REQUEST FOR COMPETITIVE SEALED BIDS
FR-18 PIERCE ROAD FIRE/RESCUE SUBSTATION 34

BIDS DUE: Wednesday, July 16, 2014 at 11:00am

MAIL BID TO:
Colleton County
Procurement Office
Attn: Kaye B Syfrett
PO Box 157
Walterboro, SC 29488

HAND DELIVER BID TO:
Procurement Office
Attn: Kaye B Syfrett
109 Benson Street
Walterboro, SC 29488

BID OPENING LOCATION:
Council Chambers
109 Benson Street, 2nd Floor
Walterboro, SC 29488
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END OF TOC
SECTION 001300 – PROJECT AND CONSTRUCTION SCHEDULE

EXECUTION OF CONTRACT/NTP

NOTICE TO PROCEED SHALL BE UPON CONTRACT EXECUTION BY THE OWNER AND UPON RECEIPT OF INSURANCE CERTIFICATES AND BONDS.

CONTRACT DAYS BEGINNING ON THE DAY OF THE EXECUTION OF THE BUILDING PERMIT.

COMMENCEMENT OF WORK DAY OF EXECUTION OF CONTRACT

SUBSTANTIAL COMPLETION

THE DATE OF SUBSTANTIAL COMPLETION SHALL BE AS FOLLOWS:

120 CALENDAR DAYS

FINAL COMPLETION NO LATER THAN 30 DAYS FROM DATE OF SUBSTANTIAL COMPLETION.

SECTION 00200 - INSTRUCTIONS TO BIDDERS

A. Project Name and Location: FR-18 Pierce Road Fire/Rescue Substation 34 - Colleton County S.C.

1. This project is a single story, two and one half bay pre-engineered metal building.
2. The truck bay area shall have a painted plywood wall 8'-0” high. Overhead sectional doors are operated by remotes. All exterior door hardware shall have keypad lockset systems. Site work shall include clearing, grubbing, fill, retention, and potable well. The drive and parking area shall be concrete. Site accessories shall include signage as indicated on the drawings. A potable well with all connections are part of this contract as well as septic tank and drain field. All DOT, OCRM, SCDHEC permits have been granted. The contractor is to supply the construction documents for the Pre-engineered building based on his selected manufacture. The contractor shall provide from the building manufacture and engineered sealed from the State of South Carolina a set of documents that shall meet all required codes and regulations as called for in the plans. Building colors shall be selected from standard color list, but the roof shall be galvalume. **There shall be no penetrations in the roof, including vent piping.**
3. The Contractor shall pay for all Building Permit Fees. All mobilization mileage shall be calculated from 113 Mabel T. Willis Blvd. to project site, regardless of location of contractor’s office. Mileage is 25 miles.

THE BIDDER SHALL ACCOMPANY EACH BID WITH BID SECURITY IN THE FORM OF A 5% BID BOND OR A CERTIFIED CHECK.

THE BIDDER REPRESENTS THAT HE WILL ENTER INTO A CONTRACT WITH THE OWNER FOR THE DOLLAR AMOUNT OF THE BASE BID AND ALTERNATES, IF ANY, AND THE UNIT PRICES, IF ANY, STATED IN HIS BID AND THE WRITTEN REQUIREMENTS CONTAINED IN THE PROJECT MANUAL.

SHOULD THE BIDDER REFUSE TO ENTER INTO SUCH CONTRACT AND 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.

FOR THE PURPOSE OF EXECUTING THE BID SURETY FORMS OR CERTIFIED CHECK, THE OWNER IS COLLETON COUNTY, WALTERBORO, SOUTH CAROLINA.

A. To be eligible to write the bid surety bond, the surety company must be licensed to do business in the State of South Carolina and shall also be acceptable to the owner.

B. Bidding Documents: This document contains instructions to bidders for the project named above. This bidding document is not part of the Contract Documents, unless specifically referenced in the Owner/Contractor Agreement.

C. Bid Documents: To obtain bidding documents contact:
   1. Colleton County
   2. Kaye Syfrett
   3. PO Box 157
   4. Walterboro, S.C. 29488
   5. 843-782-0504
   6. ksyfrett@colletoncounty.org

D. Documents: Drawings can be downloaded from: www.colletoncounty.org

E. Submission of Bids: Submit Bid Form before the time and date below. Late submissions will not be considered. Submit bids in sealed and labeled envelopes with the project name and bidder's name on the outside of the envelope. Mark the envelope: “Bid Enclosed - Do Not Open.”

MAIL BID TO:
Procurement Office
Attn: Kaye B Syfrett
PO Box 157
Walterboro, SC 29488

HAND DELIVER BID TO:
Procurement Office
Attn: Kaye B Syfrett
109 Benson Street
Walterboro, SC 29488

BID OPENING LOCATION:
Council Chambers
109 Benson Street, 2nd Floor
Walterboro, SC 29488

**Bids due: Wednesday, July 16, 2014 at 11:00am**

Bids will be opened in public. Bidders may be present. Bids may not be withdrawn for 30 calendar days after receipt of bids. Announcements of bid results will be made at bid opening and verified within 10 days.
F. Bonds: A Performance and Payment Bond is required. Each bidder shall submit evidence of bondability for the entire value of the work. Bonds must be executed by a surety company licensed to do business at the location of the project. Bond form shall be AIA Document A312.

G. Modifications: Oral, fax or email modifications to bids will not be considered.

H. Acceptance of Bids: The Owner reserves the right to reject or accept any or all bids or to enter into negotiations with any bidder. The Owner reserves the right to waive any alleged breach of technicality.

I. Modifications: The Owner reserves the right to modify the Contract Documents and rebid the project, if necessary, to meet Owner's budgetary requirements.

J. Questions: During the bidding period, submit questions to the person named below. Questions will be answered in the form of an addendum and posted on the County website.

1. Bill Chambers
2. R. W. Chambers, Architect
3. P O Box 1181
4. Beaufort, SC 29901
5. 843-379-1000
6. Email: rwchambers@hargray.com

K. Site Visit: A site visit is not required but encouraged. Contact Bill Chambers to arrange a visit.

SECTION 00230 – LIQUIDATED DAMAGES

A. Liquated damages is the agreed by the Contractor and Owner to Reimburse the Owner for damages due to failure of the Contractor to complete the work in accord with the project requirements and Construction Schedule.

1. Should the Contractor neglect or refuse to achieve substantial completion on or before the day as agreed in the Construction schedule they, shall pay the owner liquated damages in the amount of: $300.00 per day for each and every calendar day that the work is not finally complete.

   The Contract Agreed upon time shall be **120 days** for final completion.

END OF DOCUMENT
SECTION 00410 - BID FORMS

A. Submission of Bids: Submit bids in compliance with Document 00 21 00 - Instructions to Bidders. Fill in blanks. The Owner reserves the right to reject incomplete bid forms. Complete the Attached Bid Form Schedule of Value Sheet, attached in addition to this form. Failure to complete both forms can result in the rejection of the bid.

B. Bidding Documents: This Bidding document is not part of the Contract Documents, unless specifically referenced in the Owner/Contractor Agreement.

C. Project Name: FR-18 PIERCE ROAD FIRE/RESCUE SUBSTATION 34

D. Project Owner: _________________________

E. Name of Bidder: ______________________

F. Base Bid: The Bidder proposes to perform all of the Work required by the Contract Documents for the amount of: (Fill in amount in words and numbers.)
   1. $ ______________________

G. Bonds: If the Bidder is required to furnish a Performance Bond and Payment Bond (AIA A312) for the entire value of the Work, add the following amount to the base bid amount:
   1. $ ______________________

H. Alternates: None

I. Time: The Bidder proposes the following dates:
   1. Proposed Starting Date: _______________________
   2. Proposed Date of Substantial Completion: _______________________

J. Submission of Bid Form: By submitting this Bid Form, the Bidder certifies that Bidder has visited the project site, is aware of existing conditions which affect the work, and has reviewed the Contract Documents, including the following Addenda:
   1. __________________
   2. __________________
   3. __________________
   4. __________________
   5. __________________
K. Signature: Signed and sealed (Enter date, Bidder's signature, title, name of firm, legal business address, phone and fax numbers, and email address):

1. Business name: ________________________________

2. Name and Title(print): ________________________________

3. Signature: ________________________________

4. Address: ________________________________

5. City_____________ State_____________ Zip_____________

6. Telephone: ________________________________

7. Fax: ________________________________

8. Email(print): ________________________________

L. Project Manager: Bidder's Project Manager to Be Assigned to the Project and years of experience:

1. ________________________________ Years of experience ______________

M. Subcontractors: Bidder's List of Proposed Major Subcontractors (list):

1. ________________________________

2. ________________________________

3. ________________________________

4. ________________________________

N. Complete the Bid Form Schedule of Value Sheet that is Attachment 1
SECTION 00520 - AGREEMENT FORMS

A. Owner-Contractor Agreement Form: AIA A105, Owner-Contractor Agreement Form - Small Projects and A205 General Conditions for Small Project.

B. Agreement Forms: Agreement forms are available from the American Institute of Architects, Washington, D.C., 202-626-7300. Agreement Forms will be prepared and approved for use on the project by the Owner in consultation with an attorney.

SECTION 00610 - BOND FORMS

A. Bid Bond: AIA A310, Bid Bond.

B. Performance Bond and Payment Bond: AIA A312, Performance Bond and Payment Bond.

C. Bond Forms: Bond forms are available from the American Institute of Architects, Washington, D.C., 202-626-7300. Bond Forms will be prepared and approved for use on the project by the Owner in consultation with an attorney.

DOCUMENT 00651 - INDEMNITY PROVISION

A. Contractor (or lessee or vendor) assumes entire responsibility and liability for losses, expenses, demands and claims in connection with or arising out of any injury, or alleged injury (including death) to any person, or alleged damage, to property of County or others sustained or alleged to have been sustained in connection with or to have arisen out of or resulting from the performance of the work/service by the contractor, his sub-contractors, agents, and employees, including losses, expenses or damages sustained by the County, and agrees to indemnify and hold harmless the County, its officials, employees or volunteers from any and all such losses, expenses against them, or any of them, based on any such alleged injury or damage, and to pay all damages, cost and expenses in connections therewith or resulting therefrom. As an integral part of this agreement, contractor agrees to purchase and maintain during the life of this contract, contractual liability insurance in the amount required in the general liability insurance requirements and to furnish proper evidence thereof.

DOCUMENT 00700 - GENERAL CONDITIONS

A. General Conditions: AIA 205 General Conditions for Small Projects.

B. General Conditions Forms: General Conditions are available from the American Institute of Architects, Washington, D.C., 202-626-7300. General Conditions will be prepared and approved for use on the project by the Owner in consultation with an attorney.
PART 1  GENERAL REQUIREMENTS OF THIS SECTION

THE FOLLOWING PROVISIONS SHALL GOVERN THE WORK UNDER THIS SECTION THE SAME AS IF INCORPORATED HEREIN:

• THE INSTRUCTIONS TO BIDDERS
• THE GENERAL CONDITIONS
• THE SUPPLEMENTAL GENERAL CONDITIONS

1.1 CONSTRUCTION PHASING

NONE REQUIRED

1.2 CONTRACTOR’S USE OF PREMISES

CONTRACTOR SHALL CONFINCE HIS ACTIVITIES TO THE AREA CONTAINED WITHIN THE PROJECT LIMITS SHOWN ON SITE PLAN.

1.3 TEMPORARY FACILITIES AND PROVISIONS

A. BARRICADES AND FENCING

PROVIDE AND MAINTAIN SAFETY BARRICADES, FENCES, TEMPORARY WALKS, BRACING AND SHORING AND SIGNALS IN COMPLIANCE WITH LOCAL REQUIREMENTS, LAW ENFORCEMENT REGULATIONS AND AS NECESSARY TO SEPARATE NON-PROJECT PERSONS FROM HAZARDOUS CONSTRUCTION AREAS.

B. UTILITIES

INSTALL UTILITIES TO TEMPORARY OFFICE, STORAGE SHEDS, ETC. CONTRACTOR’S USE OF UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR.

PROVIDE TEMPORARY LIGHTING WITHIN THE BUILDING AS THE WORK PROGRESSES.

C. SANITARY FACILITIES

PROVIDE AND MAINTAIN, IN SANITARY CONDITION, ENCLOSED WEATHERTIGHT CHEMICAL TOILETS FOR USE BY PERSONNEL OF THE CONTRACTOR. INSTALLATION SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND OF AUTHORITIES HAVING JURISDICTION. UPON COMPLETION OF THE WORK, TOILETS AND APPURTENANCE SHALL BE REMOVED, LEAVING PREMISES IN SANITARY, CLEAN CONDITION.

D. TEMPORARY TELEPHONE

PROVIDE AND PAY FOR A TELEPHONE OR CELL PHONE ON THE CONSTRUCTION SITE.

E. CONSTRUCTION TRAILERS, CONTRACTORS

CONSTRUCTION OFFICE AND STORAGE FACILITIES MAY BE TRAILERS CONSTRUCTED ESPECIALLY FOR SUCH USE. SHEDS OR SHANTIES PROVIDED FOR CONTRACTOR’S CONVENIENCE SHALL BE LOCATED AND CONSTRUCTED SO AS NOT TO INTERFERE WITH THE PERFORMANCE OF ANY WORK AND SHALL BE MAINTAINED IN GOOD CONDITION. UPON COMPLETION OF THE WORK, TEMPORARY BUILDINGS SHALL BE DISMANTLED OR REMOVED FROM THE PREMISES.

F. TEMPORARY SECURITY

AS WORK PROGRESSES AND UPON COMPLETION OF EXTERIOR WALLS, PROVIDE TEMPORARY PLYWOOD DOORS WITH HINGES AND HASPS AT DOORS AND FIXED PLYWOOD
COVERS AT WINDOWS WIDER THAN 6”. LOCK BUILDING DURING NON-CONSTRUCTION PERIODS. PROVIDE SECURITY OF ON-SITE CONSTRUCTION MATERIALS BY STORING IN LOCKABLE AREAS.

1.4 QUALITY ASSURANCE

A. INTENT OF DOCUMENTS

THE DOCUMENTS DO NOT SHOW ALL DETAILS OF BOLTS, NUTS, CONNECTIONS, WELDS, FABRICATIONS OR THE LIKE REQUIRED FOR A COMPLETE SYSTEM AND DO NOT INDICATE EXACT LOCATIONS OF FIXTURES, EQUIPMENT, CONDUIT, PIPING OR OTHER COMPONENTS. CHANGES NECESSARY TO ACCORD WITH STRUCTURAL, ARCHITECTURAL, OR FABRICATION CONDITIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. ALL COMPONENTS NECESSARY FOR PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

B. PROTECTION OF OWNER’S PROPERTY

PROTECT FROM DAMAGE DUE TO HIS WORK, METHODS, PROCEDURES AND WORKMEN THE OWNER’S PROPERTY INCLUDING BUILDING SURFACES, FINISHES, SYSTEMS, EQUIPMENT, FURNITURE, SUPPLIES, AND SITE IMPROVEMENTS INCLUDING GRASS AND THE WORK OF OTHER SUBCONTRACTORS ASSOCIATED WITH THIS PROJECT. REPAIR OR CAUSE TO BE REPAIRED DAMAGE TO OWNER’S PROPERTY AT NO COST TO THE OWNER.

C. PRODUCTS AND MATERIALS

PROVIDE MATERIALS AND PRODUCTS IN THE WORK WHICH ARE NEW AND OF TOP QUALITY. MANUFACTURED MATERIALS SHALL BE DELIVERED AND STORED IN THEIR ORIGINAL CONTAINERS. EQUIPMENT SHALL BE CLEARLY MARKED WITH THE MANUFACTURER’S NAME AND RATING. ASSUME FULL RESPONSIBILITY FOR PROTECTION, STORAGE, SAFETY AND DAMAGE TO STORED AND INSTALLED MATERIALS UNTIL SUBSTANTIAL COMPLETION.

D. QUALIFICATION OF WORKPERSONS

PROVIDE SKILLED WORKPERSONS THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND TRADES.

E. WORKMANNISHIP

MATERIALS ENTERING INTO FABRICATION OF THE WORK SHALL BE SECURELY ANCHORED AND/OR SECURED TOGETHER IN ACCORDANCE WITH THE BEST QUALITY FOR INTENDED PURPOSE. ENSURE THAT EVERY PIECE OF MATERIAL SHALL BE BONDED, ANCHORED, TIED, OR OTHERWISE SECURED IN PLACE IN A PERMANENT MANNER.

INSTALL ALL ITEMS IN A WORKMAN-LIKE MANNER IN ACCORDANCE WITH BEST RECOGNIZED PRACTICE. ALL WORKING PARTS SHALL BE PROPERLY ADJUSTED AFTER INSTALLATION AND BE LEFT IN PERFECT WORKING ORDER. ALL ITEMS IN WALL, FLOORS, OR ROOFS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE A PERMANENT WATERTIGHT AND WEATHERTIGHT INSTALLATION. UNLESS OTHERWISE INDICATED, ITEMS EXPOSED TO WEATHER OR SUBJECT TO FLOODING OR WETTING SHALL BE INSTALLED SO AS TO SHED AND NOT HOLD WATER. ITEMS IN ALL CASES SHALL BE INSTALLED PLUMB AND TRUE AND OR IN PROPER RELATIONSHIP TO ADJOINING MATERIALS.

COMPLY WITH MANUFACTURER’S INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLATION, INCLUDING PREPARATION OF SUBSTRATE AND APPLICATION. THE MANUFACTURER’S RECOMMENDED METHOD OF INSTALLATION SHALL BE THE BASIS FOR INSPECTING THE ACTUAL INSTALLATION OF THE WORK.
CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS HAVE BEEN COMPLETED.

NOTIFY THE COUNTY IN ADVANCE OF ALL TESTS. ACCEPTANCE TESTS FOR OPERATION AND PERFORMANCE, AS SPECIFIED AND/OR REQUIRED FOR ALL EQUIPMENT AND SYSTEMS, SHALL BE IN THE PRESENCE OF THE ARCHITECT/ENGINEER, AS WELL AS REPRESENTATIVES OF AGENCIES, IF ANY, HAVING JURISDICTION, UPON COMPLETION OF THE WORK.

DURING VARIOUS PORTIONS OF THE WORK, THE ARCHITECT/ENGINEER SHALL CAUSE TO BE MADE TESTS WHICH HE MAY CONSIDER NECESSARY. TESTED WORK THAT IS NOT IN ACCORD WITH REQUIREMENTS SHALL BE SO CORRECTED. THE EXPENSE FOR ADDITIONAL TESTS OF PRIOR NONCONFORMING WORK SHALL BE BORNE BY THE CONTRACTOR.

F. COORDINATION OF THE WORK

COORDINATE THE WORK OF ALL TRADES TO AVOID INTERFERENCES, ESTABLISH NECESSARY SPACE REQUIREMENTS, AND SCHEDULE THE TIMING SO AS NOT TO CAUSE DELAYS TO ANY PHASE OF THE CONSTRUCTION.

COORDINATE DELIVERY OF THE UNITS, SUBUNITS AND/OR ASSEMBLIES TO ALLOW PROMPT, COMPLETE FINAL ERECTION OF THE WORK.

PRIOR TO STARTING INSTALLATION, SUBCONTRACTORS SHALL FURNISH TO THE GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS CONCERNED, COPIES OF APPROVED SHOP DRAWINGS SHOWING LOCATION OF EQUIPMENT, PIPING, ETC.

SCHEDULE PERIODIC MEETINGS WITH OTHER TRADES BEFORE AND DURING INSTALLATION TO AVOID CONFLICTS AND ASSURE THAT PIPES AND EQUIPMENT ARE INSTALLED IN THE BEST MANNER, TAKING INTO CONSIDERATION HEAD-ROOM, MAINTENANCE, APPEARANCE, AND REPLACEMENT.

PIPING, FIXTURES, EQUIPMENT, ETC., SHALL BE LOCATED TO AVOID INTERFERENCE WITH STRUCTURAL AND ARCHITECTURAL CONDITIONS, OR WITH THE WORK OF DIFFERENT TRADES. PROVIDE OFF-SETS WHERE NECESSARY TO AVOID FOOTINGS, PIERS, COLUMNS, BEAMS, WINDOWS, OTHER PIPING, ELECTRICAL FIXTURES, AND OTHER SYSTEMS, ETC. SUBCONTRACTORS SHALL SPECIFICALLY INFORM THE GENERAL CONTRACTOR AS TO THE CORRECT SIZE AND LOCATION OF ALL CHASES, OPENINGS, SUPPORTS, SLEEVES, ETC., REQUIRED FOR THE SYSTEM. FURNISH AND INSTALL SLEEVES, INSERTS, BOLTS, ETC., AND ARRANGE FOR THE CUTTING OF WALLS, FLOORS, ROOFS, ETC., AND THE PROPER CLOSING OF ALL OPENINGS. CUTTING OF CONSTRUCTION, WHERE UNAVOIDABLE, MUST BE DONE BY THE GENERAL CONTRACTOR. NO PART OF THE BUILDING MAY BE BROKEN OUT, CUT, BURNED, OR PERMANENTLY REMOVED WITHOUT THE APPROVAL OF THE ARCHITECT/ENGINEER.

G. MINOR CHANGES IN THE WORK

WHERE DEPARTURES FROM INDICATED ARRANGEMENTS ARE REQUIRED, WRITTEN APPROVAL FOR SUCH CHANGES SHALL BE OBTAINED FROM COLLETON COUNTY.

H. CORRECTIONS IN THE WORK

IN THE EVENT OF WORK JUDGED TO BE “NON-CONFORMING” TO THE INTENT OF THE CONTRACT DOCUMENTS BY THE ARCHITECT/ENGINEER OF RECORD, COLLETON COUNTY AND/OR THE A/E MAY REJECT SUCH MATERIALS, EQUIPMENT, AND OR WORKMANSHIP. SUCH WRITTEN REJECTION SHALL BE CONSTRUED AS GIVING FIRST NOTICE TO A BREACH OF CONTRACT. THE CONTRACTOR SHALL REPLACE WORK WITH CONFORMING WORK WITHIN TEN (10) DAYS FROM WRITTEN NOTICE OF REJECTION AT NO COST TO THE OWNER.
1.5 CLEANING

It is the intent of the following to provide on going daily cleaning of the work in progress and within the limits of construction so that debris of construction is placed within waste receptacles, dust and residue from construction processes do not accumulate and materials to be incorporated into the work are stored in accord with additional requirements of these conditions.

Provide waste receptacles at construction site throughout the duration of the work. Collect and dispose of organic waste on a daily basis.

Burning of construction materials is not allowed. Burning of organic debris from site preparation is subject to local jurisdictional approval.

Provide for the good, clean condition of all materials, equipment, and fabrications, including protection of internal mechanical components until substantial completion.

Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is complete. Schedule operations so that dust or other contaminants resulting from cleaning or other process will not fall in wet or newly coated surfaces.

Prior to notice of substantial completion remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign materials from sight-exposed interior and exterior surfaces.

Remove dust, miscellaneous debris and materials from the inside of casework and other equipment.

Clean the site of scrap materials resulting from the work, miscellaneous lunch debris (chicken bones, etc.) and general litter on a daily basis.

Use of owner garbage containers is not allowed.

Clean dirt and mud from public right of ways on a per occurrence basis.

Dispose of all debris from site in a legal and approved manner.

1.6 SAFETY

Work performed in such a manner as to comply with regulations set forth to implement occupational safety and health act of 1970, and as may be amended.

Owner’s safety and traffic regulations

Contractor shall observe owner’s safety and traffic regulations and shall not place, store, nor park any vehicles or materials in any locations not designated or assigned by the owner that may interfere with operations simultaneously in progress.

Protection of life and property/ first aid

The contractor shall agree that work will be completed with the greatest degree of safety and to conform to the provisions of the manual of accident prevention in construction published by the associated general contractors of america, latest edition. Articles necessary for giving “first aid” shall be maintained in the contractor’s field office at the site. There shall be standing arrangements for immediate removal and hospital treatment of any employee injured or who may become ill and require such treatment.

OSHA standards: Contractor’s attention is directed to safety, health, first aid and medical provisions of the occupational safety and health standards,
SECTION 01100 - SUMMARY

PART 1 GENERAL

1.1 SUMMARY

A. Project Identification: FR-18 PIERCE ROAD FIRE/RESCUE SUBSTATION 34

B. Project Summary: New 2 ½ Bay Pre-engineered Fire/Rescue Substation

C. Particular Project Requirements:

1. Contractor shall provide the design of the Pre-engineered building by a registered SC engineer, the documents are a basis of design.
2. Contractor shall supply the County and Architect with the Loads required to verify the foundation design.
3. Contractor shall employ at his own expense an Registered Structural Engineer to modify the designed foundation to meet the requirements of his metal building design.
4. Contractor to purchase two pieces of equipment for Colleton County to install. Storage of items shall be within the Station constructed.
   a. Ice Maker- see attached cut sheet
   b. Compressor – see attached cut sheet.

D. Permits and Fees: Apply for, obtain, and pay for permits, fees, and utility company backcharges required to perform the work. Submit copies to Colleton County. Currently, DOT, DHEC, OCRM have been obtained.

E. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communications to Architect.

F. Dimensions: Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.

G. Existing Conditions: Notify Architect of existing conditions differing from those indicated on the drawings. Do not remove or alter structural components without prior written approval.

H. Coordination:

1. Coordinate the work of all trades.
2. Prepare coordination drawings for areas above ceilings where close tolerances are required between building elements and mechanical and electrical work.
3. Verify location of utilities and existing conditions.
I. Installation Requirements, General:

1. Take field measurements prior to fabrication where practical. Forms to required shapes and sizes with true edges, lines and angles. Provide inserts and templates as needed for work of other trades.
2. Install materials in exact accordance with manufacturer's instructions and approved submittals.
3. Install materials in proper relation with adjacent construction and with proper appearance.
4. Restore units damaged during installation. Replace units which cannot be restored at no additional expense to the Owner.
5. Refer to additional installation requirements and tolerances specified under individual specification sections.

J. Limit of Use: No Restrictions.

K. Existing Construction: Provide proper silt protection from DOT R.O.W and Wetlands:

L. Intent: Drawings and specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonable implied or necessary for proper performance of the project shall be included.

M. Writing Style: Specifications are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, ‘Provide tile’ means ‘Contractor shall provide tile.’

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Administration of Contract: Provide administrative requirements for the proper coordination and completion of work including the following:
   1. Supervisory personnel.
   2. Preconstruction conference.
   3. Project meetings, minimum of one per month; prepare and distribute minutes.

B. Reports: Submit weekly and special reports.

C. Work Schedule: Submit progress schedule, updated monthly.

D. Submittal Schedule: Prepare submittal schedule; coordinate with progress schedule.

E. Schedule of Values: Submit schedule of values, the bid form is the schedule of value.

F. Schedule of Tests: Submit schedule of required tests including payment and responsibility.
G. Perform Surveys: Lay out the work and verifying locations during construction. Perform final site survey.

H. Emergency Contacts: Submit and post a list of emergency telephone numbers and address for individuals to be contacted in case of emergency.

I. Record Documents: Submit record drawings and specifications; to be maintained and annotated by Contractor as work progresses.

1.2 SUBMITTALS

A. Types of Submittals: Provide types of submittals listed in individual sections and number of copies required below.
   1. Shop drawings, reviewed and annotated by the Contractor - 4 copies.
   2. Product data - 2 copies.
   3. Samples - 2, plus extra samples as required to indicate range of color, finish, and texture to be expected.
   4. Inspection and test reports - 2 copies.
   5. Warranties - 2 copies.
   7. Closeout submittals - 2 copies.

B. Submittal Procedures: Comply with project format for submittals. Comply with submittal procedures established by Architect including Architect's submittal and shop drawing stamp. Provide required resubmittals if original submittals are not approved. Provide distribution of approved copies including modifications after submittals have been approved.

C. Samples and Shop Drawings: Samples and shop drawings shall be prepared specifically for this project. Shop drawings shall include dimensions and details, including adjacent construction and related work. Note special coordination required. Note any deviations from requirements of the Contract Documents.

D. Warranties: Provide warranties as specified; warranties shall not limit length of time for remedy of damages Owner may have by legal statute. Contractor, supplier or installer responsible for performance of warranty shall sign warranties.

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Quality Monitoring: Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality. Perform quality control
procedures and inspections during installation.

B. Standards: Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

C. Tolerances: Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate. Comply with manufacturers' tolerances.

D. Reference Standards: For products or workmanship specified by association, trades, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

E. Manufacturer’s Field Services: When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to perform the following as applicable, and to initiate instructions when necessary.

1. Observe site conditions.
2. Conditions of surfaces and installation.
3. Quality of workmanship.
4. Start-up of equipment.
5. Test, adjust and balance of equipment.

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Temporary Services: Provide temporary services and utilities, including payment of utility costs including the following.

1. Water (potable and non-potable).
2. Lighting and power.
4. Telephone.
5. Toilet facilities.

B. Construction Facilities: Provide construction facilities, including payment of utility costs needed to complete the project.

C. Security and Protection: Provide security and protection requirements including the following.

1. Fire extinguishers.
2. Site enclosure fence, barricades, warning signs, and lights.
3. Building enclosure and lock-up.
4. Environmental protection.
5. Pest control during and at the end of construction.

D. Personnel Support: Provide personnel support facilities including the following.
   1. Contractor's field office or area.
   2. Sanitary facilities.
   3. Drinking water.
   4. Project identification sign.
   5. Cleaning.

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Manufacturers: Provide products from one manufacturer for each type or kind as applicable. Provide secondary materials as acceptable to manufacturers of primary materials.

B. Product Selection: Provide products selected or equal approved by Colleton County. Products submitted for substitution shall be submitted with complete documentation, and include construction costs of substitution including related work.

C. Substitutions: Request for substitution must be in writing and approved by Colleton County. Conditions for substitution include:
   1. An “or equal” phrase in the specifications.
   2. Specified material cannot be coordinated with other work.
   3. Specified material is not acceptable to authorities having jurisdiction.
   4. Substantial advantage is offered to the Owner in terms of cost, time, or other valuable consideration.

D. Substitution Requests: Substitutions shall be submitted prior to award of contract, unless otherwise acceptable. Substitutions not approved by Colleton County are the responsibility of the Contractor and the Contractor shall install the specified project at no additional cost to Colleton County. Approval of shop drawings, product data, or samples containing substitutions is not an approval of a substitution unless an item is clearly presented as a substitution at the time of submittal.

SECTION 01700 - EXECUTION AND CLOSEOUT REQUIREMENTS
PART 1 - GENERAL

1.1 SUMMARY

A. Substantial Completion: The following are prerequisites to substantial completion. Provide the following:
   1. Punch list prepared by Contractor and subcontractors as applicable.
   2. Supporting documentation.
   3. Warranties.
   4. Certifications.
   5. Occupancy permit.
   6. Start-up and testing of building systems.
   7. Change over of locks.
   8. Meter readings.

B. Final Acceptance: Provide the following prerequisites to final acceptance:
   1. Final payment request with supporting affidavits.
   2. Completed punch list.

C. As-Built Drawings: Provide a marked-up set of drawings including changes, which occurred during construction.

D. Project Closeout: Provide the following during project closeout:
   1. Submission of record documents.
   2. Submission of maintenance manuals.
   3. Training and turnover to Owner's personnel.
   4. Final cleaning and touch-up. Project shall be ready for Occupancy.
   5. Removal of temporary facilities.

PART 3 - EXECUTION

3.1 CUTTING AND PATCHING

A. Cutting and Patching: Provide cutting and patching work to properly complete the work of the project, complying with project requirements for:
   1. Structural work.
   2. Mechanical/electrical systems.
   3. Visual requirements, including detailing and tolerances.
   4. Operational and safety limitations.
   5. Fire resistance ratings.
   7. Cleaning.

B. Means and Methods: Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decrease energy performance, increase maintenance, decrease operational life, or decrease safety performance.
C. Inspection: Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.

D. Performance of Operations: Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.

E. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Inspect for concealed utilities and structure before cutting.

F. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.

G. Cleaning: Clean work area and areas affected by cutting and patching operations.

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Concrete mix designs and submittals required by ACI 301.

B. Ready-Mixed Concrete Producer Qualifications: ASTM C 94/C 94M.


PART 2 - PRODUCTS

2.1 MATERIALS

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain Steel Wire: ASTM A 82, as drawn.

C. Portland cement: ASTM C 150, Type I.

D. Aggregates: ASTM C 33 uniformly graded.


F. Chemical Admixtures: ASTM C 494, water reducing and retarding. Do not use calcium chloride or admixtures containing calcium chloride.
G. Vapor Retarder: Clear 6-mil-thick polyethylene sheet.

H. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

I. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

2.2 MIXES
A. Comply with ACI 301 requirements for concrete mixtures.

B. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:
   1. Minimum Compressive Strength: 3000 psi at 28 days.
   2. Maximum Water-Cementitious Materials Ratio: 0.45.
   3. Slump Limit: 4 inches, plus or minus 1 inch.
   4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of floor slabs to receive troweled finishes to exceed 3 percent.

C. Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M.
   1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONCRETING
A. Construct formwork according to ACI 301 and maintain tolerances and surface irregularities within ACI 347R limits of Class A, 1/8 inch for concrete exposed to view and Class C, 1/2 inch for other concrete surfaces.

B. Place vapor retarder on prepared sub grade, with joints lapped 6 inches and sealed.

C. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

D. Install construction, isolation, and contraction joints where indicated. Install full-depth joint-filler strips at isolation joints.

E. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.

F. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.

G. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.

H. Slab Finishes: Comply with ACI 302.1R for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Provide the following finishes:
1. Troweled finish for floor surfaces and floors to receive floor coverings, paint or other thin film-finish coatings.
2. Non-slip-broom finishes to exterior concrete platforms, steps, and ramps.

I. Cure formed surfaces by moist curing for at least seven days.
J. Begin curing concrete slabs after finishing. Keep concrete continuously moist for at least three days.
K. Owner will engage a testing agency to perform field tests and to submit test reports.
L. Protect concrete from damage. Repair surface defects in formed concrete and slabs.
M. Finish edges of walks and exterior slabs with the radius edging tool.

SECTION 062000 - FINISH CARPENTRY

PART 1 – GENERAL

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.

B. Softwood Plywood: DOC PS 1.

2.2 INTERIOR STANDING AND RUNNING TRIM

A. Interior Softwood Lumber Trim: #1 Southern yellow pine.

1) Maximum Moisture Content: 19 percent.

2.3 PANELING

A. Board Paneling: 3/4” thick X 8’-0”, APA BC. 8’-0”

PART 3 - EXECUTION

3.1 INSTALLATION

A. Conditions finish carpentry in installation areas for 24 hours before installing.
B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.

C. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.

D. Install paneling with uniform tight joints. Install miscellaneous 2”x4” wood blocking at the vertical joint of the plywood.

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Surface-Burning Characteristics: ASTM E 84, and as follows:

1) Flame-Spread Index: 25 or less where exposed; otherwise, as indicated in Part 2 "Insulation Products" Article.
2) Smoked-Developed Index: 450 or less.

C. Related Sections:

1) Section 133419 – Metal Building Systems: Roof Insulation

PART 2 - PRODUCTS

2.1 INSULATION PRODUCTS

A. Mineral-Fiber-Blanket Insulation: ASTM C 665, Type I, unfaced with fibers manufactured from glass, slag wood or rock wool, with flame-spread index of 25 or less.

1. Walls to be R-19(min)

2.2 ACCESSORIES

A. Vapor Retarder: Polyethylene, 10 mils thick.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.

B. Except for loose-fill insulation and insulation that is friction fitted in stud cavities, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

C. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams at framing members, overlap, and seal with tape.

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and color Samples.

B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4.4 deg C).

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.

B. Sealant for Use in Building Expansion Joints:

1) Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, M, and O, with the additional capability to withstand **50 percent movement in both extension and compression for a total of 100 percent movement**.

C. Sealant for General Exterior Use Where Another Type Is Not Specified, **One of the Following:**

1) Single-component, nonsag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 12-1/2; Uses NT, M, G, A, and O.
2) Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses T, NT, M, G, A, and O.
3) Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and Uses NT, M, A, and O.

D. Sealant for Exterior Traffic-Bearing Joints, Where Slope Allows Use of Pourable Sealant:
   1) Single-component, pourable urethane sealant, ASTM C 920, Type S; Grade P; Class 25; Uses T, M, G, A, and O.

E. Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Kitchens and Toilet Rooms and Around Plumbing Fixtures:
   1) Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide.

F. Sealant for Interior Use at Perimeters of Door and Window Frames:
   1) Latex sealant, single-component, nonsag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

2.2 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer.

B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 1193.

B. Comply with ASTM C 919 for use of joint sealants in acoustical applications.

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES
PART 1 – GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Shop Drawings.

B. Comply with ANSI/SDI A250.8.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M, suitable for exposed applications.

B. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.

C. Frame Anchors: ASTM A 591/A 591M, 4OZ (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.2 HOLLOW METAL DOORS AND FRAMES

A. Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated, 1-3/4 inches (44 mm) thick unless otherwise indicated.

1. 16-Gauge, Flush, Seamless with continuously welded edge joints.

   • Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than 4.0 deg F x h x sq. ft/Btu (0.704 K x sq. m/W) when tested according to ASTM C 1363.

2. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as door face sheets.

B. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.

1. Fabricate frames with mitered or coped and continuously welded corners, 14-Gauge Steel.

2. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

3. Frame Anchors: Not less than 0.042 inch (1.0 mm) thick.
C. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.

D. Grout Guards: Provide where mortar might obstruct hardware operation.

E. Prepare doors and frames to receive mortised and concealed hardware according to ANSI A250.6 and ANSI A115 Series standards.

F. Reinforce doors and frames to receive surface-applied hardware.

G. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hollow metal frames to comply with ANSI/SDI A250.11.

B. Install doors to provide clearances between doors and frames as indicated in ANSI/SDI A250.11.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer.

SECTION 083323 - OVERHEAD SECTIONAL DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Structural Performance: Design and reinforce overhead sectional doors to withstand wind-loading pressure, as indicated on drawings.

B. Submittals: Product Data and Shop Drawings.

PART 2- PRODUCTS

2.1 OVERHEAD SECTIONAL DOORS

A. Products:

1) AMARR Garage Doors, Model 31000 Heavy-Duty 2” Insulated Steel Door
B. Door Curtain Slats: Galvanized steel, flat-profile, insulated slats.

C. Operation: Electrical Motorized Operation, remote and switched opening, with manual override. Remote operation shall not be affected by other station or truck frequencies. Radio transmitters must open bay doors from within truck cab at 100 yards minimum distance. Antenna to be mounted on the exterior above the overhead door.

D. Tracks, Supports, and Hardware: Manufacturer's standard, mount inside of jambs. Each door track to have spring type stop at the back of open position.

E. Weather seals: Provide replaceable weather stripping at bottom and at top of exterior doors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install door, track and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports.

B. Test and adjust controls and safeties.

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Hardware schedule

B. Deliver keys to Owner.

PART 2 - PRODUCTS

2.1 HARDWARE

A. Hinges:
   1) FBB1199 HT, High Frequency, Non-Rising Pins, Full Mortise, 1 ½ pair per Door, manufactured by HAGER.

B. Locksets and Latch sets:
   1) Exterior Doors: KABA Lock, Mechanical push-button combination lock, Model #LL-1011-26D-41.
   2) Interior Doors: Lever, US26D Grade 2 Cylindrical lock-storeroom lock-levon.
C. Closers:
   1) LCN Model #4210 or Norton #PR7570.
   2) Mount closers on interior side (room side) of door opening. Provide regular-arm, parallel-arm, or top-jamb mount closers as necessary.

D. Provide wall stops for doors as indicated.
   1) Model #401, Manufactured by IVES

E. Door Silencers
   1) Furnish three for each single door installed in metal door frames.

F. Threshold
   1) Extruded Aluminum #171A, manufactured by PEMKO:

G. Weather-stripping
   1) Rigid Jamb Weather-stripping, #303AV, Manufactured by PEMKO
   2) Door Sweep #315DN, Manufactured by PEMKO

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Mount hardware in locations recommended by the Door and Hardware Institute unless otherwise indicated.

3.2 HARDWARE SCHEDULE
   A. SEE DRAWINGS FOR SCHEDULE

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - PRODUCTS
1.1 MANUFACTURERS
   A. USG
   B. Clark Dietrich Industries
   C. Approved Equal
1.2 METAL FRAMING AND SUPPORTS

A. Steel Framing Members, General: ASTM C 754.
   1) Steel Sheet Components: ASTM C 645. Thickness specified is minimum uncoated base-metal thickness.
   2) Protective Coating: manufacturer's standard corrosion-resistant zinc coating.

B. Partition and Soffit Framing:
   1) Studs and Runners: In depth indicated, 18 gauge, unless otherwise indicated.
   2) Rigid Hat-Shaped Furring Channels: In depth indicated, 20 gauge.

1.3 ACCESSORIES

A. General: Comply with referenced installation standards.
   1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power and other properties required to fasten steel members to substrates.

PART 2 - EXECUTION

2.1 INSTALLATION

A. Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

C. Isolate steel framing from building structure, except at floor, to prevent transfer of loading imposed by structural movement.
   1. Where studs are installed directly against exterior walls, install asphalt-felt or foam-gasket isolation strip between studs and wall.

SECTION 099100 - PAINTING

PART 1- GENERAL

1.1 SECTION REQUIREMENTS
A. Summary: Paint exposed surfaces unless otherwise indicated.
   1. Paint the back side of plywood interior with primer on panels.
   2. Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated.

B. Submittals:
   1. Product Data
   2. Samples.

C. Extra Materials: Deliver to Owner 1 gal. (3.8 L) of each color and type of finish coat paint used on Project, in containers, properly labeled and sealed.

PART 2 - PRODUCTS

2.1 PAINT

A. Material Compatibility: Provide materials that are compatible with one another and with substrates.
   1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected from standard colors.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

B. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

A. Apply paints according to manufacturer's written instructions.
   1. Use brushes only for exterior painting and where the use of other applicators is not practical.
   2. Use rollers for finish coat on interior walls and ceilings.
B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness or other surface imperfections. Cut in sharp lines and color breaks.

1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

3.3 INTERIOR PAINT APPLICATION SCHEDULE

Semi-gloss Latex: Two coats over Latex Primer

A. Hollow Metal Doors and Frames:

Paint schedule for fire stations. (Global) From the Sherwin Williams Paint chips

Bay walls: Sheet rock -----------SW 6100 Practical Beige
            Plywood------------SW 6109 Hop Sack
All interior walls ---------------SW 6002 Essential Gray
All metal including frames:    SW 6002

SECTION 101400 - SIGNAGE

PART 1 - GENERAL (TOILET ROOM SIGNAGE IS REQUIRED)

PART 2 - PRODUCTS

2.1 MATERIALS

   A. Interior Panel Signs: Engraved plastic laminate with beveled edges and rounded corners.

      1. Finishes and Colors: As selected from manufacturer's full range
      2. Tactile Characters: Characters and Grade 2 Braille rose 1/32 inch (0.8 mm) above surface with contrasting colors.
      3. Provide signs for restrooms mounted on the wall beside the room door: Text and Symbol to be Unisex ADA Restroom

PART 3 - EXECUTION

3.1 INSTALLATION

   A. Locate signs where indicated or directed by Architect. Install signs level, plumb, and at heights
indicated, with sign surfaces free from distortion and other defects in appearance.

B. Wall-Mounted Signs:
   1. Two-Face Tape: Mount signs to smooth, nonporous surfaces, other than vinyl.

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

2.1 TOILET AND BATH ACCESSORIES

A. Paper Towel Dispenser:
   1. Surface Mounted, Model #B3949, Manufactured by Bobrick.

B. Toilet Tissue Dispenser:
   1. Surface Mounted, Model #B273 (Heavy-Duty), Manufactured by Bobrick.

C. Grab Bar:
   1. Penned Non-Slip Gripping Surface, Vertical 1¼-inch diameter, Model #B-5837.99 and Model #B-5806.99x24, Manufactured by Bobrick or equal.

D. Mirror:
   1. ¼-inch Number 1 Quality, Electro Copper, Backed, Plate Glass, 20 gauge Stainless Steel Frame, Model #B165, Manufactured by Bobrick Based.

E. Under lavatory Guard:
   1. Description: Insulating pipe coverings for supply and drain piping assemblies, which prevent direct contact with and burns from piping, and allow service access without removing coverings.

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL
1.1 SECTION REQUIREMENTS

A. Metal Building System Description: Rigid clear span, solid-member with expandable end wall and nonexpandable end wall, primary frame and end wall columns. CABLE CROSS BRACING WILL NOT BE ALLOWED.

1. Eave Height: Manufacturer's standard height, as indicated by nominal height on Drawings
2. Dimensions and Bay Spacing’s: As indicated on Drawings
3. Roof Slope: 2 inches per 12 inches
4. Cable bracing shall not be allowed.

B. Structural Performance: Provide metal building systems capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Engineer metal building systems according to procedures in MBMA's "Metal Building Systems Manual."
2. Design Loads: As indicated or as required by MBMA's "Metal Building Systems Manual."

C. Wind-Uplift Resistance: V Ultimate 120 mph. Provide metal roof panel assemblies that comply with UL 580 for Class 60. Risk Category III.

D. Submittals: Product Data, Shop Drawings, structural analysis data signed and sealed by a qualified professional engineer registered in the state of South Carolina.

1. Submit letter of design certification, signed and sealed by a qualified professional engineer. Indicate name and location of Project, name of manufacturer, order number, name of contractor, governing building code and standards including year of edition, design loads and load combinations, building use category, and load importance factors.
2. Contractor to provide foundation Design by SC registered Engineer. The bid documents are for Basis of Design.


PART 2 - PRODUCTS

2.1 METAL BUILDINGS

A. Structural-Framing Materials:

1. W-Shapes: ASTM A 992/A 992M; ASTM A 572/A 572M, Grade 50


4. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.

5. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B or C, structural tubing.

6. Structural-Steel Sheet: Hot-rolled, ASTM A 1011/A 1011M, Structural Steel (SS), or High-Strength Low Alloy Steel (HSLAS); or cold-rolled, ASTM A 1008/A 1008M, Structural Steel (SS), or High-Strength Low Alloy Steel (HSLAS).

7. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS) or High-Strength Low Alloy Steel (HSLAS); with G60 (Z180) coating designation; mill phosphatized.

B. Roof and Wall Panels:

1. Metal Panels: Steel sheet, zinc coated by the hot-dip process, complying with ASTM A 653/A 653M, G90 (Z275), Structural Steel (SS), and pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.

2. Lap-Seam Roof Panels: Metal panels factory formed to provide 36-inch (914-mm) coverage, with raised trapezoidal major ribs at 12 inches (305 mm) o.c., and intermediate stiffening ribs symmetrically spaced between major ribs. Design panels for mechanical attachment to structure using exposed fasteners, lapping major ribs at panel edges.
   a) Roof Panel Metal Thickness: 24 Gauge
   b) Color: Galvalume

3. Lap-Seam Wall Panels: Metal panels factory formed to provide 36-inch (914-mm) coverage, with raised trapezoidal major ribs at 12 inches (305 mm) o.c. and intermediate stiffening ribs symmetrically spaced between major ribs. Design panels for mechanical attachment to structure using exposed fasteners, lapping major ribs at panel edges.
   a) Wall Panel Metal Thickness: 24 Gauge
   b) Color: Kynar Finish, as selected by owner from standard finishes.

4. Panel Accessories: Provide clips, flashings, sealants, gaskets, and similar items.

C. Flashing and Trim: Form from 0.0159-inch- (0.40-mm-) thick, zinc-coated (galvanized) steel sheet pre-painted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Finish flashing and trim same as adjacent roof or wall panels.

D. Gutters and Downspouts: Form from 0.0159-inch- (0.40-mm-) thick, zinc-coated (galvanized) steel sheet pre-painted with coil coating. Match gutters to profile of gable trim and finish gutters to match roof fascia and rake trim. Finish downspouts to match wall panels.

E. Metal Building Insulation: ASTM C 991, Type I, or NAIMA 202, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2 inch-(50 mm) wide, continuous, vapor-tight edge tabs; and with a flame-spread index of 25 or less.

F. Accessories:
   1. Sectional Overhead Doors: Provide, metal trimmed openings; doors are specified in Division 08 Section "Sectional Doors."

G. Miscellaneous Materials:
   1. Primer: SSPC-Paint 15, Type I, standard grey.
   2. Grout: ASTM C 1107, factory-packaged, nonmetallic grout, noncorrosive and non-staining.
   3. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; of manufacturer's standard size.
   4. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane, polysulfide, or silicone-rubber sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weather tight; and as recommended by metal building system manufacturer.

PART 3 - EXECUTION

3.1 ERECTION

A. Setting Base and Bearing Plates: Clean concrete and masonry of bond-reducing materials and roughen surfaces before setting plates. Clean bottom surface of plates.
   1. Set plates for structural members on wedges, shims, or setting nuts.
   2. Tighten anchor rods after supported members have been positioned and plumbed.
   3. Pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure.

B. Erect framing true to line, level, plumb, rigid, and secure. Comply with AISC specifications referenced in this Section.
   1. Make field connections for primary framing using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts," snug tightened or pretension.
   2. Fasten secondary framing to primary framing using clips and non-high-strength bolts. Hold rigidly to a straight line by sag rods.
   3. Install joists, and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders."
   4. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
   5. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

C. Roof Panel Installation: Provide roof panels of full length from eave to ridge when possible.
   1. Install screws with power tools having controlled torque to compress neoprene washer
without damage to washer, screw threads, or panels. Install screws in predrilled holes.

2. Use aluminum or stainless-steel fasteners for exterior and galvanized fasteners for interior.

3. Locate panel splices over, but not attached to, structural supports; stagger panel splices.

4. Lap-Seam Roof Panels: Fasten to purlins with exposed fasteners at each lapped joint. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on lap seams. At splices, lap panels 6 inches (150 mm), seal with butyl sealant and fasten together with interlocking clamping plates.

D. Wall Panel Installation: Provide panel’s full height of building unless otherwise indicated.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints.

2. When 2 rows of panels are required, lap panels 4 inches (100 mm) minimum. Locate panel splices over structural supports.

3. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Pre-drill panels.

4. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as necessary for waterproofing.

5. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on lap seams.

6. Install screws with power tools having controlled torque to compress neoprene washer without damage to washer, screw threads, or panels. Install screws in predrilled holes.

7. Use aluminum or stainless-steel fasteners for exterior and galvanized fasteners for interior.

E. Insulation Installation: Install insulation concurrently with panel installation. Set vapor-retarder-faced units with vapor retarder to warm side of construction. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

1. Over-Framing Installation: Extend over and perpendicular to top flange of secondary framing members. Hold in place by panels fastened to secondary framing.

F. Gutters, Downspouts, Flashing, and Trim Installation: Comply with SMACNA’s "Architectural Sheet Metal Manual." Provide for thermal expansion; conceal fasteners where possible and set units true to line and level. Install work with laps and seams that will be permanently watertight. Coordinate Downspouts with Civil Drawings.

SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

PART 1 – GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: General requirements for motors, hangers and supports, vibration isolation and seismic restraints, and meters and gages.
B. Submittals: Product Data for materials and equipment specified in this Section.

PART 2 - PRODUCTS

2.1 MOTORS

A. Motor Characteristics:
   3. Frequency Rating: 60 Hz.
   4. Voltage Rating: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   5. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.
   6. Duty: Continuous duty at ambient temperature of 105 deg F (40 deg C) and at altitude of 3300 feet (1005 m) above sea level.
   7. Capacity and Torque Characteristics: Sufficient to start, accelerate and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence and without exceeding nameplate ratings or considering service factor.
   8. Enclosure: Unless otherwise indicated, open dripproof.
   9. Motors Used with Variable-Frequency Controllers: Ratings, characteristics and features coordinated with and approved by controller manufacturer.

2.2 HANGERS AND SUPPORTS

A. Hanger and Pipe Attachments: Factory fabricated with galvanized coatings; nonmetallic coated for hangers in direct contact with copper tubing.

B. Building Attachments: Powder-actuated-type, drive-pin attachments with pullout and shear capacities appropriate for supported loads and building materials.

C. Mechanical-Expansion Anchors: Insert wedge-type attachments with pullout and shear capacities appropriate for supported loads and building materials.

2.3 VIBRATION ISOLATION AND SEISMIC CONTROL DEVICES

A. Vibration Supports:
   1. Pads: Arranged in single or multiple layers of oil- and water-resistant neoprene of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
   2. Restrained Mounts: Double-deflection type, with molded, oil-resistant fiberglass, rubber or neoprene isolator elements with factory-drilled, encapsulated top plate for bolting to equipment and baseplate for bolting to structure. Provide isolator with
minimum 0.5-inch (13-mm) static deflection.


B. Vibration Hangers:

1. Elastomeric Hangers: Double-deflection type, with molded, oil-resistant rubber or neoprene isolator elements bonded to steel housings with threaded connections for hanger rods. Provide isolator with minimum 0.5-inch (13-mm) static deflection.
2. Spring Hangers: Combination coil-spring and elastomeric-insert hanger with spring and insert in compression. Provide isolator with minimum 1-inch (25-mm) static deflection.

C. Seismic Restraints:

1. Resilient Isolation Washers and Bushings: One-piece, molded, oil and water-resistant neoprene, with a flat washer face.
2. Channel Support System: MFMA-3, shop or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
3. Restraining Cables: Galvanized steel cables with end connections made of steel assemblies that swivel to final installation angle and utilize two clamping bolts for cable engagement.
4. Mechanical Anchor Bolts: Seismic-rated, drill-in, and stud-wedge or female-wedge type. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E488.
5. Adhesive Anchor Bolts: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E488.

2.4 PRESSURE GAGES AND TEST PLUGS

A. Pressure Gages: Direct-mounting, indicating-dial type complying with ASME B40.100. Dry metal case, minimum 2-1/2-inch (63-mm) diameter with red pointer on white face, and plastic window. Minimum accuracy 3 percent of middle half of range. Range two times operating pressure.

B. Test Plug: Corrosion-resistant brass or stainless-steel body with two self-sealing rubber core inserts and gasket and threaded cap, with extended stem for units to be installed in insulated piping. Minimum pressure and temperature rating 500 psig at 200 deg F (3450 kPa at 93 deg C).

PART 3 - EXECUTION
3.1 MOTOR INSTALLATION

A. Anchor motor assembly to base, adjustable rails, or other support, arranged and sized according to manufacturer's written instructions.

3.2 GENERAL PIPING INSTALLATIONS

A. Install piping free of sags and bends.
B. Install fittings for changes in direction and branch connections.
C. Install sleeves for pipes passing through metal wall panels, plywood board partitions, and concrete floor and roof slabs.
D. Exterior Wall, Pipe Penetrations: Mechanical sleeve seals installed in steel or cast-iron pipes for wall sleeves.
E. Comply with requirements in Division 07 Section "Penetration Fire stopping" for sealing pipe penetrations in fire-rated construction.
F. Install unions at final connection to each piece of equipment.
G. Install dielectric unions and flanges to connect piping materials of dissimilar metals in gas piping.
H. Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals in water piping.

3.3 GENERAL EQUIPMENT INSTALLATIONS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
B. Install equipment level and plumb, parallel and perpendicular to other building systems and components, unless otherwise indicated.
C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
D. Install equipment to allow right of way for piping installed at required slope.

3.4 CONCRETE BASES

A. Anchor equipment to concrete base according to equipment manufacturer's written
instructions and according to seismic codes at Project.

B. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.

C. Install dowel rods on 18-inch (450-mm) centers around the full perimeter of the base to connect concrete base to concrete floor.

D. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.

E. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

F. Install anchor bolts to elevations required for proper attachment to supported equipment.

G. Use 3000-psi (20.7-MPa) 28-day compressive-strength concrete and reinforcement as specified in Division 03 Section "Cast-in-Place Concrete."

3.5 HANGERS AND SUPPORTS

A. Comply with MSS SP-69 and MSS SP-89. Install building attachments within concrete or to structural steel.

B. Install hangers and supports to allow controlled thermal and seismic movement of piping systems.

C. Install powder-actuated drive-pin fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches (100 mm) thick.

D. Install mechanical-expansion anchors in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches (100 mm) thick.

E. See Division 21 Section "Water-Based Fire-Suppression Systems" for support of fire-protection system piping.

F. Load Distribution: Install hangers and supports so piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

G. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Adjustable Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated stationary pipes, NPS 1/2 to NPS 30 (DN 15 to DN 750).

2. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4 (DN 15 to DN 100), to allow off-center closure for hanger installation before pipe erection.
3. Adjustable Steel Band Hangers (MSS Type 7): For suspension of non-insulated stationary pipes, NPS 1/2 to NPS 8 (DN 15 to DN 200).

4. Adjustable Band Hangers (MSS Type 9): For suspension of non-insulated stationary pipes, NPS 1/2 to NPS 8 (DN 15 to DN 200).

5. Adjustable Swivel-Ring Band Hangers (MSS Type 10): For suspension of non-insulated stationary pipes, NPS 1/2 to NPS 2 (DN 15 to DN 50).

H. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20 (DN 20 to DN 500).

2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20 (DN 20 to DN 500), if longer ends are required for riser clamps.

3.6 VIBRATION ISOLATION AND SEISMIC CONTROL DEVICE INSTALLATION

A. Adjust vibration isolators to allow free movement of equipment limited by restraints.

B. Install resilient bolt isolation washers and bushings on equipment anchor bolts.

C. Install cables so they do not bend across sharp edges of adjacent equipment or building structure.

SECTION 221316 - SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS


PART 2 – PRODUCTS

2.1 PIPES AND FITTINGS
A. Copper Drainage Tube and Fittings: ASTM B 306, Type DWV drawn temper with wrought copper, Type DWV drainage fittings.

B. Hub-and-Spigot Cast-Iron Soil Pipe and Fittings: ASTM A 74, Service class; ASTM C 564 rubber gaskets.

C. Hub-less Cast-Iron Soil Pipe and Fittings: ASTM A 888 or CISPI 301, with ASTM C 1277 shielded couplings.


PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

B. Install wall penetration system at each pipe penetration through foundation wall. Make installation watertight.

1. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.

C. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

D. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

E. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
F. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.

G. Install underground PVC soil and waste drainage piping according to ASTM D 2321.

H. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

I. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure unless otherwise indicated.

3.2 PIPE SCHEDULE

A. Above ground Applications: Hubless, cast-iron soil pipe and fittings, PVC plastic, DWV pipe and fittings with solvent-cemented joints or Copper drainage tube and fittings with soldered joints.

B. Below ground Applications: Hubless, cast-iron soil pipe and fittings, PVC plastic, or DWV pipe and drainage-pattern fittings with cemented joint. PVC not allowed in ceiling plenums where the plenum is used as a return air path.

SECTION 233423 - HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

B. Bear the AMCA seal.

C. Comply with UL 705.

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, and marked for intended use.

PART 2 - PRODUCTS

2.1 CENTRIFUGAL VENTILATORS

A. Basis-of-Design Product: Product indicated on Drawings

B. Refer to plans Housing: Removable, spun-aluminum, dome top and outlet baffle extruded-aluminum, rectangular top, galvanized-steel, mushroom-domed top; square, one-piece,
aluminum base with venturi inlet cone.

3.
1. Wall-Mounting Units: Aluminum rectangular base with venturi inlet cone, motor mount, and vibration isolators designed for wall mounting.

C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

D. Belt-Driven Drive Assembly: Resiliently mounted to housing:
   1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
   4. Fan and motor isolated from exhaust airstream.

E. Accessories:
   1. Disconnect Switch: Non-fusible type, with thermal-overload protection mounted inside or outside fan housing, factory wired through an internal aluminum conduit.
   2. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.
   3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.
   4. Motorized Dampers: Parallel-blade dampers mounted in curb base with electric actuator; wired to close when fan stops.

F. Capacities and Characteristics:
   1. Airflow: Refer to plans
   2. Static Pressure: Refer to plans
   3. Motor Horsepower: Refer to plans
   4. Fan RPM: Refer to plans
   5. Volts: Refer to plans Phase: Refer to plans
   6. Hertz: 60.

2.2 CEILING-MOUNTING OR IN-LINE CENTRIFUGAL VENTILATORS

A. Basis-of-Design Product: Refer to plans or comparable product by one of the following:
   1. Refer to plans

B. Housing: Steel, lined with acoustical insulation.

C. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.

D. Grille: Aluminum, Stainless steel, louvered or egg-crate grille with flange on intake and thumbscrew attachment to fan housing.
E. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.

F. Accessories:
   1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
   3. Motion Sensor: Motion detector with adjustable shutoff timer.
   5. Filter: Washable aluminum to fit between fan and grille.
   6. Isolation: Rubber-in-shear vibration isolators

G. Capacities and Characteristics:
   1. Airflow: Refer to plans
   2. Static Pressure: Refer to plans
   3. Motor Horsepower: Refer to plans
   4. Fan RPM: Refer to plans
   5. Volts: Refer to plans
   6. Hertz: 60.

PART 3 - EXECUTION

3.1 INSTALLATION

A. In-Line Centrifugal Fans: Suspend units from structural-steel support frame using threaded steel rods and vibration isolation springs.

B. Ceiling-Mounted Units: Suspend units from structure using steel wire or metal straps.

C. Ground power ventilators.

SECTION 311000 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide protection of the environment during the construction of this project to reduce soil erosion and siltation to the lowest reasonably achievable level.
1.2 GENERAL

A. Exercise every reasonable precaution, throughout the life of the project, to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground or roadway surfaces, drainage structures ditches or other property. Erosion control practices to be used for this project are shown on the drawings and are to conform to South Carolina Department of Health and Environmental Control regulations and permit and SCDOT permit conditions.

PART 2 - PRODUCTS

2.1 CRUSHED STONE

A. Provide #57 crushed stone for project entrance and exit.

2.2 GRASSING

A. Comply with Section 329200: Grassing.

2.3 SILT FENCE

A. Posts:
   1. Steel posts shall be self-fastener angle steel type, 5’ in length.
   2. Wood posts shall be 3” diameter or 3” square, 6’ in length.

B. Provide not less than No. 9 wire staples, 1.5” long for fastening wire mesh.

C. Woven wire shall conform to the requirements of ASTM A116, Class I zinc coating for wire. Each woven square shall measure 5.33” X 12”. The top and bottom wires shall be 10 gauge. All other wires shall be 12 gauge.

D. Wire mesh is not required with synthetic, extra strength filter fabric providing puncture strength of 50 psi in accordance with ASTM D751.

E. Filter fabric shall be burlap or synthetic.
   1. If silt fencing is used more than 5 days, synthetic type shall be used.

F. Burlap shall be 7.5 ounces weight and a minimum 32” wide.

G. Filter fabric shall be Mirafi 700X as manufactured by Celanese Fibers Co., Bidim C34 as manufactured by DuPont, Trevira or approved equal.

2.4 EROSION CONTROL BLANKET

A. Use erosion control blanket S150, from North American Green or approved equal.
PART 3 - EXECUTION

3.1 GENERAL
A. Construct and maintain all erosion control measures until the substantial completion of the project.

3.2 CONSTRUCTION ENTRANCE
A. Construct a gravel area or pad at points where vehicles enter and leave a construction site.
B. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade and place gravel to the grade and dimensions shown on the plans.
C. Construct drainage channels to carry water to a sediment trap or other suitable outlet.
D. Use geotextile fabrics to improve stability of the foundation in locations subject to seepage or high water table.
E. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site by periodic top dressing with two inches of stone.
F. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary.
G. Immediately remove objectionable materials spilled, washed, or tracked onto public roadways.

3.3 TEMPORARY GRASSING
A. Provide a temporary cover for erosion control on disturbed areas that will remain unstabilized for a period of more than 30 days in accordance with Section 329200 - GRASSING.
B. This practice applies to cleared areas, diversions, dams, temporary sediment basins, temporary road banks, and topsoil stockpiles where vegetation is needed for less than 1 year.
C. Provide grassing on slope 5% or greater within 14 days of disturbance.
   1. Comply with Section 329200 - GRASSING.

3.4 SILT FENCE
A. Provide silt fence barrier where shown on the plans and on utility construction parallel to the disturbed trench where perpendicular sheet flow runoff occurs on disturbed areas with slopes greater than 4%.
B. Place at the extreme limits of the area to be disturbed as shown.

C. Construct temporary sediment barriers of filter fabric, buried at the bottom, stretched and supported by posts and install below small disturbed areas as indicated on the drawings to retain sediment by reducing the flow velocity to allow sediment deposition.

D. Provide spacing between posts 5’0” on center, minimum.

E. Fasten wire mesh to wood posts with wire staples. Wire mesh is not required with synthetic filter fabric.

F. Remove sediment deposits prior to reaching one-third height of the fence.

G. Monitor site frequently and place additional silt fencing should evidence indicate that erosion is about to occur at locations other than those shown on plan.

3.5 EROSION CONTROL BLANKET

A. Provide on areas as shown on the plans or on all embankments with slopes equal to or steeper than 2H: 1V.

3.6 TEMPORARY SEDIMENT TRAPS

A. Utilize temporary sediment traps at the bottom of all disturbed slopes where runoff is parallel to the utility trench and draining into an existing ditch or stream and where slopes are 5% or greater along the trench.

B. Provide at intervals of 75’.

3.7 MAINTENANCE

A. Place all erosion control devices or measures prior to any land disturbing activity within the drainage area they are located.

B. Periodically check erosion control devices and clean or otherwise remove silt build-up as necessary to maintain them in proper working order.

3.8 REMOVAL

A. Remove temporary structures after protected areas have been stabilized.

3.9 MEASUREMENT AND PAYMENT

A. No separate measurement and payment will be made for the work under this Section and all
costs for same shall be included in the price bid for the items to which it pertains.

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1. 1  SECTION REQUIREMENTS

A.  Submittals: Product Data and product certificates for each type of product indicated. Include the EPA-Registered Label.

B.  Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

C.  Regulatory Requirements: Formulate and apply termicides according to the EPA-Registered Label.

D.  Continuing Service: Provide 12 months' continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity.

PART 2 - PRODUCTS

2.1  TERMITE CONTROL PRODUCTS

A.  Soil Treatment Termiticide: Provide an EPA-registered termicide complying with requirements of authorities having jurisdiction, in an aqueous solution.

PART 3 - EXECUTION

3.1  INSTALLATION

A.  General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

B.  Soil Treatment Application: Provide quantity required for application at the label volume and rate for the maximum specified concentration of termicide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction.

   1.  At foundations.
   2.  Under concrete floor slabs on grade.

C.  Post warning signs in areas of soil treatment application.

D.  Reapply soil termiticide treatment solution to areas disturbed by subsequent excavation or
SECTION 329200 – GRASSING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. **GENERAL:** This item shall include cultivating, fertilizing and planting grass on fill slopes, cut slopes and graded areas, trench excavations, etc., as shown on plans or required by specifications. It is the intent of these specifications to provide for a complete grassing procedure which shall be carefully followed, and on consultation with the Engineer, shall be adjusted to meet unforeseen weather and soil conditions so as to secure a successful planting of the area involved.

PART 2 - PRODUCTS

2.1 **MATERIAL:** Material for fertilizing and grassing shall be as follows and all shall be approved by the Engineer prior to use:

A. **Lime:** Lime shall be ground limestone (dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 40 percent will pass a 100-mesh sieve and 90 percent will pass a 20-mesh sieve.

B. **Fertilizer:** Fertilizer shall be uniform in composition and in conformity with State Fertilizer Laws. Fertilizer shall contain the following minimum percentage of plant food by weight:

   1. 10% Available Nitrogen (60% slow release)
   2. 10% Available Phosphoric Acid
   3. 10% Available Potash

C. **Asphalt for Mulching:** Asphalt shall be emulsified asphalt conforming to ASTM D 977, Grade SS-1, or cutback asphalt conforming to ASTM D 2028, designation RC-70. The asphalt shall contain no petroleum solvents or other diluents which would be toxic to plant growth.

D. **Mulch:** Mulch shall be the threshold stalks of oats, wheat, barley, rice, rye, beans or peanuts. It shall not contain more than 15 percent moisture. Mulch material which contains weeds or other plants detrimental to the site shall not be acceptable. Mulch which is excessively brittle, or badly decomposed, shall not be acceptable.

E. **Seed:** All seed shall be new crop labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act SRA 156. Percentages by weight shall be as follows:
<table>
<thead>
<tr>
<th>Kind of Seed</th>
<th>Minimum% Pure Live Seed</th>
<th>Minimum% Germination</th>
<th>Maximum% Weed Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bermuda (Hulled)</td>
<td>87</td>
<td>85</td>
<td>1.00</td>
</tr>
<tr>
<td>Italian Rye Grass</td>
<td>98</td>
<td>95</td>
<td>0.50</td>
</tr>
<tr>
<td>Brown top Millet</td>
<td>90</td>
<td>80</td>
<td>1.00</td>
</tr>
<tr>
<td>Centipede</td>
<td>98</td>
<td>95</td>
<td>0.50</td>
</tr>
</tbody>
</table>

1. Seed failing to meet the purity or germination requirements by no more than ten (10%) percent may be used, but the quantity shall be increased to yield the required rate of pure live seed and germination. Seed failing to meet the weed seed requirements shall not be used.

F. **Topsoil:** Topsoil shall have a "high" rating each of the basic nutrients tested and a pH ranging from 5.5 to 6.0. Necessary additives shall be incorporated in a proper quantity as recommended by a soil analysis to bring the topsoil supplied up to the standards specified. Topsoil shall be from naturally well-drained areas. Topsoil shall be clean and classified as a loam, silt loam, clay loam, or a combination thereof as determined by USDA Triangular Soils Texture Chart. The contractor shall furnish additional topsoil required above the amount obtained from the work are from sources offsite.

G. **Embankment Stabilization Fabric:** Embankment stabilization fabric shall be SUBAC-6WM (UV) or TREVIRA-1127 or ENKAMAT-7010 as manufacture by Phillips Fiber Corp., American Hoechst Corporation or American ENKA Corporation, respectively, or equal.

H. **Hydro-mulch:** Wood cellulose fiber containing no germination inhibiting or growth inhibiting agents. Characteristics shall be as follows:

1. Percent moisture content: 9.0% (± 3.0%)
2. Percent organic matter: 99.2% (± 0.8%).
3. Percent ash content: 0.8% (±0.2%).
4. pH: 4.8 (± 0.5).
5. Water holding capacity: 1150 grams water/100 grams fiber, minimum.

**PART 3 – EXECUTION**

3.1 **GENERAL:** All areas to be grassed shall be protected from erosion at all times. For protection during the period from September 1 to March 30, grass as specified herein shall be planted as a temporary cover on all areas which are not protected by permanent grass. Planting of the temporary grass cover shall not negate the requirements for a permanent Grass cover.
A. **Grading**: Areas to be grassed shall be graded to remove depressions, undulations, and irregularities to the surface before grassing.

B. **Topsoiling**: Areas to be grassed shall have a minimum of four (4) inches of topsoil placed over them. Topsoil shall not be placed when the sub grade is wet.

C. **Tillage**: The areas to be grassed shall be thoroughly tilled to a depth of 3-4 inches using a plow and disc harrow or rotary tilling machinery until a suitable seed bed has been prepared and no clods or clumps remain larger than 1½ inch in diameter.

D. **Applying Lime**: The pH of the soil shall be determined by the Contractor. If the pH is below 5.0, sufficient lime shall be added to provide a pH between 5.5 and 6.5. The lime shall be evenly incorporated into the top three to four inches of the soil. Lime and fertilizer may be applied in one operation.

E. **Applying Fertilizer**: Fertilizer shall be applied at the rate as specified herein and shall be evenly incorporated into the top three to four inches of soil.

F. **Installation of Embankment Stabilization Fabric**: Embankment stabilization fabric shall be installed on all slopes less than 2 horizontal to 1 vertical in accordance with the manufacturer's recommended installation procedures.

G. **Planting Seeds**: for areas on slopes less than 3 horizontal to 1 vertical. Immediately before seeds are sown after fertilizer is applied, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable, and of uniformly fine texture. Areas to be grassed shall be seeded evenly with a mechanical spreader. Areas to be grassed shall be seeded evenly with a mechanical spreader, raked lightly, rolled with a 200-pound roller, and watered with a fine spray. On slopes inaccessible to compacting equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.

H. **Seeding Rate**: for temporary and permanent grass plantings by seasons or soil conditions, required amounts of fertilizer and limestone per 1,000 square feet shall be as follows:
From May 1 - August 31

<table>
<thead>
<tr>
<th>From Sept. 1 - April 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pound Brown top millet</td>
</tr>
<tr>
<td>2 pounds Hulled Bermuda</td>
</tr>
<tr>
<td>25 pounds 10-10-10 Fertilizer</td>
</tr>
<tr>
<td>75 pounds Limestone</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>or</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pound Brown top millet</td>
</tr>
<tr>
<td>1 pound Hulled Bermuda</td>
</tr>
<tr>
<td>0.6 pound Centipede</td>
</tr>
<tr>
<td>25 pounds 10-10-10 Fertilizer</td>
</tr>
<tr>
<td>75 pounds Limestone</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>or</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 pounds Annual Rye Grass</td>
</tr>
<tr>
<td>½ pound Hulled Bermuda</td>
</tr>
<tr>
<td>1½ pounds Un-hulled Bermuda</td>
</tr>
<tr>
<td>25 pounds 10-10-10 Fertilizer</td>
</tr>
<tr>
<td>75 pounds Limestone</td>
</tr>
</tbody>
</table>

or

DEEP SANDY SOILS

<table>
<thead>
<tr>
<th>DEEP SANDY SOILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 pounds Brown top millet</td>
</tr>
<tr>
<td>0.9 pounds Centipede</td>
</tr>
<tr>
<td>25 pounds 10-10-10 Fertilizer</td>
</tr>
<tr>
<td>75 pounds Limestone</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>or</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pound Un-hulled Bermuda</td>
</tr>
<tr>
<td>2 pounds Rye Grass or</td>
</tr>
<tr>
<td>2 pounds Grain Rye</td>
</tr>
<tr>
<td>0.6 pounds Centipede</td>
</tr>
<tr>
<td>25 pounds 10-10-10 Fertilizer</td>
</tr>
<tr>
<td>75 pounds Limestone</td>
</tr>
</tbody>
</table>

NOTE: All vegetated swales or ditches with side slopes (cut or fill) steeper than 2:1, add 4 to 6 ozs/1,000 square feet or Weeping Love Grass seed to any of the above mixtures. Swale and ditch bottoms should be double-seeded. Do not use Fescue in Sandy Soils.

I. Hydro seeding: Hydro seeding is to be used for all areas with slopes equal to or greater than 3 horizontal to 1 vertical.

J. Seeding (Wood Cellulose Fiber Mulch): After the lime has been applied and the ground prepared as specified, a seed/ fertilizer/wood cellulose fiber mulch mixture in water slurry shall be applied. Dispense mixture, using hydraulic mulching equipment, in the following minimum quantities:
1. Fertilizer 650 lbs./acre
2. Bermuda Seed 85 lbs./acre (50% hulled and 50% un-hulled)
3. Italian Rye 130 lbs./acre
4. Hydro mulch 1500 lbs./acre

K. Clean-Up: All excess soil, excess grass materials, stones and other waste shall be removed from the site daily and not allowed to accumulate.

L. Maintenance: Maintenance shall begin immediately following the last operation of grassing and continue until final acceptance. Maintenance shall include watering, moving, replanting, and all other work necessary to produce a uniform stand of grass. Grassing will be considered for final acceptance when the permanent grass is healthy and growing on 97% of the area with no bare areas greater than 1 square foot.

M. Acceptance: Permanently seeded areas will be accepted when the grass attains a height of 2”. No acceptance will be made for temporary seeded areas.

N. Measurement and Payment: No separate measurement and payment will be made for the work under this Section and all costs for same shall be included in the bid for the item to which it pertains.
# Substation 34

**Pierce Road**

**Colleton County**

**South Carolina**

## Index of Drawings

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Sheet Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1.1</td>
<td>Title Sheet</td>
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</tr>
<tr>
<td>T1.2</td>
<td>Layout &amp; Access Control</td>
<td></td>
</tr>
<tr>
<td>T1.3</td>
<td>Other Drawings</td>
<td></td>
</tr>
<tr>
<td>T1.4</td>
<td>Site Details</td>
<td></td>
</tr>
<tr>
<td>T1.5</td>
<td>Site Plan &amp; Elevations</td>
<td></td>
</tr>
<tr>
<td>T1.6</td>
<td>Tree &amp; Vegetation Control</td>
<td></td>
</tr>
<tr>
<td>T1.7</td>
<td>Stormwater Control Plan</td>
<td></td>
</tr>
<tr>
<td>T1.8</td>
<td>Stormwater Management</td>
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</tr>
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<td>T1.9</td>
<td>Stormwater Detention</td>
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<tr>
<td>T1.10</td>
<td>Stormwater Inlets</td>
<td></td>
</tr>
<tr>
<td>T1.11</td>
<td>Stormwater Drains &amp; Culverts</td>
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*For additional details, please refer to the full document.*
Steel Stud Lintel Schedule

<table>
<thead>
<tr>
<th>Wall Type</th>
<th>Stud Size</th>
<th>Stud Type</th>
</tr>
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<tr>
<td>W2</td>
<td>2-1/2&quot;</td>
<td>1-1/4&quot;</td>
</tr>
<tr>
<td>W2</td>
<td>2-1/2&quot;</td>
<td>1-1/4&quot;</td>
</tr>
<tr>
<td>W2</td>
<td>2-1/2&quot;</td>
<td>1-1/4&quot;</td>
</tr>
</tbody>
</table>

**Wind Loads**
- Basic Wind Speed: \( V_{k} = 121 \) mph
- Importance Factor, \( I_w = 1.0 \)
- Internal Pressure Coefficient, \( G_{CPI} = -0.18 \)
- Seismic Force Resisting System: "W" = 6.0
- Seismic Design Category: "D" = 0.0

Risk Category: IV

---

**Foundation Plan**

Scale: 1/4" = 1'-0"
EXHAUST FAN SCHEDULE

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>P.U.L.</th>
<th>Area Served</th>
<th>Flow</th>
<th>Static Head</th>
<th>Inlet Temp</th>
<th>Inlet %</th>
<th>Efficiency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>07</td>
<td>TOILET</td>
<td>75</td>
<td>0.05</td>
<td>900</td>
<td>180/150</td>
<td>1.5</td>
<td>COLEMAN</td>
<td>1235</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Notes:
1. Base of design provide required equipment or equipment of equal performance and quality.
2. Air cooled.
3. Provide air wall cap.

UNIT HEATER SCHEDULE

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>P.U.L.</th>
<th>Area Served</th>
<th>Flow</th>
<th>Capacity</th>
<th>Inlet Temp</th>
<th>Inlet %</th>
<th>Efficiency</th>
<th>Notes</th>
</tr>
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<tr>
<td>08</td>
<td>SURFACE</td>
<td>87</td>
<td>75</td>
<td>60</td>
<td>110</td>
<td>1</td>
<td>0.83</td>
<td>COLEMAN</td>
<td>1235</td>
</tr>
<tr>
<td>09</td>
<td>CAVINET</td>
<td>ELECTRIC</td>
<td>24</td>
<td>5</td>
<td>30</td>
<td>1</td>
<td>1.5</td>
<td>Merten</td>
<td>1235</td>
</tr>
</tbody>
</table>

Notes:
1. Base of design provide required equipment or equipment of equal performance and quality.
2. Unit heater shall be designed and tested to meet the owner's requirements in accordance with the manufacturer's recommendations.

REGISTER, LOUVER & GRILLE SCHEDULE

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>P.U.L.</th>
<th>Area Served</th>
<th>Flow</th>
<th>Static Head</th>
<th>Inlet Temp</th>
<th>Inlet %</th>
<th>Efficiency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>REGISTER</td>
<td>50</td>
<td>25</td>
<td>25</td>
<td>50</td>
<td>1</td>
<td>0.83</td>
<td>Merten</td>
<td>1235</td>
</tr>
</tbody>
</table>

Notes:
- Flows are as marked by the manufacturer.

DESIGN CONDITIONS

<table>
<thead>
<tr>
<th>Season</th>
<th>Outside</th>
<th>Inside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>80°F/60, 60% HR</td>
<td>70°F/40, 40% HR</td>
</tr>
<tr>
<td>Winter</td>
<td>25°F</td>
<td>72°F</td>
</tr>
</tbody>
</table>

CABINET HEATER

L.P. GAS FIRED UNIT HEATER

Note to Contractor: Provide unit heater and gas piping/valves, piping/fittings, burner, control, and control panel. Verify that all equipment is of the size and type specified, and that the equipment is in accordance with the manufacturer's recommendations.
LEGEND

- DATEMARK
- CONSULTANTS
- SHEET TITLE
- NEW WORK NOTES
- MECHANICAL
- NEW WORK
- DRAWN BY
- CHK'D BY
- DATE:
- DESCRIPTION
- PROJECT NO:
- MODEL FILE:

NEW WORK NOTES

1. PROVIDE PROPER UNIT HEATERS. INSTALL AT 14 FEET.
2. PROVIDE Electric GASKET HEATER IN TOILET ROOM.
3. NOT USED.
4. PROVIDE CEILING EXHAUST EXHAUST FAN IN TOILET ROOM.
5. NOT USED.
6. NOT USED.
7. MAKE UNIT HEATERS FROM CEILINGS 14 FEET ABOVE FINISH FLOOR. 
   ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
8. PROVIDE TOWELER STEEL CORRUGATED AIR AND EXHAUST SUCTION 
   MANUFACTURER'S STANDARDS. INSULATION INSULATION INSULATION.
   COMPLETE OUT 
   WALLS, EXCEPT EXHIBIT AND DEVICES PER MANUFACTURERS' MANNERS 
   INSTRUCTIONS. CUSTOMER INSTALLATION AND COLORS WITH 
   ARCHITECTURAL TILES.

MECHANICAL PLAN

SCALE 1" = 1'-0"
POWER PLAN

NOTE 1
- Polyethylene and copper conductors contain 2 1/2" water pipe and 2" schedule 80 pipe for connection to
- Communication (Duct) and copper for connection to
- Water service and electrical service

NOTE 2
- Copper conductors with electrical service connection for future
- Electrical service connection for future

NOTE 3
- Polyethylene and copper conductors contain 2 1/2" water pipe and 2" schedule 80 pipe for connection to
- Water service and electrical service

NOTE 4
- Polyethylene and copper conductors contain 2 1/2" water pipe and 2" schedule 80 pipe for connection to
- Water service and electrical service

NOTE 5
- Polyethylene and copper conductors contain 2 1/2" water pipe and 2" schedule 80 pipe for connection to
- Water service and electrical service

NOTE 6
- Polyethylene and copper conductors contain 2 1/2" water pipe and 2" schedule 80 pipe for connection to
- Water service and electrical service
## Lighting Fixture Schedule

<table>
<thead>
<tr>
<th>Schedule No.</th>
<th>Unit</th>
<th>Style</th>
<th>Description</th>
<th>Location</th>
<th>Model</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Manufacturer and model numbers are provided as basis of design only and are not to be used. Manufacturer's specifications must be reviewed for final selection.
2. Lamp colors for all fluorescent fixtures shall be in accordance with manufacturer's color and finish options.
SITE DEVELOPMENT PLAN
FOR
COLLETON COUNTY FIRE STATION #34
PEIRCE ROAD
TOWN OF COTTAGEVILLE
COLLETON COUNTY, SOUTH CAROLINA
Tree and Sediment and Erosion Control Plan

Site Development Plan
For Colleton County Fire Station #34
Peirce Road
Colleton County, SC
that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification (14) days after work has ceased, except as stated below.

1. If necessary, slopes should be stabilized with temporary slope drains (filter bag) during construction. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the control of dust on paved roadway(s) from construction areas. It may be necessary to install temporary slope drains during construction to ensure proper drainage of run-on water from unprotected areas.

2. All disturbed areas have been stabilized. The contractor shall daily remove mud/soil from pavement, as may be required. If water is encountered while trenching, inspections must be conducted at a minimum of at least once every calendar week and must be documented in the project records. Any water encountered while trenching must be filtered to remove sediment before being released into any waters of the State.

3.任何施工活动开始后，所有扰动区域应立即采取临时稳定措施。临时措施应包括但不限于使用土工布、草袋或其他适当的材料。所有临时措施应在完成最终稳定措施后移除。如果一个土块的垂直高度超过八（8）英尺，应使用人工或植被草皮立即稳定。

4. If water is encountered while trenching, inspections must be conducted at a minimum of at least once every calendar week and must be documented in the project records. Any water encountered while trenching must be filtered to remove sediment before being released into any waters of the State.

5. 污水从洗刷和清罐中的灰泥

6. 污水从洗刷混凝土

7. 污水从洗刷和清罐中的其他洗水。

8. After construction activities begin, the following discharges from sites are prohibited:

9. Minimize the discharge of pollutants from equipment and vehicle washing

10. Minimize soil compaction and/or offsite sedimentation and/or water discharges

11. If necessary, slopes should be stabilized with temporary slope drains (filter bag) during construction. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the control of dust on paved roadway(s) from construction areas. It may be necessary to install temporary slope drains during construction to ensure proper drainage of run-on water from unprotected areas.

12. After construction activities begin, the following discharges from sites are prohibited:

13. Minimize soil compaction and/or offsite sedimentation and/or water discharges

14. If necessary, slopes should be stabilized with temporary slope drains (filter bag) during construction. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the control of dust on paved roadway(s) from construction areas. It may be necessary to install temporary slope drains during construction to ensure proper drainage of run-on water from unprotected areas.

15. All disturbed areas have been stabilized. The contractor shall daily remove mud/soil from pavement, as may be required. If water is encountered while trenching, inspections must be conducted at a minimum of at least once every calendar week and must be documented in the project records. Any water encountered while trenching must be filtered to remove sediment before being released into any waters of the State.

16. If water is encountered while trenching, inspections must be conducted at a minimum of at least once every calendar week and must be documented in the project records. Any water encountered while trenching must be filtered to remove sediment before being released into any waters of the State.

17. 每日，承包商应负责清理工作区内的所有泥浆和杂物，确保工作区内的稳定。对于超过八（8）英尺的土坡，应立即采取临时稳定措施。
SEDIMENT TUBE INSTALLATION

**Plan View**

- 2" x 3" wood staked vs.
- 1.00:1 A/F Steep Flow

**Side View**

**Temporary Seeding**

**Permanente Seeding**

**Rip-Rap Outlet Protection**

**Sediment Tube Spacing**

<table>
<thead>
<tr>
<th>Slope</th>
<th>Max. Sediment Tube Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than 2%</td>
<td>INSPECT</td>
</tr>
<tr>
<td>3%</td>
<td>INSPECT</td>
</tr>
<tr>
<td>4%</td>
<td>INSPECT</td>
</tr>
<tr>
<td>6%</td>
<td>INSPECT</td>
</tr>
<tr>
<td>Greater Than 6%</td>
<td>INSPECT</td>
</tr>
</tbody>
</table>

**General Notes**

- South Carolina Department of Health and Environmental Control

**Sediment Tubs - Inspection & Maintenance**

- Sediment tubes are inspected regularly for proper performance and maintenance.
- Inlet and outlet nodes are inspected for clogging or blockages.
- Tubes are cleaned as needed to ensure proper flow.

**Sediment Tubs - Capacity & Performance**

- Sediment tubes are designed to handle specific flow rates and capacities.
- Performance is monitored to ensure adequacy.

**Temporary Seeding**

- SEEDING STARTS 100 FT. UPSTREAM AND CONTINUES 100 FT. DOWNSTREAM OF PROTECTION CARPET

**Rip-Rap Outlet Protection**

- DUMPED RIP-RAP
**Ice Machine Specifications**

**All models:** Dimensions: W x D x H Unit: 30" x 24" x 27" Shipping Carton: 33"/x x 28" x 32"/x

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Condenser Unit</th>
<th>Basic Electrical Volts/Hz/Phase</th>
<th>Max. Fuse Size or HACR Circuit Breaker</th>
<th>Comp. HP</th>
<th>Circuit Wire</th>
<th>Min. Circuit Ampacity</th>
<th>BTU's per hour</th>
<th>Shipping Weight lbs./kg.</th>
<th>Power Consumption KWH/100 lbs.</th>
<th>Water Usage Gallons/100 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CME256AS-1F</td>
<td>Air</td>
<td>115/60/1</td>
<td>20</td>
<td>1/2</td>
<td>2</td>
<td>16</td>
<td>5,500</td>
<td>185/84</td>
<td>9.5</td>
<td>27.0</td>
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<tr>
<td>CME256WS-1F</td>
<td>Water</td>
<td>115/60/1</td>
<td>20</td>
<td>1/2</td>
<td>2</td>
<td>16</td>
<td>5,500</td>
<td>195/88</td>
<td>7.7</td>
<td>25.0</td>
</tr>
</tbody>
</table>

All units with Stainless Steel finish.
Refrigerant: R-404A.

**OPTIONS:**
Stacking Kit: Number KSCME6-30 (CME236, CME506, or CME806, CME256, CME506, or CME236, CME506, CME656, or CME806).

Scotsman's ice machines are not designed for outdoor installations. Scotsman remote condensers are designed for outdoor installations.

Machine requires voltage indicated on rating name plate. Failures caused by improper voltage are not considered factory defects. Extended periods of operation at temperatures exceeding limitations constitutes misuse under the terms of Scotsman Manufacturer's Limited Warranty, resulting in a loss of warranty coverage. Specifications and design are subject to change without notice.

**Consult Your Local SCOTSMAN Representative At:**

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**YOU'LL VALUE THE DIFFERENCE:**
775 Corporate Woods Parkway • Vernon Hills, IL 60061 • 1-800-SCOTSMAN • Fax: (847) 913-9844
Visit our website at: www.scotsmans-se.com • E-mail: customer.service@scotsmans-se.com
CME256

VOLUME PRODUCTION • 24 HOUR

<table>
<thead>
<tr>
<th></th>
<th>Air-Cooled</th>
<th>Water-Cooled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ARI 70°/50°</td>
<td>ARI 90°/70°</td>
</tr>
<tr>
<td></td>
<td>lbs/kg.</td>
<td>lbs/kg.</td>
</tr>
<tr>
<td>CME256-1</td>
<td>307/139</td>
<td>320/145</td>
</tr>
<tr>
<td>CME256-32</td>
<td>307/139</td>
<td>240/109</td>
</tr>
</tbody>
</table>

VALUE THE DIFFERENCE OF CM³ ICE MACHINES:

- CM³ series offers the lowest lifetime operating costs based on lower water and electrical usage. Combine that with a competitive purchase price and the best warranty in the industry and you have the lowest lifetime ownership cost. Period.
- AutoIQ™ Control System monitors and controls the ice machines' functions to ensure consistent ice production and reduce operating costs.
- CM³ Evaporator is a hot tin dipped, molecularly bonded plate that has been field tested and proven 99.4% reliable over 5 years.
- Rust-free Polyethylene Base and Food Zone is insulated with 1-1/2" of foam which keeps water and food zone cool to reduce operating costs and is backed by a Lifetime Rust-free Warranty.
- Contemporary styling and stainless steel finish make the CM³ a perfect addition to any operation.
- Now protected with AquaArmor™ utilizing AgION™, a silver-based anti-microbial compound that reduces the growth of bacteria, microorganisms, algae, mold and slime on ice machine surfaces. AgION is a trademark of AgION Technologies and is registered with the EPA.

WARRANTY See your dealer for complete warranty details.
- Limited Lifetime Rust Free Warranty on Food Zone
- 3 years parts and labor on all components.
- 5 years parts and labor on the CME evaporator.
- 5 years parts on the compressor and condenser.

BIN OPTIONS:

Bin: HTB250

Bin: HTB350

Approx. Cube Size:
1 1/8" x 1 1/8" x 3 1/8" Thick

Scotsman Modular Bins

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Dimensions W&quot;xD&quot;xH&quot;</th>
<th>ARI Bin Capacity</th>
<th>Application Capacity</th>
<th>Finish*</th>
<th>Ship Weight lbs/kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTB250</td>
<td>30 x 31.5 x 22.5</td>
<td>190 lbs.</td>
<td>250 lbs.</td>
<td>HTB</td>
<td>80/36</td>
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<tr>
<td>HTB350</td>
<td>30 x 31.5 x 29.5</td>
<td>270 lbs.</td>
<td>350 lbs.</td>
<td>HTB</td>
<td>90/41</td>
</tr>
<tr>
<td>HTB555</td>
<td>30 x 34.5 x 44.5</td>
<td>420 lbs.</td>
<td>535 lbs.</td>
<td>HTB</td>
<td>110/50</td>
</tr>
<tr>
<td>BH550</td>
<td>30 x 31.5 x 44</td>
<td>410 lbs.</td>
<td>520 lbs.</td>
<td>SS</td>
<td>140/64</td>
</tr>
</tbody>
</table>

*HTB) Linear Low Density Polyethylene—Grey color.
(SS) Stainless Steel with Polyethylene liner.
INGERSOLL-RAND Compressor, Air, 5.0 HP

Pneumatics > Air Compressors and Vacuum Pumps > Stationary Electric Air Compressors

Electric Two Stage Air Compressor, Type 30, HP Rating 5.0 HP, Air Delivery 15 CFM, Maximum Pressure 175 PSI, Voltage Rating 230 Single Phase, Current Rating 20 Amps, Tank Capacity 60 Gallons, Filled ASME, Tank Type Vertical, Oil Capacity 32 Ounces, With Manual Drain, Discharge Isolation Valve, Height 69 inches, Length 32 inches, Width 30 inches, Outlet 1/2 Inch FNPT, Start Up Kit Number 4MG79

Grainger Item #: 4L577
Your Price (ea): $1,495.00
Brand: INGERSOLL-RAND
Mfr. Model #: 2340L5
Ship Qty: 1
Sell Qty (Will-Call): 1
Ship Weight (lbs.): 425.0
Usually Ships*: Today
Catalog Page No.: 3867
Country of Origin: USA

Other Popular Terms for this Product
Air Compressors Electric Air Compressors Electric Compressors Stationary Air Compressors Stationary Compressors
Oil-Lubricated Air Compressors Oil-Lubricated Compressors Two-Stage Air Compressors Two-Stage Compressors

* Usually Ships reflects when an item is generally expected to ship from Grainger based on its stocking location. Real-time availability information will be shown during the checkout process and on the e-mail order confirmation (for U.S. and Puerto Rico - US customers only). Please allow additional delivery time for international orders.