completed and in Owner's hands prior to turning building over to Owner and at least 10 days prior to instruction to operating personnel.

3.13 RECORD DOCUMENTS

A. Prepare record documents in accordance with the requirements in Division 1.

B. When all work has been completed and before final acceptance, the Contractor shall furnish to the Architect a complete set of reproducible contract drawings clearly showing all contract work "as-built". Prior to delivery each drawing shall be signed and dated by the Contractor's project manager attesting to the accuracy of the as-built drawing.

C. In additional to the above referenced reproducible contract drawings, the Communication Contractor shall furnish to the Architect a pdf containing all of the floor plans. A pdf shall be provided to the Communication Contractor prior the completion of the project, with the drawing files from the bid set of documents. The Communication Contractor shall make changes to these files, indicating all changes made during construction, including tagging and room names. The Communication Contractor shall make these changes or retain the services of a third party to make the changes.

D. Mark up a clean set of Specifications to indicate approved substitutions, change orders and actual equipment and materials used.

3.14 LIST OF INSTALLED EQUIPMENT

A. Provide a list of all active devices installed under this contract. This list shall include both contractor furnished, contractor installed and owner furnished, contractor installed equipment.

B. Active devices shall include, but not be limited to, the following:

1. Intercom Headend Equipment
2. Network Switches

C. In Microsoft Excel format, include the following information:

1. Device Symbol as Indicated on As-Built Drawings
2. Location (Room #)
3. Manufacturer/Model
4. Serial Number
5. Manufacturer Warranty Valid Through Date
6. Static IP address (provide address) or DHCP (address not required)
7. MAC address
8. Login Credentials
9. Replacement Cost (for owner's insurance)

END OF SECTION 27 0100

SECTION 27 0526 - GROUNDING FOR COMMUNICATIONS SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies general grounding and bonding requirements of electrical and telecommunication installations for personnel safety, equipment operations and to provide a low impedance path for possible ground fault currents.

B. “Grounding electrode system” refers to all electrodes required by NEC, as well as including made, supplementary, lightning protection system and telecommunications system grounding electrodes.

C. The terms “connect” and “bond” are used interchangeably in this specification and have the same meaning.

1.2 RELATED WORK

A. Section 27 0529: Hangers and Supports for Communication System

B. Section 27 1100: Communications Equipment Room Fittings and Grounding

1.3 SUBMITTALS

A. Submit in accordance with Division 1 submittal procedures.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
2. Include the location of system grounding electrode connections and the routing of aboveground and underground grounding electrode conductors.

C. Test Reports: Provide certified test reports of ground resistance.

D. Certifications: Two weeks prior to final inspection, submit four copies of the following to the Engineer:

1. Certification that the materials and installation is in accordance with the drawings and specifications.
2. Certification, by the Contractor, that the complete installation has been properly installed and tested.

1.4 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

1. B1-2001: Standard Specification for Hard-Drawn Copper Wire
2. B8-2004: Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

C. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

1. 81-1983: IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

D. National Fire Protection Association (NFPA):

1. 70-2005: National Electrical Code (NEC)
2. 99-2005: Health Care Facilities

E. Telecommunications Industry Association, (TIA)

F. J-STO-607-D-2019: Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

G. Underwriters Laboratories, Inc. (UL):

1. 44-2005: Thermoset Insulated Wires and Cables
2. 83-2003: Thermoplastic Insulated Wires and Cables
3. 467-2004: Grounding and Bonding Equipment
4. 486A-486B-2003: Wire Connectors

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING CONDUCTORS

A. Equipment grounding conductors shall be UL 83 insulated stranded copper, except that sizes 6 mm² (10 AWG) and smaller shall be solid copper. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes 25 mm² (4 AWG) and larger shall be permitted to be identified per NEC.

B. Bonding conductors shall be ASTM B8 bare stranded copper, except that sizes 6 mm² (10 AWG) and smaller shall be ASTM B1 solid bare copper wire.

C. Isolated Power System: Type XHHW-2 insulation with a dielectric constant of 3.5 or less.

D. Telecom System Grounding Riser Conductor: Telecommunications Grounding Riser shall be in accordance with J STO-607A. Use a minimum 50mm² (1/0 AWG) insulated stranded copper grounding conductor unless indicated otherwise.

E. Electrical System Grounding: Conductor sizes shall not be less than what is shown on the drawings and not less than required by the NEC, whichever is greater.

2.2 SPLICES AND TERMINATION COMPONENTS

A. Components shall meet or exceed UL 467 and be clearly marked with the manufacturer, catalog number, and permitted conductor size(s).

2.3 TELECOMMUNICATION SYSTEM GROUND BUSBARS

A. Provide solid copper bus bar, pre-drilled from two-hole lug connections with a minimum thickness of1/4 inch for wall and backboard mounting using standard insulators sized as follows:

1. Room Signal Grounding: 12 inches x 4 inches

2.4 ROUND CONNECTIONS

A. Above Grade

1. Bonding Jumpers: compression type connectors, using zinc-plated fasteners and external tooth lock washers.

2. Ground Bus bars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.
3. Rack and Cabinet Ground Bars: one-hole compression-type lugs using zinc-plated or copper alloy fasteners.

B. Cable Shields: Make ground connections to multi-pair communications cables with metallic shields using shield bonding connectors with screw stud connection.

2.5 EQUIPMENT RACK AND CABINET GROUND BARS

A. Provide solid copper ground bars designed for mounting on the framework of open or cabinet-enclosed equipment racks with minimum dimensions of 3/8 inch thick x ¾ inch wide.

2.6 GROUND TERMINAL BLOCKS

A. At any equipment mounting location (e.g., backboards and hinged cover enclosures) where rack-type ground bars cannot be mounted, provide screw lug-type terminal blocks.

2.7 SPLICE CASE GROUND ACCESSORIES

A. Splice case grounding and bonding accessories shall be supplied by the splice case manufacturer when available. Otherwise, use 16 mm² (6 AWG) insulated ground wire with shield bonding connectors.

PART 3 - EXECUTION

3.1 GENERAL

A. Ground in accordance with the NEC, as shown on drawings, and as hereinafter specified.

3.2 INACCESSIBLE GROUNDING CONNECTIONS

A. Make grounding connections, which are buried or otherwise normally inaccessible (except connections for which periodic testing access is required) by exothermic weld.

3.3 CORROSION INHIBITORS

A. When making ground and ground bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.

3.4 TELECOMMUNICATIONS SYSTEM

A. Bond telecommunications system grounding equipment to the electrical grounding electrode system.

B. Furnish and install all wire and hardware required to properly ground, bond and connect communications raceway, cable tray, metallic cable shields, and equipment to a ground source.

C. Ground bonding jumpers shall be continuous with no splices. Use the shortest length of bonding jumper possible.

D. Provide ground paths that are permanent and continuous with a resistance of 1 ohm or less from raceway, cable tray, and equipment connections to the building grounding electrode. The resistance across individual bonding connections shall be 10 milli ohms or less.

E. Above-Grade Grounding Connections: When making bolted or screwed connections to attach bonding jumpers, remove paint to expose the entire contact surface by grinding where necessary; thoroughly clean all connector, plate and other contact surfaces; and apply an appropriate corrosion inhibitor to all surfaces before joining.

F. Bonding Jumpers

1. Use insulated ground wire of the size and type shown on the Drawings or use a minimum of 16 mm² (6 AWG) insulated copper wire.
2. Assemble bonding jumpers using insulated ground wire terminated with compression connectors.
3. Use compression connectors of proper size for conductors specified. Use connector manufacturer's compression tool.

G. Bonding Jumper Fasteners

1. Conduit: Fasten bonding jumpers using screw lugs on grounding bushings or conduit strut clamps, or the clamp pads on push-type conduit fasteners. When screw lug connection to a conduit strut clamp is not possible, fasten the plain end of a bonding jumper wire by slipping the plain end under the conduit strut clamp pad; tighten the clamp screw firmly. Where appropriate, use zinc-plated external tooth lock washers.
2. Wire way and Cable Tray: Fasten bonding jumpers using zinc plated bolts, external tooth lock washers, and nuts. Install protective cover, e.g., zinc plated acorn nuts on any bolts extending into wire way or cable tray to prevent cable damage.
3. Ground Plates and Bus bars: Fasten bonding jumpers using two-hole compression lugs. Use tin-plated copper or copper alloy bolts, external tooth lock washers, and nuts.
4. Unistrut and Raised Floor Stringers: Fasten bonding jumpers using zinc-plated, self-drill screws and external tooth lock washers.

3.5 COMMUNICATION ROOM GROUNDING

A. Telecommunications Ground Bus Bars

1. Provide communications room telecommunications ground bus bar hardware at 18 inches at locations indicated on the Drawings.
2. Connect the telecommunications room ground bus bars to other room grounding bus bars as indicated on the Grounding Riser diagram.

B. Telephone Type Cable Rack Systems: aluminum pan installed on telephone-type cable rack serves as the primary ground conductor within the communications room. Make ground connections by installing the following bonding jumpers:

1. Install a 16 mm² (6 AWG) bonding between the telecommunications ground bus bar and the nearest access to the aluminum pan installed on the cable rack.
2. Use 16 mm² (6 AWG) bonding jumpers across aluminum pan junctions.

C. Self-Supporting and Cabinet-Mounted Equipment Rack Ground Bars

1. When ground bars are provided at the rear of lineup of bolted together equipment racks, bond the copper ground bars together using solid copper splice plates supplied by the ground bar manufacturer.
2. Bond together nonadjacent ground bars on equipment racks and cabinets with 16 mm² (6 AWG) insulated copper wire bonding jumpers attached at each end with compression-type connectors and mounting bolts.
3. Provide a 16 mm² (6 AWG) bonding jumper between the rack and/or cabinet ground bus bar and the aluminum pan of an overhead cable tray or the raised floor stringer as appropriate.

D. Backboards: Provide a screw lug-type terminal block or drilled and tapped copper strip near the top of backboards used for communications cross-connect systems. Connect backboard ground terminals to the aluminum pan in the telephone-type cable tray using an insulated 16 mm² (16 AWG) bonding jumper.

3.6 COMMUNICATIONS CABLE GROUNDING

A. Bond all metallic cable sheaths in multipair communications cables together at each splicing and/or terminating location to provide 100 percent metallic sheath continuity throughout the communications distribution system.

1. At terminal points, install a cable shield bonding connector provide a screw stud connection for ground wire. Use a bonding jumper to connect the cable shield connector to an appropriate ground source like the rack or cabinet ground bar.
2. Bond all metallic cable shields together within splice closures using cable shield bonding connectors or the splice case grounding and bonding accessories provided by the splice case manufacturer. When an external ground connection is provided as part of splice closure, connect to an approved ground source and all other metallic components and equipment at that location.

3.7 COMMUNCIATIONS RACEWAY GROUNDING

A. Conduit: Use insulated 16 mm² (6 AWG) bonding jumpers to ground metallic conduit at each end and to bond at all intermediate metallic enclosures.

END OF SECTION 27 0526

SECTION 27 0529 - HANGERS AND SUPPORTS FOR COMMUNCATIONS SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Requirements of the following Division 27 Sections apply to this section:

1. Division 27 Section 27 0100 “Basic Communications System Requirements”.

1.2 SUMMARY

A. This Section includes secure support from the building structure for communication items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.

B. All supports shall utilize threaded fasteners for all connections/attachments. The use of clips or clip-on type supports is not acceptable.

C. Types of supports, anchors, sleeves, and seals specified in this section include the following:

1. Clevis hangers
2. Riser clamps
3. C-clamps
4. I-beam clamps
5. Conduit straps
6. Round steel rods
7. Lead expansion anchors
8. Toggle bolts
9. Wall and floor seals

D. Supports, anchors, sleeves, and seals furnished as part of factory fabricated equipment, are specified as part of that equipment assembly in other Division 27 sections.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Product Data: Submit manufacturer's data on supporting devices including catalog cuts, specifications, and installation instructions, for each type of support, anchor, sleeve and seal.

C. Shop Drawings: Submit dimensioned drawings of fabricated products, indicating details of fabrication and materials.

1.4 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of supporting devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.

B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing supporting device work similar to that required for this project.

C. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of supporting devices.

D. MSS Compliance: Comply with applicable MSS standard requirements pertaining to fabrication and installation practices for pipe hangers and supports.

E. NECA Compliance: Comply with National Electrical Contractors Association's "Standard of Installation" pertaining to anchors, fasteners, hangers, supports, and equipment mounting.

F. UL Compliance: Provide components that are UL listed and labeled.

G. FS Compliance: Comply with Federal Specification FF-S-760 pertaining to retaining straps for conduit, pipe, and cable.

H. Components shall be listed and labeled by ETL, CSA, or other approved, nationally recognized testing and listing agency that provides third-party certification follow-up services.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers - subject to compliance with requirements, provide products by the following:

1. Slotted Metal Angle and U-Channel Systems:

    a. Allied Tube & Conduit
    b. American Electric
    c. B-Line Systems, Inc.
    d. Cinch Clamp Co., Inc.
    e. Elcen Metal Products Company
    f. Greenfield Mfg. Co., Inc.
    g. Haydon Corporation
    h. Kin-Line, Inc.
    i. Midland-Ross Corporation
    j. Power-Strut Division; Van Huffel Tube Corporation
    k. Unistrut Diversified Products

2. Anchors:

    a. Abbeon Cal Inc.
    b. Ackerman Johnson Fastening Systems Inc.
    c. Elcen Metal Products Company
    d. Ideal Industries, Inc.
    e. Joslyn Mfg and Supply Company
    f. McGraw Edison Company
    g. Rawl Plug Co. Inc.
    h. Star Expansion Company
    i. U.S. Expansion Bolt Company
    j. Hilti, Inc.

2.2 U-CHANNEL STRUT SYSTEMS

A. Provide U-channel strut system for supporting communication equipment, 12-gauge hot-dip galvanized steel, of types and sizes indicated; construct with 9/16" diameter holes, 8" o.c. on top surface, with standard green finish, and with the following fittings which mate and match with U-channel and are of the same manufacturer:

1. Fixture hangers
2. Channel hangers
3. End caps
4. Beam clamps
5. Wiring stud
6. Thin wall conduit clamps
7. Rigid conduit clamps
8. Conduit hangers
9. U-bolts

2.3 SUPPORTING DEVICES

A. Provide supporting devices of types, sizes and materials indicated; and having the following construction features:

1. Clevis Hangers: For supporting 2" rigid metal conduit; galvanized steel; with 1/2" diameter hole for round steel rod; approximately 54 pounds per 100 units.
2. Riser Clamps: For supporting 5" rigid metal conduit; black steel; with 2 bolts and nuts; and 4" ears; approximately 510 pounds per 100 units.
3. Reducing Couplings: Steel rod reducing coupling 1/2" x 5/8"; black steel; approximately 16 pounds per 100 units.
4. C-Clamps: Black malleable iron; 1/2" rod size' approximately 70 pounds per 100 units.
5. I-Beam Clamps: Black steel, 1-1/4" x 3/16" stock, 3/8" cross bolt; flange width 2"; approximately 52 pounds per 100 units.
6. One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; approximately 7 pounds per 100 units.
7. Two-Hole Conduit Straps: For supporting 3/4" rigid metal conduit, galvanized steel; 3/4" strap width; and 2-1/8" between center of screw holes.
8. Hexagon Nuts: For 1/2" rod size; galvanized steel; approximately 4 pounds per 100 units.
9. Round Steel Rod: Black steel; 1/2" diameter; approximately 67 pounds per 100 feet.
10. Offset Conduit Clamps: For supporting 2" rigid metal conduit; black steel; approximately 200 pounds per 100 units.

2.4 ANCHORS

A. Provide anchors of types, sizes and materials indicated; and having the following construction features:

1. Lead Expansion Anchors: 1/2", approximately 38 pounds per 100 units.
2. Toggle Bolts: Springhead; 3/16" x 4"; approximately 5 pounds per 100 units.

2.5 SLEEVES AND SEALS

A. Provide sleeves and seals, of types, sizes and materials indicated, with the following construction features:

1. Wall and Floor Seals: Provide factory assembled watertight wall and floor seals, of types and sizes indicated; suitable for sealing around conduit, pipe, or tubing passing through concrete floors and walls. Construct seals with steel sleeves, malleable iron body, neoprene sealing grommets and rings, metal pressure rings, pressure clamps, and cap screws.

2.6 COATINGS

A. Coating: Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot-dip galvanized.

2.7 FABRICATED SUPPORTING DEVICES

A. General: Shop or field fabricated supports or manufactured supports assembled from U-channel components.

B. Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide supporting devices that comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation; and as herein specified. Where more than one type of supporting device meets indicated requirements, selection is Contractor’s option.

B. Install hangers, anchors, sleeves and seals as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to ensure supporting devices comply with requirements. Comply with requirements of NECA and NEC for installations of supporting devices.

C. Coordinate with the building structural system and electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work.

D. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.

E. Obtain approval from the Architect before drilling or cutting structural members.

F. Install surface mounted cabinets with minimum of four anchors.

3.2 MISCELLANEOUS SUPPORTS

A. Support miscellaneous components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, boxes, and other devices.

3.3 FASTENING

A. Unless otherwise indicated, fasten items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cable trays, cabinets, boxes, and control components in accordance with the following:

1. Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts, or expansion bolts on concrete or solid masonry, and machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.

2. Holes cut into reinforced concrete beams or in concrete shall not cut reinforcing bars. If the Contractor cuts into any reinforcing bars, stop work and notify the Architect immediately. Fill holes that are not used.
3. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration- and shock-resistant fasteners for attachments to concrete slabs.

3.4 TESTS

A. Test pull-out resistance of one of each type, size, and anchorage material for the following fastener types:

1. Expansion anchors.
2. Toggle bolts.
3. Powder driven threaded studs.

B. Provide all jacks, jigs, fixtures, and calibrated indicating scales required for reliable testing. Obtain the structural Engineer's approval before transmitting loads to the structure. Test to 90 percent of rated proof load for fastener. If fastening fails test, revise all similar fastener installations and retest until satisfactory results are achieved.

END OF SECTION 27 0529

SECTION 27 0533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this and the other sections of Division 27.

B. All Division 27 Specification Sections apply to this section.

1.2 SUMMARY

A. This Section includes raceways for electrical wiring. Types of raceways in this section include the following:

1. Conduits and fittings
2. Boxes, enclosures, and cabinets
3. Surface raceways

1.3 SUBMITTALS

A. Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:

1. Product Data - submit manufacturer's data for the following:

a. Conduits and fittings
b. Boxes, enclosures, and cabinets
c. Surface raceways

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

A. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. AFC Cable Systems/Konkore
2. Allied Tube & Conduit
3. Anamet Electrical, Inc.
4. Arlington
5. Bridgeport
6. Calconduit
7. Crouse-Hinds/Eaton
8. Electri-Flex
9. Flexotek
10. KonKore
11. Korkap
12. NEC, Inc.
13. O-Z/Gedney
14. Nucor (Republic Conduit)
15. Patriot Aluminum Products
16. Perma-Cote
17. Phoenix

18. Picoma Industries, Inc.
19. Plasti-Bond
20. RACO/Hubbell
21. Southwire Company
22. Teddico Electrical Products
23. Thomas & Betts/ABB
24. Topaz Electric
25. Western Tube
26. Wheatland Tube

B. Metallic Conduit: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1. Electrical Metallic Tubing (EMT): Comply with ANSI C80.3 and UL 797.

C. Metal Fittings: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT: Steel, compression type.
2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

2.2 SURFACE RACEWAYS

A. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. Hubbell, Inc.
2. MonoSystems, Inc.
3. Panduit Corporation
4. Wiremold/Legrand

B. Listing and Labeling: Surface raceways shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Surface Metal Raceways: Galvanized steel with Snap-On covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.

D. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials, and other fittings shall match and mate as required for complete system.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. Adalet
2. Appleton Electric/Emerson
3. Cope
4. Crouse-Hinds/Eaton
5. FSR Inc.
6. Hoffman/Pentair
7. Kraloy
8. Milbank Manufacturing
9. OZ/Gedney
10. RACO/Hubbell
11. Spring City Electrical Manufacturing
12. Steel City/Thomas & Betts Company
13. Topaz Electric

14. Wiegmann/Hubbell

B. Device Boxes:

1. Provide size as required by drawings, minimum 2-1/8 inches deep. Boxes shall be one-piece type, gangable boxes are prohibited.
2. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Pull and Junction Boxes:

1. Sheet Metal Pull and Junction Boxes: NEMA OS 1.
2. Cast Metal Pull and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
3. Boxes shall have screwed or bolted on covers of material same as box and shall be of size and shape to suit application.

D. Cabinets and Hinged Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1, Type 3R, or Type 4 with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: 14-gauge steel minimum, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Fiberglass.
3. Metal barriers to separate wiring of different systems and voltage.
4. Key latch to match panelboards.
5. Accessory feet where required for freestanding equipment.
6. Provide painted removable internal mounting panel for component installation.

E. Accessories:

1. Provide accessories as required for each installation.
2. Provide box supports, mounting ears and brackets, box extension rings, fixture studs, cable clamps and metal straps for supporting boxes, that are compatible with boxes being used to fulfill installation requirements for individual wiring situations.
3. Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes to suit respective installation requirements and applications.
4. Provide stainless steel screws and hardware unless noted otherwise.

PART 3 - EXECUTION

3.1 APPLICATION

A. Raceways

1. Minimum Raceway Size: 3/4-inch trade size.
2. Indoor Installations: Apply raceway products as specified below unless otherwise indicated:

   a. Exposed: EMT.

3. Raceway Fittings: Compatible with raceways and suitable for use and location.

   a. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.

B. Boxes, Enclosures, and Cabinets

1. Provide boxes, enclosures and cabinets and associated covers and fittings of materials and NEMA types suitable for each location and in conformance with the following requirements, unless drawings indicate a more stringent requirement:

   a. Interior Dry Locations: Sheet steel, NEMA type 1.

3.2 INSTALLATION

A. General

1. Comply with requirements in Section 27 0529 "Hangers and Supports for Communication Systems".
2. Complete installation of raceways, boxes, enclosures, and cabinets before starting conductor installation.
3. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
4. Support conduit within 12 inches of boxes, enclosures or cabinets to which attached and within 12 inches of change of direction.
5. Do not install aluminum boxes or fittings in contact with concrete or earth.
6. Install raceways square to boxes, enclosures and cabinets and terminate with locknuts. Install locknuts hand tight plus 1/4 turn more.
7. Do not rely on locknuts to penetrate nonconductive coatings on boxes, enclosures and cabinets. Remove coatings in the locknut area prior to assembling conduit to ensure a continuous ground path.
8. Prevent foreign matter from entering raceways, boxes, enclosures and cabinets by using temporary closure protection.
9. Upon completion of installation of raceways, boxes, enclosures and cabinets, inspect interiors and clear all blockages and remove burrs, dirt, and construction debris.

B. Raceways:

1. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed.
2. Make bends in raceway using either large-radius preformed elbows or field bending. Use only equipment specifically designed for material and size involved. Make bends and offsets so the inside diameter is not effectively reduced.
3. Cut conduit perpendicular to the length.
4. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-pound tensile strength. Leave at least 12 inches of slack at each end of pull wire.
5. Do not run raceways exposed on floors.
6. Do not run raceways exposed on roofs.
7. Where raceways terminate at locations subject to moisture, provide insulating bushings to protect conductors.
8. Where terminations are subject to vibration, use bonding bushings or wedges to ensure electrical continuity.
9. Indoor Raceways:

    a. Conceal conduit within finished walls, ceilings, and floors except in equipment rooms and attics/crawl spaces, unless otherwise indicated.
    b. Do not fasten conduits onto the bottom side of a metal deck roof.
    c. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
    d. Install conduits parallel or perpendicular to building lines.
    e. Where a ceiling is scheduled to be exposed to structure, all conduit shall be secure to structure to provide a clean, organized appearance. Where routed between structural elements, install conduit as high as practical.
    f. Where conduit is installed concealed in masonry walls, transition PVC conduit within masonry wall to otherwise-specified interior or exterior raceway.
    g. Terminations:

        1) Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely and install the locknuts with dished part against the box.
        2) Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box.
        3) Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder.
        4) Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.

C. Boxes, Enclosures and Cabinets:
   1. Provide support of junction and pull boxes from building structure. Do not support boxes by conduits.
   2. Mount boxes, enclosures and cabinets with fronts straight and plumb.
   3. Install surface-mounted cabinets with minimum of four anchors.
   4. Locate and install to allow access. Where installation is otherwise inaccessible, coordinate locations and sizes and provide required access doors.
   5. Coordinate masonry cutting to achieve neat openings.
   6. Locate so that cover or plate will not span different building finishes.
   7. Cap unused knockout holes where blanks have been removed and plug unused conduit hubs.
   8. Electrically ground metallic boxes, enclosures and cabinets.
   9. Where wiring to an item that includes a grounding conductor, provide a grounding terminal in the interior of the box, enclosure or cabinet.

D. Surface Raceways:

   1. Install surface raceways only where indicated on Drawings.
   2. Install surface raceway with a minimum 2-inch radius control at bend points.
   3. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

E. Sleeve and Sleeve Seal Installation for Penetrations:

   1. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 270544 "Sleeves and Seals for Communication Systems".
   2. Install firestopping at penetrations of fire rated floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Seals for Communication Systems".

3.3 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

   1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
   2. Repair damage to painted finishes using matching corrosion inhibiting touch-up coating recommended by the manufacturer.

END OF SECTION 27 0533

SECTION 27 0544 - SLEEVES AND SEALS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this and the other sections of Division 27.

B. All Division 27 Specification Sections apply to this section.

1.2 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors
2. Sleeve seal systems and fittings
3. Grout
4. Sealants
5. Firestopping

1.3 SUBMITTALS

A. Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1. Product data for the following products:

a. Sealants
b. Firestopping

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral water stop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw fastening the sleeve to the board.

2.2 SLEEVE SEAL SYSTEMS AND FITTINGS

A. Description: Provide modular mechanical type seals, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates that cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

B. Material:

1. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

C. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. Advance Products and Systems Inc.
2. Calpico
3. GPT Industries
4. MetraFlex
5. Proco Products, Inc.

2.3 GROUT

A. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.4 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Color: As selected by the Architect from manufacturer's standard colors.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.

C. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. 3M
2. Adfast
3. Dow Corning Corporation
4. GE Construction Sealants
5. Pecora Corporation
6. Rectorseal
7. Sika Corporation
8. Soudal USA
9. Tremco, Inc.

2.5 FIRESTOPPING

A. General:

1. Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
2. Equipment used shall be in accordance with the firestop manufacturer’s written installation instructions.
3. Color: Red.

B. Performance Requirements

1. Fire Test Response Characteristics:

   a. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
   b. Test per testing standards referenced in "Penetration Firestopping Systems" article. Provide rated systems complying with the following requirements:
   c. Penetration firestopping systems shall bear classification marking of a qualified testing agency.

      1) UL in its "Fire Resistance Directory."
      2) FM Global in its "Building Materials Approval Guide."

C. Penetration Firestopping Systems

1. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
2. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

   a. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

3. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

   a. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
   b. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
   c. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.

4. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479, based on testing at a positive pressure differential of 0.30-inch wg.

   a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.

5. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E 84.
6. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

   a. Permanent forming/damming/backing materials.
   b. Substrate primers.
   c. Collars.
   d. Steel sleeves.

D. Fill Materials

1. Cast-in-Place Firestop Devices: Factory assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
2. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
3. Firestop Devices: Factory assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
4. Intumescent Composite Sheets: Rigid panels consisting of aluminum foil faced intumescent elastomeric sheet bonded to galvanized steel sheet.
5. Intumescent Putties: Non-hardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
6. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

7. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
8. Pillows/Bags: Reusable heat expanding pillows/bags consisting of glass fiber cloth cases filled with a combination of mineral fiber, water insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel reinforcing wire mesh to protect pillows/bags from being easily removed.
9. Silicone Foams: Multicomponent, silicone based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.
10. Silicone Sealants: Single-component, silicone based, neutral curing elastomeric sealants.

E. Mixing

1. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

F. Manufacturers - subject to compliance with requirements, provide products of one of the following:

1. 3M
2. A/D Fire Protection Systems
3. Emerson/Nelson
4. Hilti
5. Nuco Inc.
6. PFP Partners
7. RectorSeal
8. Specified Technologies Inc.
9. Tremco, Inc.

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor shall provide sleeves where raceways pass through walls, floors, and ceilings.

B. Where piping or raceways pass through waterproofed floors or walls, design of sleeves shall be such that waterproofing can be flashed into and around the sleeves.

C. Where items pass through roofs, coordinate the installation with the roofing installer and provide an approved penetration to maintain the roof warranty.

3.2 SLEEVE INSTALLATION

A. Sleeves for Conduits Penetrating Above-Grade Concrete and Masonry Unit Floors and Walls:

1. Interior Penetrations of Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall/floor so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.

3. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during construction of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
4. Install sleeves for floor penetrations. Extend sleeves installed in floors 6 inches above finished floor level. Install sleeves during construction of floors.

B. Sleeves for Conduits Penetrating Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

C. Roof Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

D. Aboveground, Exterior Wall Penetrations: Seal penetrations using stainless steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

E. Underground, Exterior Wall and Floor Penetrations: Install cast iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.3 SLEEVE SEAL SYSTEMS AND FITTINGS INSTALLATION

A. Provide sleeve seal system for below-grade sleeves through exterior walls.

B. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

C. Install sleeve-seal fittings in new walls and slabs as they are constructed.

D. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates in accordance with manufacturer's recommended values to ensure that sealing grommets expand to make watertight seal.

E. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position water stop flange to be centered in concrete slab or wall.

F. Secure nailing flanges to concrete forms.

G. Using grout, seal the space around outside of sleeve seal fittings.

3.4 SEALANTS

A. General:

1. Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
2. Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Preparation:

1. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

a. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
b. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
c. Remove laitance and form-release agents from concrete.
d. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

2. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
3. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

H. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.5 FIRESTOPPING

A. General

1. Where conduits, conduit sleeves, wireways and other electrical raceways or cables pass through fire partitions, fire walls, fire floors, or smoke walls, provide a fire or smoke stopping that provides an effective barrier against the spread of fire, smoke or gases.
2. Provide firestopping with fire-resistance ratings indicated for floor or wall assembly in which penetration occurs.
3. Install materials in accordance with printed instructions of the UL Fire Resistance Directory and per manufacturer's published instructions.
4. All cables that are installed in conduit sleeves or in wireways through fire or smoke floors or partitions shall be provided with an equally rated re-enterable UL listed fire and smoke rated silicone RTV foam in the opening.
5. Keep areas of work accessible until inspection by applicable code authorities.

B. Preparation

1. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:

    a. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
    b. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
    c. Remove laitance and form-release agents from concrete.

C. Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

D. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

E. Install fill materials by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

F. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

G. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 27 0544

SECTION 27 0553 - IDENTIFICATION FOR COMMUNICATIONS SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Requirements of the following Division 27 Sections apply to this section:

1. Division 27 Section 27 0100 “Basic Communications System Requirements”.

1.2 SUMMARY

A. This Section includes identification of communication cables, equipment, and installations. It includes requirements for identification components including but not limited to the following:

1. Identification labeling for cables.
2. Operational instruction signs.
3. Equipment labels and signs.

B. Refer to Division 01 General Requirements Section, "Identification Systems" for equipment and system nameplates, and performance data; not work of this section.

C. Refer to other Division 27 sections for additional specific identification requirements associated with specific items.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Product Data: Manufacturer's data for each type of product specified.

C. Schedule of identification nomenclature to be used for identification signs and labels.

1.4 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of electrical or communication identification products of types required, whose products have been in satisfactory use in similar service for not less than 3 years.

B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing identification work similar to that required for this project.

C. NEC Compliance: Comply with NEC as applicable to installation of identifying labels and markers for wiring and equipment.

D. UL Compliance: Comply with applicable requirements of UL Standard 969, "Marking and Labeling Systems", pertaining to identification systems.

E. ANSI Compliance: Comply with applicable requirements of ANSI Standard A13.1 "Scheme for the Identification of Piping Systems", with regard to type and size of lettering for cable labels.

F. NEMA Compliance: Comply with applicable requirements of NEMA Standard No's. WC-1 and WC-2 pertaining to identification of control conductors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers - subject to compliance with requirements, provide products by the following (for each type marker):

1. Ideal Industries, Inc.
2. Panduit Corporation
3. Seton Name Plate Company

2.2 ELECTRICAL IDENTIFICATION PRODUCTS

A. Adhesive Marking Labels for Raceway: Pre-printed, flexible, self-adhesive labels with legend indicating voltage and service (Communications, Control, etc.).

1. Label size as follows:

a. Raceways 1 Inch and Smaller: 1-1/8 inches high by 4 inches long.
b. Raceways larger than 1 Inch: 1-1/8 inches high by 8 inches long.

B. Cable Identification Bands:

1. General: Provide manufacturer's standard plastic wrap-around cable markers, of size required for proper application, and numbered to show cable identification.

C. Equipment Labels

1. General: Provide engraving stock melamine plastic laminate, complying with FS L-P-387, in sizes and thick nesses indicated, engraved with engraver's standard letter style of the sizes and wording indicated, black face and white core plies (letter color) except as otherwise indicated, punched for mechanical fastening.
2. Thickness: 1/16" for units up to 20 sq. in. or 8" length; 1/8" for larger units.

D. Lettering and Graphics

1. General: Coordinate names, abbreviations and other designations used in identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering and wording as indicated or, if not otherwise indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of the systems and equipment. Comply with ANSI A13.1 pertaining to minimum sizes for letters and numbers.

E. Fasteners for Plastic Laminated and Metal Signs

1. Self-tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts and flat and lock washers. Exception: Where specifically approved contact type permanent adhesive may be used in areas where screws cannot or should not penetrate substrate.

PART 3 - EXECUTION

3.1 GENERAL

A. Except as otherwise indicated, provide manufacturer's standard products of categories and types required for each application. Where more than single type is specified for an application, selection is Installer's option, but provide single selection for each application.

B. Lettering and Graphics: Coordinate names, abbreviations, colors, and other designations used in identification work with corresponding designations specified or indicated. Install numbers, lettering, and colors as approved in submittals and as required by code.

C. Install identification devices as indicated, in accordance with manufacturer's written instructions and requirements of NEC.

D. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.

E. Regulations: Comply with governing regulations and requests of governing authorities for the identification of work.

3.2 CABLE IDENTIFICATION

A. Apply cable identification on each voice/data cable in each rack/cabinet and for all sound system cabling and cable television cabling. Match identification with marking system used on shop drawings, contract documents, and similar previously established identification for project's work.

B. Each cable shall be marked at both ends. For local area network, each patch cable or cross connect cable shall be marked at both ends.

C. The Contractor shall review the identification scheme with the Owner prior to commencing work. The identification scheme shown on the floor plans is based on architectural room numbers and may not necessarily be the final post-construction room numbers.

3.3 OUTLET LABEL

A. For the tele/data cabling, provide labels for each data outlet, using faceplate manufacturer’s standard label holder and recommendations of TIA/EIA.

3.4 INSTALLATION

A. Provide equipment identification labels of engraved plastic-laminate on each major unit of communication equipment in the building, including each rack, cabinet and main network switch, unless unit is specified with its own self-explanatory identification. Except as otherwise indicated, provide single line of text, with 1/2-inch high lettering on 1-1/2-inch high label (2-inch high where two lines are required), white lettering in black field. Text shall match terminology and numbering of the Contract Documents and shop drawings. Apply labels for each communication system component.

1. Paging system control equipment.

END OF SECTION 27 0553

SECTION 27 0800 - COMMISSIONING OF COMMUNICATIONS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This Section includes the minimum requirements for the test certification, identification and administration of backbone and horizontal optical fiber cabling.

B. This Section includes minimum requirements for:

1. Copper cabling test instruments
2. Copper cabling testing
3. Identification
    a. Labels and labeling
4. Administration
    a. Test results documentation
    b. As-built drawings

C. Testing shall be carried out in accordance with this document. This includes testing the attenuation and polarity of the installed cable plant with an optical loss test set (OLTS) and the installed condition of the cabling system and its components with an optical time domain reflectometer (OTDR). The condition of the fiber end faces shall also be verified.

D. Testing shall be performed on each cabling link (connector to connector).

E. Testing shall be performed on each cabling channel (equipment to equipment) that is identified by the owner.

1. Testing shall not include any active devices or passive devices within the link or channel other than cable, connectors, and splices, i.e., link attenuation does not include such devices as optical bypass switches, couplers, repeaters, or optical amplifiers.

F. All tests shall be documented including OLTS dual wavelength attenuation measurements and OTDR traces with event tables as well as OTDR maps.

1. Optionally, documentation shall also include optical length measurements and pictures of the connector end face.

G. Provide all labor, materials, tools, field-test instruments and equipment required for the complete testing, identification and administration of the work called for in the Contract Documents.

H. In order to conform to the overall project event schedule, the cabling contractor shall survey the work areas and coordinate cabling testing with other applicable trades.

I. In addition to the tests detailed in this document, the contractor shall notify the Owner or the Owner's representative of any additional tests that are deemed necessary to guarantee a fully functional system. The contractor shall carry out and record any additional measurement results at no additional charge.

J. Related Sections

1. Consult all other Sections and Divisions, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to completely test a complete and operable system.
2. Section 27 0100: “Basic Communications System Requirements”
3. Section 27 1500: “Communications Cabling”

K. Products Furnished and Installed Under Other Sections

1. Telecommunications Cabling

1.2 REFERENCES

A. Comply with Section 27 0100 “Basic Communications System Requirements” references requirements.

1.3 DEFINITIONS

A. Refer to Definitions of Sections 27 0100 and 27 1500.

B. In addition, the following list of terms as used in this specification shall be defined as follows:

1. “Adapter” (associated with fiber connectivity): Shall mean a connecting device joining 2 fiber connectors, either like or unlike.
2. “Channel”: Shall mean a testing configuration which includes the Permanent Link and the line cord (at the workstation), the equipment cord, and if a full cross connection is implemented, a patch cord and the cross connect termination/connecting apparatus.
3. “Connect”: Shall mean install all required patch cords, equipment cords, cross-connect wire, etc. to complete an electrical or optical circuit.
4. “Cord”: Shall mean a length of cordage having connectors at each end. The term “Cord” shall be synonymous with the term “Jumper”. The cord may be:
    a. Unshielded twisted pair
    b. Fiber (multimode or single mode), jacketed and buffered
5. “Launch Cord”: Shall mean the cord certified for use in fiber optic characterization testing, as described in this section.
6. “OTDR”: Shall mean Optical Time Domain Reflectometer.
7. “Passive Link Segment”: Shall mean the cable, connectors, couplings, and splices between two fiber optic termination units.
8. “Permanent Link”: Shall mean the ‘permanent’ portion of the Horizontal cabling to each outlet with the test cords de-embedded from the measurements; this includes cable, consolidation point (if used), termination/connecting apparatus in the IDF and the connector at the outlet.
9. “System Cord”: Shall mean the cord used in the operating electrical or optical circuit.
10. “Test Cord”: Shall mean the cord certified for use in testing, as described in this section.

1.4 SYSTEM DESCRIPTION

A. Work Provided Under Other Sections

1. Refer to Section 27 1500 for a complete System Description.

1.5 SUBMITTALS

A. Preconstruction Submittal Requirements:

1. Testing Procedures Submittal, describing step-by-step procedures used by the field technicians.
2. Product Submittal, including cut sheets of testing equipment to be used (note all software/firmware versions as applicable) and certificate of last calibration.

B. Submittal Requirements at Closeout

1. Record Documents.

C. Submittal Description: Record Documents

1. Test Reports: Record documents submittal shall include test reports showing the following information:
    a. A title page which includes:
        1) Client Name
        2) Project Name
        3) Project Address
        4) General Contractor name / Telecommunications Installer name
        5) Date of Submittal
    b. Individual tabs which break down the test results by building, and then by telecommunications room.
    c. All Backbone Fiber Optic “Post Installation” Passive Link Attenuation test results (utilize the forms provided in Part 4 of this specification for documentation of test results if the tester used does not have data storage capabilities) and Fiber Optic OTDR test results.
    d. All Backbone UTP test results.
    e. All Horizontal cable test results, per cable
2. Furnish all test results on CD-ROM in their native data format and an exported Microsoft Excel compatible format.
    a. Include all necessary software to allow viewing and printing of individual test results.
    b. CD shall be labeled with the project name, contractor name, and date of submission.

1.6 QUALITY ASSURANCE

A. Comply with the Quality Assurance requirements of Section 27 0100 “Basic Communications Systems Requirements”.

B. All testing procedures and field-test instruments shall comply with applicable requirements of:

1. ANSI/TIA-1152, Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
2. ANSI/TIA-568-0. D, Generic Telecommunications Cabling for Customer Premises.
3. ANSI/TIA-568-1. D, Commercial Building Telecommunications Cabling Standard
4. ANSI/TIA-568-C.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standards.
5. ANSI/TIA-606-B, Administration Standard for Commercial Telecommunications Infrastructure, including the requirements specified by the customer, unless the customer specifies their own labeling requirements.

C. Trained technicians who have successfully attended an appropriate training program, which includes testing with an OLTS and an OTDR and have obtained a certificate as proof thereof shall execute the tests. These certificates may have been issued by any of the following organizations or an equivalent organization:

1. Manufacturer of the connectors or cable.
2. Manufacturer of the test equipment used for the field certification.

3. Training organizations (e.g., BICSI, A Telecommunications Association headquarters in Tampa, Florida; ACP [Association of Cabling Professionals™] Cabling Business Institute located in Dallas, Texas)

D. The Owner or the Owner's representative shall be invited to witness and/or review field-testing.

1. The Owner or the Owner's representative shall be notified of the start date of the testing phase five business days before testing commences.
2. The Owner or the Owner's representative will select a random sample of five percent of the installed links. The Owner or the Owner's representative shall test these randomly selected links and the results are to be stored in accordance with Part 3 of this document. The results obtained shall be compared to the data provided by the installation contractor. If more than two percent of the sample results differ in terms of the pass/fail determination, the installation contractor under supervision of the representative shall repeat one hundred percent testing at no cost to the Owner.

1.7 WARRANTY

A. Warrant the validity of the test results. Under no circumstances shall any cable's test results be substituted for another's. If a single instance of falsification is confirmed, the Contractor shall be liable for a complete retest of the cabling system at no additional cost to the Owner. This includes the retaining the services of a neutral party to observe all retesting.

PART 2 - PRODUCTS

2.1 GENERAL

A. The manufacturer may change the product numbers listed in this Section at any time, as well as software and firmware versions. In the event this Section contains an invalid product number or conflicts with the written description, or specifies an out-of-date software and/or firmware version, notify the Engineer in writing prior to issuing submittals or field testing.

2.2 BALANCED TWISTED-PAIR CABLE TESTERS

A. The field-test instrument shall be within a 12 month calibration period.

B. Certification tester

1. Accuracy
    a. Level IIIe accuracy in accordance with ANSI/TIA-1152-A
    b. Independent verification of accuracy shall be provided
    c. Acceptable manufacturer
        1) Fluke Networks
2. Permanent Link Adapters
    a. RJ45 plug must meet the requirements for NEXT, FEXT and Return Loss in accordance with ANSI/TIA-568-C.2 Annex C
    b. Twisted pair Category 5e, 6, 6A, 7 or 7_A cords are not permitted as their performance degrades with use and can cause false Return Loss failures
3. Results Storage
    a. Must be capable of storing > 10,000 results for all measurements found in 2.1.B.4 below
4. Measurement capabilities

a. Wire Map
b. Length
c. Propagation Delay
d. Delay Skew
e. DC Loop Resistance
f. DC Resistance Unbalance within a pair
g. DC Resistance Unbalance between pairs
h. Insertion Loss
i. NEXT (Near-End Crosstalk)
j. PS NEXT (Power Sum Near-End Crosstalk)
k. ACR-N (Attenuation to Crosstalk Ratio Near-End)
l. PS ACR-N (Power Sum Attenuation to Crosstalk Ratio Near-End)
m. ACR-F (Attenuation to Crosstalk Ratio Far-End)
n. PS ACR-F (Power Sum Attenuation to Crosstalk Ratio Far-End)
o. Return Loss
p. TCL (Transverse Conversion Loss)
q. ELTCTL (Equal Level Transverse Conversion Transfer Loss)
r. Time Domain Reflectometer
s. Time Domain Xtalk Analyzer
t. PS ANEXT (Power Sum Alien Near-End Crosstalk)
u. Average PS ANEXT (Average Power Sum Alien Near-End Crosstalk)
v. PS AACR-F (Power Sum Alien Attenuation to Crosstalk Ratio Far-End)
w. Average PS AACR-F (Average Power Sum Alien Attenuation to Crosstalk Ratio Far-End)

2.3 IDENTIFICATION

A. Labels

1. Shall meet the legibility, defacement, exposure and adhesion requirements of UL 969.
2. Shall be preprinted using a mechanical means of printing (e.g., laser printer).
3. Where used for cable marking, provide vinyl substrate with a white printing area and a clear “tail” that self laminates the printed area when wrapped around the cable. If cable jacket is white, provide cable label with printing area that is any other color than white, preferably orange or yellow – so that the labels are easily distinguishable.
4. Where insert type labels are used provide clear plastic cover over label.
5. Provide plastic warning tape 6 inches wide continuously printed and bright colored 18” above all direct buried services, underground conduits and duct-banks.
6. Acceptable Manufacturers:

    a. Panduit
    b. Silver Fox
    c. W.H. Brady
    d. d-Tools
    e. Brother
    f. Dymo
    g. Epson

2.4 ADMINISTRATION

A. Administration of the documentation shall include test results of each fiber link and channel.

B. Administration of the documentation shall include test results of each Permanent Link.

C. The test result information for each link shall be recorded in the memory of the field-test instrument upon completion of the test.

D. The test result records saved within the field-test instrument shall be transferred into a Windows-based and/or cloud-based database utility that allows for the maintenance, inspection and archiving of these test records.

E. The test result records saved within the field-test instrument shall be transferred to LinkWare PC via LinkWare Live.

PART 3 - EXECUTION

3.1 SCHEDULING

A. Schedule both the Engineer of Record and a representative of the test equipment manufacturer for a demonstration of testing methods. Execute a demonstration of testing methods with aforementioned parties prior to 'production' testing activities. Test reports and acceptance testing will not be accepted without proof of methods demonstration.

3.2 FIELD QUALITY CONTROL

A. Complete testing as delineated below prior to system acceptance.

B. Permanently record all test results and presented in a format acceptable to the Owner or Engineer before system acceptance.

C. Remove and replace with new, at no cost to the Owner, any cables or conductors (copper or glass) failing to meet the indicated standards. The Owner will not accept the installation until testing has indicated a 100% availability of all cables and conductors or the Owner has approved any deviation from this requirement.

D. Calibrate test sets and associated equipment per the manufacturers printed instructions at the beginning of each day's testing and after each battery charge. Fully charge the test sets prior to each day's testing to ensure proper operation.

3.3 BALANCED TWISTED PAIR CABLE TESTING

A. Precautions:

1. Adhere to the equipment manufacturer's instructions during all testing.
2. Prior to any testing activity or any measurements taken, ensure the test equipment is at room temperature - approximately 70°F (e.g., if necessary, bring the test equipment in from outdoors and let it set for about 15 minutes or for however long it takes to bring the test equipment to reach room temp).
3. Fully charge power sources before each day's testing activity

B. Field-test instruments shall have the latest firmware installed.

C. Permanent Link test results, including the individual frequency measurements from the tester, shall be recorded in the test instrument upon completion of each test for subsequent uploading to LinkWare PC via LinkWare Live in which the administrative documentation (reports) may be generated.

D. Permanent Link testing shall be performed on each cabling segment (connector to connector). Sampling is not acceptable.

E. Alien Crosstalk testing shall be performed using a sampling plan. An acceptance quality level (AQL) of 0,4 %, normal inspection, general inspection level I as defined in ISO 2859-1 for populations of up to 500,000 links shall be used. The following table represents this sampling level.

Total number of links (N)	Sample size (No. of links to test)
3 – 33	3 or 0.1 x N (Whichever is greatest)
34 – 3,200	33
3,201 – 35,000	126
35,001 – 150,000	201
150,001 – 500,000	315

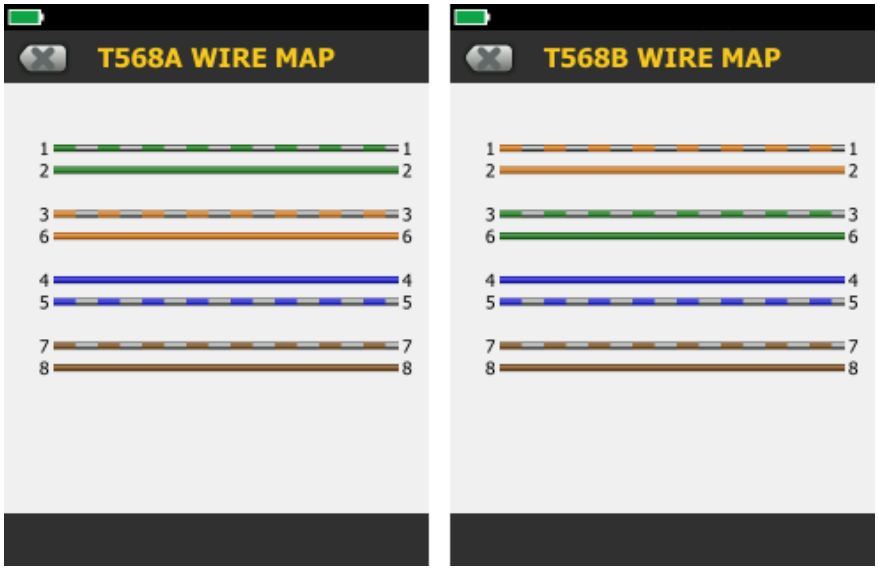
F. Disturbed (Victim) links chosen for Alien Crosstalk testing shall be an equal combination of short, medium and long links.

G. Permanent Link adapters made from twisted pair Category 5e, 6, 6A, 7 or 7_A cords are not permitted as their performance degrades with use and can cause false Return Loss failures.

H. The installer shall build a reference link. All components shall be anchored so it is not possible to disturb them. The technician is to conduct a Category 6A Permanent Link test each day to ensure no degradation of the tester or its Permanent Link adapters.

I. Wire Map Measurement

1. The wire map test is intended to verify pin-to-pin termination at each end and check for installation connectivity errors.
2. For each of the eight conductors in the cabling, the wire map indicates:
    a. Continuity to the remote end
    b. Shorts between any two or more conductors
    c. Reversed pairs
    d. Split pairs
    e. Transposed pairs
    f. Distance to open on shield
    g. Any other miss-wiring
3. The correct connectivity of telecommunications outlets/connectors is defined in ANSI/TIA-568-C.2. Two color schemes are permitted. The user shall define which scheme is to be used. The field tester shall document which color scheme was used. Examples are given below:



J. Length Measurement

1. The length of each balanced twisted pair shall be recorded.
2. Since physical length is determined from electrical length, the physical length of the link calculated using the pair with the shortest electrical delay shall be reported and used for making the pass or fail determination.
3. The pass or fail criteria is based on the maximum length allowed for the Permanent Link as specified in ANSI/TIA-568-C.2 plus the nominal velocity of propagation (NVP) uncertainty of 10%. For a Permanent Link, the length measurement can be 325 ft. (99 m) before a failure is reported.

K. Propagation Delay measurement

1. Is the time it takes for a signal to reach the end of the link.
2. The measurement shall be made at 10 MHz per ANSI/TIA-1152.
3. The propagation delay of each balanced twisted pair shall be recorded.
4. Is not to exceed 498 ns per ANSI/TIA-568-C.2 Section 6.3.18.

L. Delay Skew measurement

1. Is the difference in propagation delay @ 10 MHz between the shortest delay and the delays of the other wire pairs.
2. The delay skew of each balanced twisted pair shall be recorded.
3. Is not to exceed 44 ns per ANSI/TIA-568-C.2 Section 6.3.19.

M. DC Loop Resistance

1. Often reported as Resistance, is the DC loop resistance of both conductors in the pair.
2. The DC Resistance shall be reported for all four pairs.
3. Is not to exceed 21 Ω for all four pairs per ANSI/TIA-568-C.2 Section 6.3.1.

N. DC Resistance Unbalance within a pair

1. Is the difference in DC resistance of the two wires within the same pair.
2. The DC Resistance Unbalance within a pair shall be reported for all four pairs.
3. Is not to exceed 200 mΩ or 3%, whichever is the greatest per ANSI/TIA-568-C.2 Section 6.2.2.

O. DC Resistance Unbalance between pairs

1. Is the difference in DC parallel resistance of the conductors of a pair compared to the DC parallel resistance of another pair, given in the formula below:

$$Resistance_Unbalance_{Between_pairs} = \left(\frac{|R_{P1} - R_{P2}|}{R_{P1} + R_{P2}} \right) 100\%$$

Where:

R_{P1} is the DC parallel resistance of the conductors of a pair.

R_{P2} is the DC parallel resistance of the conductors of another pair.

2. The DC Resistance Unbalance shall be reported for the following pairs
   a. 1,2-3,6
   b. 1,2-4,5
   c. 1,2-7,8
   d. 3,6-4,5
   e. 3,6-7,8
   f. 4,5-7,8
3. Is not to exceed 200 mΩ or 7.5%, whichever is the greatest.

P. Insertion Loss

1. Is the loss of signal strength over the cabling (in dB).
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in one direction for all four pairs.
4. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).
5. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.7.

Q. NEXT (Near-End Crosstalk)

1. Is the difference in amplitude (in dB) between a transmitted signal and the crosstalk received on other wire pairs at the same end of the cabling.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in both directions for the following pair combinations
    a. 1,2-3,6
    b. 1,2-4,5
    c. 1,2-7,8
    d. 3,6-4,5
    e. 3,6-7,8
    f. 4,5-7,8
4. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.8.
5. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).
6. The Time Domain Xtalk data shall be stored for any marginal or failing NEXT results.

R. PS NEXT (Power Sum Near-End Crosstalk)

1. Is the difference (in dB) between the test signal and the crosstalk from the other pairs received at the same end of the cabling.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in both directions for all four pairs.
4. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.9.
5. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).
6. The Time Domain Xtalk data shall be stored for any marginal or failing PS NEXT results.

S. ACR-N (Attenuation Crosstalk Ratio Near-End)

1. Is a calculation of NEXT minus Insertion Loss of the disturbed pair in dB.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz

3. Both worst case and worst margins shall be reported in both directions for the following pairs

    a. 1,2-3,6
    b. 1,2-4,5
    c. 1,2-7,8
    d. 3,6-4,5
    e. 3,6-7,8
    f. 4,5-7,8

4. Although not specified in ANSI/TIA-568-C.2, it shall be recorded for all twelve possible combinations.

T. PS ACR-N (Power Sum Attenuation Crosstalk Ratio Near-End)

1. Is a calculation of PS NEXT minus Insertion Loss of the disturbed pair in dB.
2. The frequency resolution shall be:

    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz

3. Both worst case and worst margins shall be reported in both directions for all four pairs.5
4. Although not specified in ANSI/TIA-568-C.2, it shall be recorded for all eight possible combinations.

U. ACR-F (Attenuation Crosstalk Ratio Far-End)

1. Is a calculation of FEXT minus Insertion Loss of the disturbed pair in dB.
2. The frequency resolution shall be:

    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz

3. Both worst case and worst margins shall be reported in both directions for the following pairs

    a. 1,2-3,6
    b. 1,2-4,5
    c. 1,2-7,8
    d. 3,6-1,2
    e. 3,6-4,5
    f. 3,6-7,8
    g. 4,5-1,2
    h. 4,5-3,6
    i. 4,5-7,8
    j. 7,8-1,2
    k. 7,8-3,6
    l. 7,8-4,5

4. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.11.
5. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).

V. PS ACR-F (Power Sum Attenuation to Crosstalk Ratio Far-End)

1. Is a calculation of PS FEXT minus Insertion Loss of the disturbed pair in dB.
2. The frequency resolution shall be:

    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz

3. Both worst case and worst margins shall be reported in both directions for all four pairs.
4. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.13.
5. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).

W. Return Loss

1. Is the difference (in dB) between the power of a transmitted signal and the power of the signals reflected back.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in both directions for all four pairs.
4. Shall be ignored at all frequencies where the Insertion Loss is less than 3 dB for that pair.
5. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.6.
6. Reported margins found to be within the accuracy of the field tester shall be marked with an asterisk (*).
7. The Time Domain Reflectometer data shall be stored for any marginal or failing Return Loss results.

X. TCL (Transverse Conversion Loss)

1. Is the ratio (in dB) between a differential mode signal inject at the near-end and the common-mode signal measured at the near-end on the same wire pair.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in both directions for all four pairs.
4. Is not to exceed the Category 6A limits found ANSI/TIA-568-C.2 Section 6.2.14.

Y. ELTCTL (Equal Level Transverse Conversion Transfer Loss)

1. Is the ratio (in dB) between a differential mode signal inject at the near-end and the common-mode signal measured at the far end on the same wire pair minus the Insertion Loss of that pair.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Both worst case and worst margins shall be reported in both directions for all four pairs.
4. Is not to exceed the Category 6A limits found in ANSI/TIA-568-C.2 section 6.2.16.

Z. PS ANEXT (Power Sum Alien Near-End Crosstalk)

1. Takes into account the combined alien crosstalk (statistical) on a receive pair from all external near-end disturbers operating simultaneously.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. The disturbed (victim) link shall have disturber links to the left and right of it and if present, links above and below it.

4. Disturber cables shall include all links within the same bundle as the disturbed (victim) link and adjacent links
5. Should be measured in both directions if the link is patch panel to patch panel. If the link is patch panel to telecommunications outlet, then it shall be measured from the patch panel end only.
6. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.21.

AA. Average PS ANEXT (Power Sum Alien Near-End Crosstalk)

1. Is calculated by averaging the individual PSANEXT loss values, in dB, for all four pairs in the disturbed (victim) link.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.22.

BB. PS AACR-F (Power Sum Alien Attenuation to Crosstalk Ratio Far-End)

1. AFEXT loss is the coupling of crosstalk at the far-end from external link pairs into a disturbed (victim) pair of the 4-pair link under test. PS AACR-F is the calculated power sum from all external pairs into the disturbed (victim) pair.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. The disturbed (victim) link shall have disturber links to the left and right of it and if present, links above and below it.
4. Disturber cables shall include all links within the same bundle as the disturbed (victim) link and adjacent links
5. Should be measured in both directions if the link is patch panel to patch panel. If the link is patch panel to telecommunications outlet, then it shall be measured from the patch panel end only.
6. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.25.

CC. Average PS AACR-F (Power Sum Alien Attenuation to Crosstalk Ratio Far-End)

1. Is calculated by averaging the individual PS AACR-F values, in dB, for all four pairs in the disturbed (victim) link.
2. The frequency resolution shall be:
    a. 1 – 31.25 MHz: 150 kHz
    b. 31.25 – 100 MHz: 250 kHz
    c. 100 – 250 MHz: 500 kHz
    d. 250 – 500 MHz: 1000 kHz
3. The disturbed (victim) link shall have disturber links to the left and right of it and if present, links above and below it.
4. Disturber cables shall include all links within the same bundle as the disturbed (victim) link and adjacent links
5. Should be measured in both directions if the link is patch panel to patch panel. If the link is patch panel to telecommunications outlet, then it shall be measured from the patch panel end only.
6. Is not to exceed the Category 6A Permanent Link limits found in ANSI/TIA-568-C.2 Section 6.3.26.

DD. Administration

1. Test results documentation

a. The Permanent Link test results (excluding alien xtalk testing) shall be uploaded to LinkWare Live at the end of each working day for inspection by the Owner or the Owner's representative.
b. Test results uploaded to LinkWare Live shall be transferred into LinkWare PC to allow for the maintenance, inspection and archiving of the test records.
c. The database for the complete project, including fiber links, if applicable, shall be stored in LinkWare PC format (*.flw) and delivered on CD or DVD prior to Owner acceptance of the building. This CD or DVD shall include a copy of LinkWare PC to allow the inspection and printing of the test reports.
d. Circuit IDs reported by the test instrument should match the specified label ID (see 2.2 of this Section).
e. For Permanent Link testing, the detailed test results documentation data is to be provided in LinkWare PC for each tested balance twisted-pair and shall contain the following information

1) Measured values of minimum requirements.
2) The overall Pass/Fail evaluation of the link-under-test
3) The date and time the test results were saved in the memory of the tester
4) The identification of the customer site as specified by the end-user
5) The name of the test limit selected to execute the stored test results
6) The name of the personnel performing the test
7) The version of the test firmware and the version of the test limit database held within the test instrument
8) The manufacturer, model and serial number of the field-test instrument
9) The adapters used
10) The factory calibration date
11) Wire Map
12) Propagation Delay values, for all four pairs
13) Delay Skew values, for all four pairs
14) DC Resistance values, for all four pairs
15) DC Resistance Unbalance within a pair, values for all four pairs
16) DC Resistance Unbalance between pairs, values for all four pairs
17) Insertion Loss, worst case values for all four pairs
18) NEXT, worst case margin and worst case values, both directions
19) PS NEXT, worst case margin and worst case values, both directions
20) ACR-N, worst case margin and worst case values, both directions
21) PS ACR-N, worst case margin and worst case values, both directions
22) ACR-F, worst case margin and worst case values, both directions
23) PS ACR-F, worst case margin and worst case values, both directions
24) Return Loss, worst case margin and worst case values, both directions
25) TCL, worst case margin and worst case values, both directions
26) ELTCTL, worst case margin and worst case values, both directions.
27) Time Domain Crosstalk data if the link is marginal or fails
28) Time Domain Reflectometer data if the link is marginal or fails

f. For Alien Crosstalk testing, the detailed test results documentation data is to be provided in AxTalk Analyzer for each tested balance twisted-pair and shall contain the following information

1) The overall Pass/Fail evaluation of the link-under-test
2) The date and time the measurements were made
3) The identification of the customer site as specified by the end-user
4) The name of the test limit selected to execute the stored test results
5) The name of the personnel performing the test
6) The version of the test software
7) PS ANEXT, worst case margin for all four pairs
8) Average PS ANEXT, worst case margin
9) PS AACR-F, worst case margin for all four pairs
10) Average PS AACR-F, worst case margin

END OF SECTION 27 0800

SECTION 27 1100 - COMMUNICATIONS EQUIPMENT ROOM FITTINGS AND GROUNDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Requirements of the following Division 27 Sections apply to this section:

1. Division 27 Section 27 0100 “Basic Communications System Requirements”.

1.2 SUMMARY

A. This section includes the following:

1. Racks

B. This Section includes solid grounding of communications systems and equipment. It includes basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other sections of these Specifications.

C. The Electrical Contractor shall be responsible for grounding equipment provided in the Electrical Contract, HVAC Contract, Plumbing Contract, and General Contract.

D. The Communication Contractor shall be responsible for proper grounding of all racks, cabinets, and active components as shown on the Drawings and as specified herein.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Product data for connectors and connection materials, and grounding fittings.

C. Field testing organization certificate, signed by the Contractor, certifying that the organization performing field tests complies with the requirements specified in Quality Assurance below.

D. Report of field tests and observations certified by the testing organization.

1.4 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of electrical connectors, terminals and fittings of types and ratings required, and ancillary grounding materials, including stranded cable, copper braid and bus, whose products have been in satisfactory use in similar service for not less than 3 years.

B. Installer: Qualified with at least 3 years of successful installation experience on projects with communications grounding work similar to that required for project.

C. Listing and Labeling: Provide products specified in this Section that are listed and labeled. The terms "listed" and "labeled" shall be defined as they are in the National Electrical Code, Article 100.

1. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

D. Field Testing Organization Qualifications: To qualify for acceptance, the independent testing organization must demonstrate, based on evaluation of organization-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated.

E. Electrical Component Standard: Components and installation shall comply with NFPA 70, "National Electrical Code" (NEC).

F. UL Compliance: Comply with applicable requirements of UL Standards Nos. 467 and 869 pertaining to grounding and bonding.

G. IEEE Compliance: Comply with applicable requirements of IEEE Standard 142 and 241 pertaining to grounding.

1.5 DESCRIPTION OF WORK

A. The Communications Contractor shall furnish and supply all equipment, including but not limited to, equipment racks, cabinets, mounting hardware, and all associated equipment necessary to provide a complete and operating system.

B. All bids shall be based on equipment as specified herein. All alternate equipment must be approved ten (10) days prior to bid date. Adequate information must be made available for a evaluation and approval of alternate equipment.

C. Contractor shall furnish a manufacturer's manual of the completed system including individual specification sheets, schematics, inter-panel and intra-panel wiring diagrams. In addition, all information necessary for the proper maintenance and operation of the system must be included. Any bidder using other than the specified equipment must provide this information prior to bidding. All published specifications of the manufacturers of equipment specified shall be considered as being a part of this specification, even though they have not been included in detail.

D. As-built drawings that include any changes to wiring, wiring designations, junction box labeling and any other pertinent information shall be supplied upon completion of project. Refer to Section 270100 “Basic Communications System Requirements” for additional requirements.

E. Wire management shall be in accordance with the recommended practices as established by BISCI.

F. All equipment installation and wiring shall meet all requirements of manufacturer.

1.6 COORDINATION

A. Coordinate layout and installation of communications equipment with Owner’s telecommunications and LAN equipment and services suppliers. Coordinate service entrance arrangement with local exchange carrier.

1. Meet jointly with telecommunications and LAN equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.
2. Record agreements reached in meetings and distribute to other participants.
3. Adjust arrangements and locations of distribution frames, cross-connects, and patch panels in in rooms to accommodate and optimize arrangement and space requirements of the telephone switch and LAN equipment.
4. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other communications, electronic safety and security, and related systems that share space in the equipment room.

B. Coordinate location of power raceways and receptacles with location of communications equipment requiring electrical power to operate.

PART 2 - PRODUCTS

2.1 COMMUNICATION ROOM EQUIPMENT

A. Manufacturers: Provide products manufactured by Panduit or one of the following approved manufacturers.

1. Panduit
2. Legrand
3. Cooper B-Line

B. Provide the following equipment, including but not limited to, the purchase, delivery, unpacking, installation, connection, testing, and operation of the same.

C. The quantities of items required shall be as shown on the drawings, or as stated below. Where a conflict exists between the quantities shown on the drawings, and the quantities stated hereinafter, the greater of the two quantities shall be used.

D. 2 Post Floor Rack

1. Manufacturer/Model No.: Panduit R2P6S or approved equal.
2. Requirements:
   a. Unit shall be standard 21" width by 84" high
   b. Unit shall be painted black
3. Accessories:
   a. Include all accessories shown on details and the following:
      1) Vertical PDU: CMRPSV20
      2) Anchoring Kit: RFAKIT
      3) #12-24 x 0.5" Screws (100 count): S1224-C
      4) Provide engraved label at top center of rack indicating rack number.

PART 3 - EXECUTION

3.1 GENERAL

A. Except as otherwise indicated, provide electrical grounding systems indicated; with assembly of materials, including, but not limited to, cables/wires, connectors, terminals (solderless lugs), bonding jumper braid, surge arresters, and additional accessories needed for complete installation. Where more than one type unit meets indicated requirements selection is Installer's option. Where materials or components are not indicated, provide products complying with NEC, UL, IEEE, and established industry standards for applications indicated.

3.2 INSPECTION

A. Installer must examine areas and conditions under which grounding connections are to be made and notify the Architect in writing of conditions detrimental to proper completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in an acceptable manner.

3.3 APPLICATION

A. Provide grounding systems where shown, in accordance with applicable portions of NEC, with NECA's "Standard of Installation" and in accordance with recognized industry practices to ensure that products comply with requirements and serve intended functions.

3.4 INSTALLATION

A. General: Ground communications systems and equipment in accordance with NEC requirements except where the Drawings or Specifications exceed NEC requirements.

B. Coordinate with other electrical work as necessary to interface installation of communication system grounding system with other work.

C. Route grounding conductors along the shortest and straightest paths possible without obstructing access or placing conductors where they may be subjected to strain, impact, or damage, except as indicated.

3.5 EQUIPMENT INSTALLATION

A. Install equipment racks with manufacturer approved installation hardware. All equipment racks shall be securely bolted to the floor with four bolts.

B. Equipment racks shall be supported at the top of the rack using cable tray, cable runway or supports attached to the wall. These supporting devices shall add rigidity to the rack for ease in working on equipment mounted in the rack.

C. Equipment cabinets shall be assembled and secured as recommended by the manufacturer. All doors, panels and equipment shall be securely mounted to the equipment cabinet by means of fasteners designed to fasten these devices.

D. All equipment cabinets and racks shall be grounded to the grounding bus bar with individual #6 AWG grounding conductors. Comply with requirements in Division 27 Section 27 0526 "Grounding and Bonding for Communications Systems." for grounding conductors and connectors.

E. Label all equipment racks and cabinets to meet the requirements of TIA/EIA-60

3.6 GROUNDING

A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

B. Comply with ANSI-J-STD-607-A.

C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar. Connect grounding bus bar with a minimum 3/0 AWG grounding electrode conductor from grounding bus bar to suitable

D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

E. Fasteners for grounding lugs shall be machine screws with either nuts or tapped holes for securing the grounding lug to the equipment to be grounded. Self-tapping screws are not acceptable for grounding connections.

1. Bond the shield of shielded cable to the grounding bus bar in communications rooms and spaces.

3.7 CONNECTIONS

A. General: Make connections in such a manner as to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to assure high conductivity and make contact points closer in order of galvanic series.
2. Make connections with clean bare metal at points of contact.
3. Coat and seal connections involving dissimilar metals with inert material such as red lead paint to prevent future penetration of moisture to contact surfaces.

B. Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torquing requirements are not indicated, tighten connections to comply with torque tightening values specified in UL 486A and UL 486B.

3.8 IDENTIFICATION

A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A. Comply with requirements in Section 270553 “Identification for Communications Systems”. Comply with requirements in Division 09 Interior Painting for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.

B. See Division 27 Section "Communications Cabling" for additional identification requirements. See Evaluations for discussion of TIA/EIA standard as it applies to this Section.

C. Paint and label colors for equipment identification shall comply with TIA/EIA-606-A for Class 3 level of administration.

D. Labels shall be preprinted or computer printed type.

3.9 COMMUNICATION ROOM EQUIPMENT TESTING

A. Before final acceptance of the installation, the contractor shall test in the presence of the Architect/Engineer/Owner or their representative's the complete installation and show that the system is completely operational and free from unwanted grounds, shorts, breaks, etc. The Contractor shall obtain all equipment required to test the final installation. The testing of the system shall be made under the direct supervision of the equipment manufacturers or their designated representative.

B. The Contractor shall provide a one-year guarantee of the installed system against defects in material and workmanship. All labor and materials shall be provided at no expense to the Owner. Guarantee period shall begin on the date of acceptance by the Architect/Engineer/Owner.

END OF SECTION 27 1100

SECTION 27 1500 - COMMUNICATIONS CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Requirements of the following Division 27 Sections apply to this section:

1. Division 27 Section 27 0100 “Basic Requirements”.

1.2 SUMMARY

A. Section Includes:

1. UTP cabling.
2. Cable connecting hardware, patch panels, and cross-connects.
3. Telecommunications outlet/connectors.
4. Cabling system identification products.

B. Related Requirements:

1. Section 27 0800 "Commissioning of Communications" for testing requirements.

C. Intent:

1. It is the intent of this section for the Contractor to provide a complete workable cabling system ready for the Owner's use in accordance with TIA 568-C standards to support high speed data applications up to and in excess of 1000Mbs including IEEE system standards based on Twisted Pair Distributed Data Interface (TPDDI), Ethernet, Fast Ethernet, Gigabit Ethernet and Asynchronous Transmission Mode (ATM).

1.3 DEFINITIONS

A. Utilize the following abbreviations for the Drawings and Specifications:

1. “PROVIDE” means to supply, purchase, transport, place, erect, connect, test and turn over to Owner, complete and ready for regular operation, the work referred to.
2. “FURNISH” means to purchase, procure, acquire, and deliver complete with related accessories.
3. “INSTALL” means to move from property line, set in place, join, fasten, attach, set up or otherwise connect together before testing and turn over to the Owner. Installation is to be complete and ready for regular operation.
4. “WIRING” or “CABLING” includes the furnishing of all fittings, conductors, connectors, grounding accessories, tape, connections, splices, labeling, and all other items necessary for such work.
5. “CONDUIT” and “CABLE SUPPORTS” include furnishing of all fittings, hangers, supports, sleeves, grounding etc.,
6. “AS DIRECTED” means as directed by the Owner or their representative.
7. “ACCEPTED” means as accepted by the Owner or their representative.
8. “CONCEALED” means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed above hung ceilings.
9. “EXPOSED” means not installed underground or “CONCEALED” as defined above.
10. “EQUAL” means equivalent as approved by the Owner or their representative.
11. “CONSOLIDATION POINT” shall mean a location for interconnection between horizontal cables extending from building pathways and horizontal cables extending into furniture pathways.

12. "CROSS-CONNECT" shall mean a facility enabling the termination of cable elements and their interconnection or cross-connection.
13. "MUTOA" shall mean a grouping in one location of several telecommunications outlet/connectors.
14. "OUTLET/CONNECTORS" shall mean a connecting device in the work area on which horizontal cable or outlet cable terminates.

1.4 ABBREVIATIONS

A. Utilize the following abbreviations for the Drawings and Specifications:

1. ANSI American National Standards Association
2. ASA American Standards Association
3. ASTM American Society of Testing Materials
4. BICSI Building Industry Consulting Service International
5. EC Electrical Contractor
6. EIA Electronic Industries Association
7. EMI Electromagnetic interference
8. FCC Federal Communications Commission
9. ICEA International Cable Engineers Association
10. IDC Insulation displacement connector
11. IEEE Institute of Electrical and Electronic Engineers
12. LAN Local area network
13. NEC National Electrical Code
14. NEMA National Electrical Manufactures Association
15. NFPA National Fire Protection Association
16. OEM Original Equipment Manufacturers
17. OSHA Occupational Safety and Health Act
18. RCDD Registered Communications Distribution Designer
19. TDC Teledata Contractor
20. TMGB Telecommunication Main Ground Bus.
21. TGB Telecommunication Ground Bus
22. TIA Telecommunications Industries Association
23. UL Underwriters' Laboratories, Inc.
24. UTP Unshielded twisted pair

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordinate layout and installation of telecommunications cabling with Owner's telecommunications and LAN equipment and service suppliers.

B. Coordinate telecommunications outlet/connector locations with location of power receptacles at each work area.

1.6 ACTION SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Submittals shall be made as complete systems including all required accessories and special installation tools (i.e., termination hardware).

C. Provide information regarding all terminations that will be required to complete this installation. This information shall include complete specifications and installation instructions.

D. Product data for each type of product.

1. Provide manufacturer's product data sheets for the following equipment:

a. Patch Panels (UTP, etc.)
b. Data and Voice Jacks
c. Cable (UTP, etc.)
d. Patch cords
e. Cable Management Devices
f. Labeling
g. All other equipment identified or inferred. Submit complete list for Engineer/Owner approval.

2. Provide manufacturer's installation data for all cabling, include the following for each type used:

a. Nominal OD.
b. Minimum bend radius.
c. Maximum pulling tension.
d. Recommended installation pulling points. (i.e. every 180 degrees of bend in the raceway, or every 100 feet of raceway)
e. Recommended pulling lubricants.

3. Provide manufacturer's performance data for UTP cabling, include the following for each type used:

a. DC Resistance
b. Characteristic Impedance
c. Attenuation
d. Near-end Crosstalk (NEXT)
e. Far-end Crosstalk (FEXT)
f. Nominal Velocity of Propagation and Propagation Delay
g. Attenuation to Crosstalk Ratio (ACR)
h. Return Loss
i. Delay skew

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installers, qualified layout technicians, installation supervisor, and field inspector.

B. Source quality control reports.

C. Field quality control reports.

1.8 CLOSEOUT SUBMITTALS

A. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.

B. System Labeling Schedules: Electronic copy of labeling schedules that are part of the cabling and asset identification system of the software.

C. Cabling administration drawings and printouts.

D. Wiring diagrams to show typical wiring schematics, including the following:

1. Cross-connects.
2. Patch panels.
3. Patch cords.

E. Cross-connects and patch panels. Detail mounting assemblies, and show elevations and physical relationship between the installed components.

F. Maintenance Data: For splices and connectors to include in maintenance manuals.

1.9 QUALITY ASSURANCE

A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.

1. A Certification Warranty shall provide a warranty to guarantee end-to-end high performance cabling systems that meet application requirements. The guarantee shall include cable and connectivity components and have one point of contact for all cabling system issues. The system shall be warranted for a period of at least 20 years. Unless otherwise noted all following sections, which describe such actions, tasks, and responsibilities refer to the Contractor.

   a. A manufacturer trained and certified contractor shall complete network installation. A copy of the Contractor certification shall be submitted in the proposal.
   b. A manufacturer trained and certified contractor shall have a Superintendent on the job with at least 10 years of experience.
   c. A manufacturer trained and certified contractor shall have at least one BICSI RCDD on staff locally.

2. Layout Responsibility: Preparation of Shop Drawings by an RCDD.
3. Installation Supervision: Installation shall be under the direct supervision of Level 2 Installer, who shall be present at all times when Work of this Section is performed at Project site.
4. Testing Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.

B. Testing Agency Qualifications: A Nationally Recognized Test Laboratory (NRTL).

1. Testing Agency's Field Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.

C. Comply with the following Electronic Industries Association (EIA) and Telecommunications Industry Association (TIA) Standards:

1. ANSI/TIA 568.1-D “Commercial Building Telecommunications Wiring Standard"
2. ANSI/TIA568-C.2 “Balanced Twisted-Pair Telecommunications Cabling and Components Standard”
3. ANSI/TIA 569-D, " Telecommunications: Pathways and Spaces "
4. ANSI/TIA 606-B, " Administration Standard for Commercial Telecommunications Infrastructure "

D. UL Compliance: Comply with applicable requirements of UL Standard 910 "Test Method for Fire and Smoke Characteristics of Cables Used in Air Handling Spaces." Provide products that are UL listed and labeled for such use.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver cable factory packaged in containers or reels. Store in clean dry space and protect products from damaging fumes and traffic. Handle wire and cable carefully to avoid damage.

B. If cables are stored below 32°F bring cable indoors and store at room temperature 68°F for 48 hours prior to installation.

C. The Telecommunications Contractor shall ensure that the General Contractor and Painting Contractor acknowledge that painting of or over spray any single or group of 4 pair horizontal telecommunications Category 5e, Category 6 or Category 6a or backbone cable is not allowed. Any painted or over sprayed cable(s) shall be replaced at the painting contractor’s expense. Painted Cable will not be covered as part of an extended warranty. Painted cable in addition to obscuring the print legend may act as an accelerant or create an additional smoke hazard in the event of a fire and as such this is considered a life safety issue.

D. Test cables upon receipt at Project site.

1. Test each pair of UTP cable for open and short circuits.

1.11 WARRANTY/WARRANTY MANUALS

A. Warranty and Certification of the Structural Cabling System:

1. The Contractor shall provide a minimum twenty-year product and performance warranty that all cable, connectors, and connecting hardware shall be free from defects in material, workmanship and fabrication.
2. The system shall be certified by the cable/component manufacturer and warranted for the specified performance for a minimum of twenty years. The Contractor shall conform to the manufacturer's certification program including submittal of all required documentation to the manufacturer.
3. The Contractor shall obtain, from the manufacturer, a Registration Document and Certificate for the specific installation. Upon receipt of the Registration Document and Certificate, the Contractor shall forward a copy to the Engineer and deliver the original to the Owner.

B. Provide complete warranty information for each item to include date of beginning of warranty, names, addresses, telephone numbers, and procedures for filing a claim to obtain warranty service.

C. Within the warranty period, answer service calls within eight hours, and correct the deficiency within twenty-four hours.

PART 2 - PRODUCTS

2.1 HORIZONTAL CABLING DESCRIPTION

A. Horizontal cable and its connecting hardware provide the means of transporting signals between the telecommunications outlet/connector and the horizontal cross-connect located in the communications equipment room. This cabling and its connecting hardware are called a "permanent link," a term that is used in the testing protocols.

1. TIA-568-D requires that a minimum of two telecommunications outlet/connectors be installed for each work area.
2. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications outlet/connector.
3. Bridged taps and splices shall not be installed in the horizontal cabling.

B. A work area is approximately 100 square feet., and includes the components that extend from the telecommunications outlet/connectors to the station equipment.

C. The maximum allowable horizontal cable length is 295 feet. This maximum allowable length does not include an allowance for the length of 16 feet to the workstation equipment or in the horizontal cross-connect.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Horizontal cabling system shall comply with transmission standards in ANSI/TIA-568.1-D when tested according to test procedures of this standard.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Grounding: Comply with ANSI/TIA-607-C.

2.3 UTP CABLE, PATCH CORDS, AND HARDWARE

A. Products - subject to compliance with requirements, provide products by Panduit/General Cable, or one of the following approved manufacturers:

1. 1Gb/s Category 6 Solution

a. Mohawk/Belden

1) Plenum Cabling: 6LAN CMP M58281
2) Indoor/Outdoor: VersaLAN M58772
3) OSP Cabling: Lan-Trak M57622
4) Jacks: KeyConnect AX101xxx
5) Patch Panels: AX103121 (Modular, Flat)
6) Patch Cords: C60110x00xx

b. General Cable/Panduit "NetKey"

1) Plenum Cabling: GenSPEED 6 CMP
2) Indoor/Outdoor:
3) OSP Cabling: N/A
4) Jacks: NetKey NK6TMxx
5) Patch Panels: NKFP48Y (Modular, Flat)
6) Patch Cords: NK6PCxxY

c. CommScope

1) Plenum Cabling: CS34P
2) Indoor/Outdoor: N/A
3) OSP Cabling: CS34O
4) Jacks: UKJ600
5) Patch Panels: UNPD-6-DM-1U-24 (Modular, Flat)
6) Patch Cords: UNC6

d. Superior Essex/Ortronics

1) Plenum Cabling: Series 77 CMP
2) Indoor/Outdoor: N/A
3) OSP Cabling: 04-001-68
4) Jacks: Tech Choice OR-KT2J6-xx
5) Patch Panels: OR-SPKSU48 (Modular, Flat)
6) Patch Cords: OR-SPCA6xx-xx

B. Cabling: 100-ohm, four-pair UTP, binder groups covered with a thermoplastic jacket.

1. Color: Coordinate cable colors with owner.
2. Comply with ICEA S-90-661 for mechanical properties.
3. Comply with ANSI/TIA -568-C.2 for performance specifications.
4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:

a. Communications, Plenum Rated: Type CMP, complying with NFPA 262.

C. General Requirements for Cable Connecting Hardware: Comply with ANSI/TIA-568-C.2, IDC type, with modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of same category or higher. Cables shall be terminated T-568-B.

D. Modular Patch Panels: Flush mount modular patch panels in 24 port 1U or 48 port 2U configuration equipped with rear mounted faceplates to allow jack modules to be flush with front of patch panel.

E. Jacks and Jack Assemblies: Modular, color-coded, eight-position modular receptacle units with integral IDC-type terminals.

1. Color: Coordinate jack colors with owner.

F. Patch Cords: Factory-made, four-pair cables in various lengths; terminated with eight-position modular plug at each end.

1. Patch cords shall have bend-relief-compliant boots.

2. Patch cords shall have latch guards to protect against snagging.
3. Patch cord lengths shall be no longer than required for the application.

2.4 TELECOMMUNICATIONS OUTLET/CONNECTORS

A. Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, eight-position modular. Comply with TIA-568-C.1.

2.5 GROUNDING

A. Comply with requirements in Section 27 0526 "Grounding for Communications System" for grounding conductors and connectors.

B. Comply with ANSI/TIA-607.

2.6 IDENTIFICATION PRODUCTS

A. Comply with requirements in Section 270553 "Identification for Communications Systems."

B. Comply with ANSI/TIA-606-B and UL 969 for labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

2.7 SOURCE QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to evaluate cables.

B. Factory test UTP cables on reels according to ANSI/TIA-568.1-D.

C. Factory test UTP cables according to ANSI/TIA-568-C.2.

D. Cable will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 WIRING METHODS

A. Install cables in pathways and cable trays except within consoles, cabinets, desks, and counters. Conceal pathways and cables except in unfinished spaces.

1. Install plenum cable in environmental air spaces, including plenum ceilings.

B. Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures:

1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
2. Install lacing bars and distribution spools.
3. Install conductors parallel with or at right angles to sides and back of enclosure.

3.2 INSTALLATION OF CABLES

A. Comply with NECA 1.

B. General Requirements for Cabling:

1. Comply with ANSI/TIA-568.1-D.
2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminal TIAs, cross-connects, and patch panels.
5. Cables may not be spliced.
6. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
7. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
8. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
10. Cold-Weather Installation: Bring cable to room temperature 68°F for 48 hours before dereeling. Heat lamps shall not be used for heating.
11. In the communications equipment room, install a 10-foot-long service loop on each end of cable.
12. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.

C. UTP Cable Installation:

1. Comply with ANSI/TIA-568-C.2.
2. Do not untwist UTP cables more than 1/2 inch from the point of termination to maintain cable geometry.

D. Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend UTP cable not in a wireway or pathway at a minimum of 8 inches above ceilings by cable supports not more than 60 inches apart.
3. Cable shall not be run through structural members, on structural members (including bottom flange of joists), or in contact with pipes, ducts, or other potentially damaging items.

E. Separation from EMI Sources:

1. Comply with BICSI TDMM and ANSI/TIA-569-BD for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:

    a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
    b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
    c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.

3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:

    a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
    b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
    c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.

4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:

a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.

5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.3 FIRESTOPPING

A. Comply with requirements in Section 27 0544 "Sleeves and Seals."

B. Comply with ANSI/TIA-569-BD, Annex A, "Firestopping."

C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.4 GROUNDING

A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

B. Comply with ANSI/TIA-607-C.

C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.

D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.5 IDENTIFICATION

A. Identify system components, wiring, and cabling complying with ANSI/TIA-606-B. Comply with requirements for identification specified in Section 270553 "Identification for Communications Systems."

1. Color-code cross-connect fields. Apply colors to voice and data service backboards, connections, covers, and labels.

B. Using cable management system software specified in Part 2, develop Cabling Administration Drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable and label cable, jacks, connectors, and terminals to which it connects with same designation. At completion, cable and asset management software shall reflect as-built conditions.

C. Comply with requirements in Section 099123 "Interior Painting" for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.

D. Cable Schedule: Post in prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.

E. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of ANSI/TIA-606-B. Furnish electronic record of all drawings, in software and format selected by Owner.

F. Cable and Wire Identification:

1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
2. Each wire connected to building-mounted devices is not required to be numbered at device if color of wire is consistent with associated wire connected and numbered within panel or cabinet.
3. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
    a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with name and number of particular devices as shown.
    b. Label each unit and field within distribution racks and frames.
4. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.

G. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in ANSI/TIA-606-B.

1. Cables use flexible vinyl or polyester that flex as cables are bent.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visually inspect UTP cable jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with ANSI/TIA-568.1-D.
2. Visually confirm Category 6 marking of outlets, cover plates, outlet/connectors, and patch panels.
3. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
4. Test UTP backbone copper cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.
    a. Test instruments shall meet or exceed applicable requirements in ANSI/TIA-568-C.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
5. UTP Performance Tests:
    a. Test for each outlet. Perform the following tests according to ANSI/TIA 568.1-D and ANSI/TIA-568-C.2:
        1) Wire map.
        2) Length (physical vs. electrical, and length requirements).
        3) Insertion loss.
        4) Near-end crosstalk (NEXT) loss.
        5) Power sum near-end crosstalk (PSNEXT) loss.
        6) Equal-level far-end crosstalk (ELFEXT).
        7) Power sum equal-level far-end crosstalk (PSELFEXT).
        8) Return loss.

9) Propagation delay.
10) Delay skew.

6. Final Verification Tests: Perform verification tests for UTP systems after the complete communications cabling and workstation outlet/connectors are installed.

   a. Voice Tests: These tests assume that dial tone service has been installed. Connect to the network interface device at the demarcation point. Go off-hook and listen and receive a dial tone. If a test number is available, make and receive a local, long distance, and digital subscription line telephone call.
   b. Data Tests: These tests assume the Information Technology Staff has a network installed and is available to assist with testing. Connect to the network interface device at the demarcation point. Log onto the network to ensure proper connection to the network.

D. Document data for each measurement. Data for submittals shall be printed in a summary report that is formatted similar to Table 10.1 in BICSI TDMM, or transferred from the instrument to the computer, saved as text files, and printed and submitted.

E. End-to-end cabling will be considered defective if it does not pass tests and inspections.

F. The General Contractor shall ensure that the painting contractor does not paint or over spray any single 4 pair horizontal telecommunications Category 6 or cable. Any painted or over sprayed cable shall be replaced at the painting contractor's expense. Painted Cable will not be covered as part of an extended warranty.

G. Prepare test and inspection reports.

3.7 DEMONSTRATION

A. Train Owner's maintenance personnel in cable-plant management operations, including changing signal pathways for different workstations, rerouting signals in failed cables, and keeping records of cabling assignments and revisions when extending wiring to establish new workstation outlets.

END OF SECTION 27 1500

SECTION 27 5120 - INTERCOMMUNICATIONS AND PROGRAM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract Documents apply to this Section.

1.2 SUMMARY

A. This section includes a fully operational IP platform for a school Critical Communications Solution, incorporating school safety notifications and general communications including but not limited to the following:

1. The platform shall provide complete internal communications and employ state of the art IP Technology including the minimum functions listed.
    a. Two-way internal intercommunications between staff locations and classrooms.
    b. Scheduled bell events.
    c. Emergency announcements that will override any pre-programmed audio, assuring that all Emergency/Lockdown etc. are audible at every speaker location.
    d. Capability of prerecording emergency announcements that can be activated by a Soft Key on an administrative console, panic button, dial string, or Web UI.
    e. NTP with Class Change Tones utilizing multiple, programmable schedules for each zone.
    f. Emergency, Group, All School and Zone live voice paging.
    g. Emergency, Group, All School and Zone paging for pre-recorded audio – tones, music and voice.
    h. Single sign on web-based user interface for multi school functionality.
2. The system shall support a minimum of 1000 level priorities that shall be user-definable, allowing each end point to place a minimum of 5 different priority calls at the same time.
3. Any authorized administrator shall be able to call from outside the school into any classroom, zone, or entire school directly via the School District supplied SIP enabled Telephone Network. This shall allow remote monitoring, call-in annunciation, and two-way conversation from outside the facility as well as paging into the system. (Compliance with NEMA Standard SB-40 for emergency communications in K-12 Schools).
4. Authorized system users shall be able to create a minimum of 100 automated sequences with voice instructions, tones, emails, and relay activations and replay them.
5. Automated message strings shall be manually initiated from a single-button access on the console, from a mobile APP, on a SIP connected telephone, a panic button, from the web-based user interface or via interface with third party systems.
6. Paging and two-way intercom features shall be accessible from any system console or SIP connected telephone for each campus.
7. The platform shall synchronize its system time to the network timeserver or a web-based time server.
8. This specification establishes a minimum level of quality, features, and performance for individual components as well as the integrated system.
9. Systems that do not comply with the feature-sets highlighted in this Specification will not be considered.
10. Included in the emergency procedures is the ability to send specific messages and or instructions. These features can be added to the emergency sequences.
11. The ability to require an access code to initiate or clear an emergency from the administrative console.
12. An App that can be installed on either Android or Apple phones. This App will give a person to initiate one of 19 emergency procedures programmed into the App. This App will also allow the user to view all classrooms that have not checked in. This process will update during the emergency to make sure all information is current.
13. Any system that requires more than one Data drop to a classroom to control an IP speaker, up to 5 call-in switches, status lights (up to 2) and message board/digital clock will not be considered equal to the specified system.

1.3 DEFINITION OF TERMS

A. Installer(s): Shall refer to the person, persons, or company who or which actually contracts to perform the work specified herein.

1.4 SUBMITTALS

A. Product data for each component.

B. Shop Drawings: Prior to proceeding with the work: Provide detailed equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, location of each field connection, and a complete schedule of all equipment and materials with associated manufacturer's cuts sheets which are to be used.

1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Identify terminals to facilitate installation, operation, and maintenance. Include a single-line diagram showing cabling interconnection of components and levels throughout system and impedances.
2. Artwork drawings and lists indicating proposed nameplate nomenclature and arrangements for control panels and plug panels prior to fabrication reflecting equipment used.
3. Each drawing shall have a descriptive title and all sub-parts of each drawing shall be labeled. All drawings shall have the name and locations of the project, Systems Contractor's name in the title block.
4. Details and descriptions of any other aspect of the system, which must differ from the contract documents due to field conditions or equipment, furnished.

C. FCC Approval: The system shall be approved for direct interconnection to the telephone utility under Part 68 of FCC rules and regulations. Systems, which are not FCC approved or utilize an intermediary device for connection, will not be considered. Provide the FCC registration number of the system being proposed as part of the submittal process.

D. Product Certificates: Signed by manufacturers certifying that products furnished comply with specified requirements.

E. Installer Certificates: Signed by manufacturers certifying that Installers comply with specified requirements.

F. Manufacturer Certificates: Signed by manufacturers certifying that they comply with specified requirements.

G. Field Test Reports: Indicate and interpret test results for compliance with performance requirements. Include record of final matching transformer-tap settings, and signal ground-resistance measurement certified by Installer.

H. Maintenance Data: For equipment to be included in maintenance manuals specified in Division 1.

1. Record of Owners equipment-programming option decisions.
2. All instructions necessary for proper operation and manufacturer's instructions.
3. "Proof of Performance" information.
4. Manufacturer's maintenance information.
5. Copies of non-proprietary computer programs and system set up disks documenting all programmable features of the installed system.

I. Record Drawings: Prior to final acceptance, provide three (3) complete sets of drawings indicating all cable numbers and construction details in accordance with the actual system installation. Revise all shop drawings to represent actual installation conditions. These Record Drawings will be used during "Final Acceptance Testing".

J. System Training: Submit the following information describing the training programs and system trainers as outlined in paragraph 1.6 of this specification and in accordance with Division 1 specifications.

1. Include with the submittal a preliminary staff development training program in outline form for review and approval by the owner's representative.
2. Include with the submittal a current copy of the trainer's certification from the manufacturer that certifies and identifies the trainer(s) who are eligible to provide training and support for the project.

3. Include with the submittal a current copy of trainer's needs assessment form which will be reviewed with the owner's designated representative for the system's preliminary system programming and configuration.
4. Include with the submittal copies of all documentation used to identify for the owner those participants attending and completing the training programs.

K. A copy of the manufacturer's standard statement of warranty proving all equipment provided for the school communications network is covered with the required **five-year** warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer's stationary.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced Installer who is an authorized representative of equipment manufacturer for both installation and maintenance of equipment required for this Section. Provide the following within thirty (30) days after notification to proceed:

1. Provide a list of installations that the Installer has specifically installed for verification by the Owner. Random installations from other vendors and/or Installers shall not be accepted. The Installer, not its employees, must meet these qualifications.
2. The Installer shall be bondable.
3. The Installer shall demonstrate to the satisfaction of the Owner or his representative that he has:

    a. Adequate plant and equipment to pursue the work properly and expeditiously.
    b. Adequate staff and technical experience to implement the work.
    c. Suitable financial status to meet the obligations of the work.
    d. Technically capable and factory trained service personnel at a local service facility to provide routine and emergency service for all products used in this project.

B. Any Contractor, who intends to bid on this work and does not meet the requirements of the "Quality Assurance" paragraph(s), shall employ the services of an "Installer" who does meet the requirements and who shall provide the equipment, make all connections and continuously supervise the installation. A subcontractor so employed as the "Installer" must be acceptable to the Architect/Engineer. The "Installer" shall be identified within thirty (30) days of notification to proceed for acceptance by the Architect/Engineer.

C. Each major component of equipment shall have the manufacturers name, address and model number on a plate securely affixed in a conspicuous place. NEMA code ratings, UL Label, or other data that is die-stamped into the surface of the equipment shall be easily visible.

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

E. Comply with NFPA 70

F. Comply with NEMA Standard SB-40 for Emergency Communications in K-12 schools.

G. Comply with UL 60950.

1.6 IN-SERVICE TRAINING

A. The contractor shall provide and implement a complete and comprehensive staff training program for all administrators, facility staff members, and teachers. This mandatory training program will provide school staff a complete understanding of how to utilize and properly operate all functions.

B. The training program shall be implemented by a staff member/trainer employed by the contractor. The trainer must be factory certified to provide training on their product.

C. All staff development training is to be coordinated through the owner's designated representative. As training sessions are completed, the trainer will provide the school's administrative staff and school district's staff a document listing all of the staff and faculty members who attended, received, and completed the training program.

1.7 WARRANTY

A. Provide a manufacturer's five-year warranty of the intercommunication and program system equipment against defects in material and workmanship. This warranty will cover all electronic system components. Additional warranties cover clocks, speakers, and call-in switches. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost (equipment only); a one-year warranty shall be provided for labor.

B. A copy of the manufacturer's standard statement of warranty proving all equipment provided for the school communications network is covered with the required five-year warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer's stationary. The standard five-year warranty is an important element in establishing a standard in quality. Manufacturers who circumvent the five-year warranty by offering special "extended warranties" that are not part of their normal published warranty will not be accepted.

C. Contractor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of service visit, the contractor shall provide "loaner" equipment to the facility at no charge.

D. Make available a service contract offering continuing factory authorized service of the system after the initial warranty period.

1.8 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide the following system:

1. Telecenter manufactured by Rauland-Borg Corp
    a. Authorized Rauland-Borg Distributor contact:

        Open Systems Pittsburgh
        Contact: Phil Thompson
        Email: pthompson@ospittsburgh.com

1. CH2000IP manufactured by CareHawk Inc.
    a. Authorized Distributor: Horizon Information Services.
2. Multicom 2000 Quantum manufactured by Bogen Communications LLC
    a. Authorized Distributor: Dobil Laboratories

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. The platform shall utilize state of the art IP Technology for Call-in Notification, School Safety Paging and Evacuation tones, Time Synchronization, Class Change Tones utilizing multiple, programmable schedules for each zone, Two-way hands-free Internal Communications and Paging, and Program Distribution. The system shall be easy to learn and operate. All standard programming shall be web based and user friendly to allow the system administrator the ability to easily program system features.

B. Provide complete and satisfactorily operating district/school communications and district/school safety as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated. Use materials and equipment that comply with referenced standards and manufacturers' standard design and construction, in accordance with published product information. Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.

C. The platform shall be a single electronic system consisting of a minimum of 10 audio channels for each campus, (classroom) IP Speaker Modules and call switches, IP Zone Modules connecting corridor speakers, inside and outside horns, IP Administrative Consoles, SIP enabled PBX integration and district-wide integration for paging, emergency notifications, calendar scheduling and configuration.

D. Each Classroom shall be provided with a Speaker Module interface and a call switch (alternate bid).

E. Call-ins may automatically annunciate (display of priority and location) to administrative consoles, SIP enabled phones, and outside phones.

F. Call-ins shall be programmed to automatically change priority and annunciation route based on age of call-in and original priority.

G. Call-ins may have priority (and annunciation route) changed by user action from a console or SIP enabled phone.

H. Call-in annunciation route shall include playing pre-recorded audio over speakers, sending a pre-configured email, and activating relays.

I. The platform shall lend itself to expansion by simple addition of hardware modules.

J. The platform shall connect directly to an existing, standard protocol WAN/LAN network, without the need for a separate server. Configuration, including bell schedules, calendars, and emergency sequences can be remotely created, changed, stored and downloaded to the system by an authorized user from a web-based user interface.

K. The platform shall provide the ability to initiate school safety paging announcements, evacuation tones and take cover tones from any telephone or connected web browser within the facility or outside the facility to any other location within the facility or district.

L. The platform shall provide the ability to selectively communicate or monitor individual classrooms in emergency situations from any telephone within the facility or outside the facility to any other location within the facility; all communication within the classroom shall be hands-free and will not require any interaction by the classroom user.

M. The platform shall provide classroom users the ability to confirm that they have safely secured their classrooms during lockdown with a single button press. The front office administrator will receive confirmation that the classroom is safely secured via an administrative console, web-based user interface or mobile App. The front office administrator shall be able to initiate two-way communication, without a pre-announcement tone, to the classroom during an emergency via the administrative console. Web-based user interface will still identify that a school is in an emergency, even if all classrooms are safely secured. Individual classroom check-in and school emergency status shall be viewed from the web-based user interface or Mobile App, both on-site and remotely.

N. IP Addressable and POE powered Speaker Modules for individual rooms shall be system programmable and may be assigned any two, three-, four-, five- or six-digit number as well as name and description. Any extension may be reassigned at any time.

O. IP-enabled two-way voice communication shall be available from any provided telephone or administrative console through any speaker in a campus. This shall allow hands-free communication to any classroom or any individual loudspeaker unit. A programmable pre-announce tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when speaker monitoring is active, complying fully with all privacy legislation. Pre announce tone and supervisory tones shall be disabled during designated emergencies automatically.

P. The platform shall allow users to configure multiple schedules per school, with a minimum of 500 unique events per schedule, and automatic Daylight Savings time correction. Schedules can be programmed to occur once, daily, weekly, monthly, or in any combination of the preceding recurrences. Each school may have a minimum of 20 unique bell schedules, with a minimum of 5 active schedules on any given day for each campus. User shall be able to select from 25 standard included tones as well additional user created and uploaded audio files for class change signaling and messaging. In addition, scheduled events shall include relay actions, email notifications, and paging exclusions as system configuration changes. The platform shall allow control of the bell schedules via the district WAN/LAN without the need for a separate server at each school location. Bell schedules can be remotely created, changed, stored and assigned to calendar days for the local school by an authorized user from a web-based user interface.

Q. The platform shall be able to integrate with an existing PA system or operate as a fully independent IP solution. The platform shall be able to function in combination of said configurations, and allow for seamless communication within a school or district-wide, regardless of the type of configuration used. The platform shall be scalable, with the ability to easily add, install, and configure additional equipment to a system.

R. The platform allows for customization of preprogrammed sequences, used for emergencies, events, and everyday communications. Preprogrammed sequences can be activated from the push of a relay button, soft key of an administrative console, a dial string of a SIP phone, or a web browser configured to the district network. Sequences can be initiated automatically as part of a schedule or on the fly. Preprogrammed sequences can be customized to utilize any combination of audio tones, emails, relays, tone exclusions, swings, delays, SIP phone notifications, and program distribution. Audio tones can include customized audio files and voice messages, recorded in any language. Uploaded audio tones and messages can be preprogrammed to annunciate repeatedly or individually, as part of a scheduled sequence or on the fly. Each school in a district can have its own customized sequences, and can be activated individually, in groups, or district-wide.

S. The platform allows for emergencies to be initiated in a drill environment, separate from real emergencies. Drill emergencies can be initiated from panic buttons, consoles, SIP phones, or a web browser.

T. The platform shall provide status lights that will display the status of individual classrooms and school emergency status at the same time. Status lights will be customizable in color and flash rate based on events.

U. POE zone page amplifier module. This component will give the schools the ability to place an amp to drive groups of speakers where local power is not available. Each amplifier on the network will send notification for any reason that it is offline or powered down. Depending upon configuration the amplifier will have 14 or 35 watts of output. The module can be either wall or rack mounted.

V. First Responders Notification. This feature can be initiated so the status lights do not display the rooms that checked in until the first responders are on site. This will not have an effect on any of the other check-in notifications. The App, console and computers can still display the rooms that have checked in.

W. TCU App. This app can be installed on either Android or Apple devices. The App can process up to 18 different emergencies. The App will update in real time rooms that have checked in OK. It can also display a Fire emergency is in effect during an emergency.

2.2 EQUIPMENT AND MATERIAL

A. Server Software

1. Provides paging, bell event scheduling, emergency notification and configuration.
2. Ability to configure system and initiate system features via web-based user interface.
3. The software has the ability to sync system time to the Atomic Clock Signal or to the school's or district's network time server.
4. The software will provide a web browser to deliver emergency paging, pre-recorded messages and tones from any authorized computer in the facility or the district. The software must be capable of automatically notifying district personnel via the WAN/LAN of an alarm condition.

5. The software can automatically broadcast emergency instructions via associated system hardware throughout an entire district when an alarm (e.g., lockdown, lockout, security, fire) is initiated via the web-based user interface. The emergency instructions are preprogrammed and require no user intervention. Bell tones are able to be halted during an emergency. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.
6. The software allows for user-uploaded pre-recorded messages and tones. Software supports the upload of MP3 and WAV file types. User-uploaded pre-recorded messages and tones can be part of emergencies, sequences, and bell schedules.
7. The software can be installed in cloud, virtual or physical server environments.
8. The web-based user interface supports secure HTTP browsing.
9. The software supports encryption to ensure secure access.
10. The system shall monitor itself if devices go offline and system actions are not received. Specified users shall receive email notifications when devices go offline. The software shall be able to keep a log and report on system activity within a school or all schools district-wide for a minimum of one year. These reports can be exported to excel spreadsheets.
11. The software will support a minimum of 20 bell schedules per school, with 5 schedules assignable to a specific school day. Bell schedules can be programmed to annunciate tones, activate relays, send emails, activate program distribution, and notify SIP phones.
12. The system allows programmable end points to be automatically included or excluded for live paging, bell tones, or prerecorded audio, depending on the time or day or day of the week. These inclusions/exclusions can be applied manually or automatically depending on their schedule.
13. The software can automatically send an email, as part of a programmed sequence of events, to district administrators alerting them of an emergency within the district.
14. The software provides the ability to view schools that are in an emergency status, using any web browser on the district's network. The software shall identify the name of the school in an emergency as well the type of emergency that school is in.
15. The system has a minimum of 5 customizable emergencies, one of them being an All-Clear with the ability to return the system from an emergency to normal status. Each emergency shall have a minimum of 500 unique events.

B. Campus Controller

1. Provides call routing for paging and intercom for a single facility.
2. System shall connect to the district provided Telephone Network via a SIP connection.
3. Support a flexible numbering plan allowing two, three-, four-, five-, or six-digit extensions.
4. SIP interface to a district provided Telephone Network shall be capable of allowing connected phones to display classroom call-ins, answer internal intercom call-ins, make pages and change priorities of call-ins in progress.
5. Direct dialing, two-way amplified voice intercom between any provided telephone or admin console and speaker without the use of a press-to-talk or talk-listen switch.
6. Ability to upgrade priority level from individual call switch.
7. The ability to answer intercom call-ins registered at administrative consoles and pre-selected telephones.
8. The ability to automatically escalate incoming call-ins to an alternate telephone or group of telephones if they remain unanswered for a predetermined amount of time.
9. The ability to manually upgrade an intercom call-in to an alternate telephone or group of telephones.
10. The ability for classrooms to "check-in" via push button when they have successfully secured their location during emergency.
11. Administrative console shall display locations that have not checked in to confirm their secured location and provide hands-free audio monitoring and communication to unsecured locations.
12. The controller shall not need direct connection to any classroom via home run or distributed wiring. It shall communicate solely through the IP network.
13. Single button access from any console on the system to distribute emergency announcements within the facility to all or select locations equipped with speakers. Emergency announcements originating from any assigned administrative console shall have priority over all regular system functions.
14. Ability for administrative consoles and connected phones to selectively monitor audio at any two-way speaker during an emergency.
15. Stores a minimum of 48 hours' worth of Bell Event Schedules, all emergency notification sequences as well as facility wide configuration.

16. System has the ability to sync system time to the Atomic Clock Signal or to the school's or districts network time server.
17. System's SIP Interface shall provide:
    a. Audio paging access from any telephone to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire facility.
    b. Ability to answer a call-in directed to that SIP extension.
    c. Ability to upgrade a call-in directed to that SIP extension.
    d. Single button access from any telephone on the system to initiate alarm signals within the facility to all or select locations equipped with speakers. A minimum of 25 separate distinct alarm signals shall be provided. Alarm signals originating from any assigned administrative telephone shall have priority over all regular system functions.
    e. Ability to initiate a school-wide emergency including lockdown and evacuate sequences.
    f. SIP device shall display call-in information from call in switch. Information will include a minimum of Classroom Name, Number, and Priority Level.
18. The system will have the ability to utilize a web browser and a USB microphone connected to the PC to deliver district-wide live emergency paging, pre-recorded messages and tones from any authorized computer in the facility or the district. The system must be capable of automatically notifying district personnel via the WAN of an alarm condition.
19. The system can automatically broadcast emergency instructions throughout an entire campus when an alarm (e.g. lockdown, lockout, security, fire) is tripped or manually activated. The emergency instructions are preprogrammed and require no user intervention. Bell tones are able to be halted during an emergency. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.
20. The system will have the ability to utilize a desktop microphone to deliver school-wide live emergency paging and zone paging throughout the facility.
21. The system can integrate with emergency weather radios to generate live emergency broadcasts notification throughout a facility.

C. IP Addressable Modules

1. System shall provide multiple IP Addressable Modules for intercom, paging and relay activation.
    a. All Modules are POE 802.3af compliant
    b. All Modules support DHCP.
    c. All Modules connect to network with a single RJ45 connector (PoE Required)
2. IP Addressable Speaker Module
    a. Shall interface to school's data network, a classroom speaker, and multiple call switches.
    b. A minimum of 5 levels of call-in can be placed from an IP Speaker Module. The call-ins are routed to administrative consoles and select SIP connected telephones and can only be cleared from the system once answered. If a call-in is not answered within a preprogrammed time the call-in may reroute to other telephones, consoles, and speakers.
    c. An option for Privacy call in switches is supported. When the Privacy switch is activated, it prevents administrative or classroom telephones from monitoring the specific classroom/location intercom speaker.
    d. The ability to belong to one or more of a minimum of 100 independent zones for zone paging, program/music distribution zones and class change tone zones; this assignment is a programmable function, changeable by time of day. Each IP Speaker Module's location shall be programmed in software to belong to any combination of software zones. IP Speaker Modules shall be designed to mount near ceiling and wall speakers and in the plenum space.
    e. Intercom and paging volume adjustable from Software interface.
    f. Module will support and power a status light that displays individual classroom information including call-ins placed, testing status and emergency check-in status.

3. IP Addressable Zone Paging Module

    a. Zone Paging Module shall connect multiple speakers for district all page, all page, zone paging, bells, audio events and, emergency notification.
    b. Zone Paging Modules shall be rack and wall mountable.
    c. Zone Paging Modules shall be able to belong to one or more of 100 independent zones for live paging, bells, pre-recorded audio and emergency notification.

4. IP Addressable Aux I/O Module

    a. Aux I/O Module shall have two input contacts and two output contacts.
    b. Input and output contacts are individually addressable.
    c. Aux I/O Module shall be wall and rack mountable.
    d. User can program relays to be activated manually, through an event/bell schedule, or during emergency notification.
    e. Aux I/O Module can perform school lockdown from a single press of a panic button.

5. IP Addressable Program Line Input Module

    a. Program Line Input Module shall provide line level audio program distribution into system.
    b. Program Line Input Module shall have a 3.5mm cable jack.
    c. Program Line Input Module shall be configured via web-based user interface.
    d. User can configure program distribution to be activated manually or automatically through an event/bell schedule.
    e. Program Line Input Module will have a system priority level such that emergency communications override program distribution.

6. IP Addressable Microphone Input Module

    a. The system shall support a minimum of five (5) Microphone Input Modules per school.
    b. Microphone Input Module shall support dynamic and condenser style microphones.
    c. Microphone Input Module shall support microphones with or without Push-To-Talk functionality.
    d. Microphone Input Module shall support configurable paging priorities.
    e. Microphone Input Module shall provide user feedback for paging activity.
    f. Microphone Input Module shall have adjustable microphone gain levels.
    g. Microphone Input Module shall be configurable from the web-based user interface.
    h. Live pages from the Microphone Input Module can automatically increase audio priority during an emergency.

D. IP Addressable Administrative Console

1. A full color screen with 64 soft keys, 3 line select, volume control, push to talk, speakerphone mode and left/right and up/down scrolling.
2. Audio paging access from any Console to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire school.
3. Programmable soft key access from any console on the system to initiate alarm signals within the school to all or select locations equipped with speakers. A minimum of 25 separate distinct alarm signals shall be provided. Alarm signals originating from any assigned administrative console shall have priority over all regular system functions.
4. Programmable soft key access from any console to automatically broadcast page emergency instructions throughout an entire school when an alarm (e.g., lockdown, lockout, security, fire) is tripped or manually activated. The emergency instructions are preprogrammed and require no user intervention. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.
5. Ability to perform intercom to any single IP Addressable Speaker Module.
6. Ability to display 3 call-ins at a time on the screen while other call-ins are annunciating and the ability to scroll to view all call-ins.
7. Ability to upgrade a call-in via soft key.
8. Programmable soft key access from any console for activating relays, campus wide.

9. Ability to maintain, along with controller and other IP Modules system functions, including intercom, bells and paging for the local campus in the event of district-wide connection loss.
10. Classrooms that have not 'checked-in' during an emergency are listed on the Administrative Console's screen.
11. The time duration of an emergency is shown on the screen of the administrative console. The check-in timer is shown on the screen of the administrative console.

E. Audio Paging/Program Amplifiers

1. Power amplifier(s) shall be provided to provide a minimum of 2 watts of power to all paging speakers, and 15 watts of power to all paging horns.
2. The maximum load on the paging/program amplifiers shall be 80% of the rated maximum output of the amplifiers.
3. Amplifier(s) output shall be 150 Watts @ 25 Volts, 4 Channel Industrial Grade with no fans - Ashley TRA4150. One Channel per Zone.

F. Call in Switch - Rauland Dual Level Call in Switch (Alternate Bid).

G. Status Light

1. Status Light will be powered and controlled by an IP Classroom Module.
2. Status lights will 2 light segments, one for classroom status and one for school status.
3. Each segment will display specific colors and blink patterns based on status priorities.

H. Zone Page Amplifier Module

1. Depending on configuration the amp output is either 14 or 35 watts.
2. Can be wall or rack mounted.
3. Powered with either a wall wort or POE+.
4. Supervised via network connection.

I. Input/Output Module

1. Provides dual input and dual output contact closure points to control external devices such as Alert Lights, Strobes, Fire Alarm Panels or Security systems.
2. Provides the ability to connect panic buttons to the system. Digital encryption of all control signals for excellent security.
3. Compliant with IEEE 802.3af Power over Ethernet (PoE) Standard.
4. Independent relay outputs: 2 Dual Pole, Single throw (DPST), 30 VDC at 5 Amperes, 125 VAC at 5 Amperes.
5. Network compliant with one RJ-45 Network Socket, 24 AWG Minimum Category 5e or better.

J. Interior Ceiling Speakers (IP Addressable) – Type P1

1. Provide Ceiling Speaker Assembly consisting of 8 Ohm, speaker mounted in a 2 foot by 1 foot, lay-in baffle, with an integrated back box that covers the full area of the baffle.
2. The speaker shall be connected by inserting an 8-pin RJ45 terminated CAT 5e or Cat 6 cable.
3. The speaker shall include provisions to allow attachment of a safety cable if required.
4. Rauland model BAFKIT1X2S8RJ.

K. Interior Ceiling Speakers – Type P2

1. Provide Ceiling Speaker Assembly consisting of 25/70 Volt, speaker mounted in a 2 foot by 1 foot, lay-in baffle, with an integrated back box that covers the full area of the baffle.
2. The speaker shall be connected by tapping the speaker transformer at ¼, ½ 1, 2 or 5 watts.
3. The speaker shall include provisions to allow attachment of a safety cable if required.
4. Rauland model BAFKIT1X2S.

L. Wall Mounted Horns – Type P3

1. Provide wide-angle heavy-duty type horn loudspeakers with integral driver. The horn loudspeaker shall be impervious to weather and vandalism. Horn shall be constructed of heavy-duty ABS resin. Horn loudspeaker

drivers shall be rated at 30 watts with a frequency response of 225 Hz to 14 KHz. Sensitivity shall be 107 dB 1 watt, 1 meter. Transformer assembly shall be dual voltage multi-tap type suitable for 25 or 70-volt installations. Dispersion pattern shall be 180 degrees conical. The horn loudspeaker shall be constructed of treated heavy gauge aluminum, with all exposed parts potted and a sealed driver. Wiring terminal shall be fully enclosed. The speaker flange and mounting surface shall have a cork-rubber gasket. The horn loudspeakers finish shall be gray baked on enamel.

2. The surface back box shall be of heavy gauge cold-rolled steel, spot welded for stability with a rust-retardant gray primer finish. Acoustically treat the interior to eliminate mechanical resonance. The back box shall be 10-3/4"x10-3/4"x6" deep.
3. The baffle shall be vandal proof, the faceplate constructed of 14-gauge carbon steel with a minimum tensile strength of 55,000 PSI. A lattice grid sub-plate shall deny access to the horn but be acoustically transparent for sound projection. Provide tamper-proof, stainless steel mounting hardware. The baffle shall a mar/scratch baked epoxy rust inhibitive finish.
4. Quam System 6VP.

M. Exterior Wall Mounted Horn – Type P4

1. Provide heavy duty type horn loudspeakers with integral driver. The horn loudspeaker shall be impervious to weather and vandalism. Horn shall be constructed of 14 – gauge, carbon steel. Horn loudspeaker drivers shall be rated at 16 watts with a frequency response of 350 Hz to 10,000 Hertz. Sensitivity shall be 108 dB 1 watt, 1 meter. Transformer assembly shall be dual voltage multi-tap type suitable for 25 or 70-volt installations.
2. The surface mount back box shall vandal resistant stainless steel with tamper resistant screws.
3. The baffle shall be vandal proof, square, two-piece construction, 14-gauge carbon steel, baked white epoxy finish. Dimensions 11.7" square with a 4.0" depth.
4. Quam System 6VPS with stainless steel backbox.

N. Volume Control

1. The Area Speaker Volume Control is designed to control the volume of either one or several speakers in a commonly wired group for up to 10 watts of total power. It provides 10 steps of attenuation plus an Open Circuit position, and is designed for use with either 25V or 70V lines. Attenuation is accomplished in 6dB steps at positions 1 and 2, and in 3dB steps at positions 3 through 10. To prevent damage to the control, there is not stop between position"10" (Max) and "0" (Off). The unit features silver plated switch contacts and a brushed stainless steel single gang wall plate with a black knob. Unit installs in a standard single gang electrical box.
2. Rauland model ACC1300.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with the Installer present, for compliance with requirements and other conditions affecting the performance of the School Communications and School Safety Network.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.

B. Furnish and install all material, devices, components and equipment for a complete operational system.

C. Impedance and Level Matching: Carefully match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.

D. Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors as recommended by system manufacturer to provide control functions indicated or specified.

E. All housings are to be located as indicated.

F. The contractor shall provide necessary transient protection on the AC power feed, all copper station lines leaving or entering the building, and all central office trunks. All protection shall be as recommended by the equipment supplier and referenced to earth ground.

G. Wiring within Enclosures: Provide adequate length of conductors. Bundle, lace, and train the conductors to terminal points with no excess. Provide and use lacing bars.

H. Provide physical isolation from speaker-microphone, telephone, line-level wiring, and power wiring. Run in separate raceways, or where exposed or in same enclosure, provide 12-inch minimum separation between conductors to speaker-microphones, telephone wiring and adjacent parallel power. Provide physical separation as recommended by equipment manufacturer for other system conductors.

I. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.

J. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

3.3 GROUNDING

A. Provide equipment grounding connections for Integrated Electronic Communications Network systems as indicated. Tighten connections to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

B. Ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize to the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide 5-ohm ground at main equipment location. Measure, record, and report ground resistance.

C. Provide all necessary transient protection on the AC power feed and on all copper station lines leaving or entering the building. Note in system drawings, the type and location of these protection devices as well as all wiring information.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide services of a duly factory authorized service representative for this project location to supervise the field assembly and connection of components and the pre-testing, testing, and adjustment of the system.

B. Inspection: Make observations to verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Provide a list of final tap settings of paging speaker line matching transformers.

C. Testing: Rectify deficiencies indicated by tests and completely re-test work affected by such deficiencies at Contractor's expense. Verify by the system test that the total system meets the Specifications and complies with applicable standards.

3.5 FINAL ACCEPTANCE TESTING

A. The Final Acceptance Testing shall be provided to the Owner or the Owners designated representative only. Final acceptance testing to any other trade or service provider for the project will not comply with the requirements of this section.

B. The contractor will provide a Final Acceptance Test record document signed by both the contractor and the Owner or designated Owner's Representative establishing the "In Warranty" date. The warranty period will not commence until the Final Acceptance Test is completed.

C. Be prepared to verify the performance of any portion of the installation by demonstration, listening and viewing test, and instrumented measurements. Make additional adjustments within the scope of work and which are deemed necessary by the Owner because of the acceptance test.

3.6 COMMISSIONING

A. The contractor shall train the Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. This training will be in accordance with the training as outlined in Section 1.6 of these specifications. In addition to the Training Materials provided, the contractor will also furnish Operators Manuals and Users Guides at the time of this training.

B. Schedule training with Owner through the owner's representative, with at least seven days advance notice.

3.7 OCCUPANCY ADJUSTMENTS

A. The contractor shall provide Occupancy Adjustments in accordance with Section 1.6 of these specifications. A response scenario amenable to both the owner and the contractor will be established and followed for the first year of service.

3.8 CLEANING AND PROTECTION

A. Prior to final acceptance, the contractor shall vacuum and clean all system components and protect them from damage and deterioration. All blank spaces in equipment cabinets will be covered with blank panels. Top and side panels, and all cabinet doors will be installed. All general areas within and around all equipment rack/cabinets in the facility will be swept, vacuumed, and cleaned up. No cabinets will be left unlocked and all cabinet keys will be turned over to the owner or designated owner's representative.

END OF SECTION 27 5120