

SECTION 272000 - ACCEPTABLE MANUFACTURERS

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Specifications, Standards, and Codes

1. All work shall be in accordance with the following:
 - a. The current edition of the National Electrical Code (NFPA 70) with current Georgia Amendments.
 - b. The current edition of the International Building Code with Amendments.
 - c. The current edition of the Life Safety Code (NFPA 101).
 - d. The National Electrical Safety Code (ANSI C-2).
 - e. Americans with Disabilities Act (ADA)
 - f. Local city and county ordinances governing electrical work.
2. In the event of conflicts, the more stringent provisions shall apply.

1.2 SUBSTITUTIONS

- A. Where equipment is identified by manufacturer and catalog number, it shall be as the base of requirements for quality and performance. Where manufacturers for equipment are identified by name, the Contractor may submit for approval, similar equipment of other manufacturers as substitution. The Engineer's decision on whether the submitted equipment is acceptable shall be final and binding.
- B. All changes necessary to accommodate the substituted equipment shall be made at the Contractor's expense and shall be as approved by the Engineer. Detailed Drawings indicating the required changes shall be submitted for approval at the time the substitution is requested.
- C. If substitutions are made in lieu of device specified; form, dimension, design and profile shall be submitted to the Engineer for approval.
- D. Submit the request for approval of substitute materials in writing to the Architect at least ten days prior to bid opening.

1.3 MATERIALS

- A. All materials used in this work shall be new and shall bear the inspection label of Underwriters' Laboratories Inc. or certification by another recognized laboratory.
- B. The published standards and requirements of the Telecommunications Industries Association (TIA), National Electrical Manufacturers Association (NEMA), the American National Standard Institute (ANSI), the Institute of Electrical and Electronic Engineers (IEEE), and the American Society of Testing Materials (ASTM), are made a part of these Specifications and shall apply wherever applicable.
- C. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts are available.

- D. When more than one unit of the same class of equipment or material is required, such units shall be the products of a single manufacturer or partner manufacturers that offer a certified solution.
- E. Components of an assembled unit need not be products of the same manufacturer but must offer a certified end-to-end solution.
- F. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.
- G. Components shall be compatible with each other and with the total assembly for the intended service.

1.4 SUBMITTALS

- A. Before installation of any cable or support equipment the contractor shall submit shop drawings and product data for the RCDD and designer for review and approval. The contractor shall indicate installation details, cable routing, system configurations, and outlet numbering on all drawings. The contractor shall submit all appropriate product data for each component to be supplied. The contractor shall also submit manufacturer installation instructions. Three (3) copies of all the above and the following shall be submitted.
- B. Submittals for individual systems and equipment assemblies that consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered, reviewed, or stored, and such submittals will not be returned except at the request and expense of the Contractor.
- C. Immediately after award, the contractor shall submit a construction schedule listing construction milestones including delivery of construction materials, staffing, backbone installations, equipment room fit-out, horizontal cable installation, testing, and pre-final and final construction observations.
- D. Also after the award, the contractor is to submit a Schedule of Value that coincides with the construction schedule. This schedule of values shall be used for the evaluation of pay requests. Schedule of Values to include all labor and material costs.
- E. Project Record Documents: The record documents shall be bound and consist of the following:
 - 1. Product cut sheets for all products supplied.
 - 2. Test reports for horizontal cabling.
 - 3. Test reports for backbone cabling.
 - 4. Manufacturer Warranties
 - 5. "D-Size" As-Built drawings.
- F. As-Built drawings should accurately record the location of service entrance conduit, termination backboards, outlet boxes, cable raceways, cable trays, pull boxes, and equipment racks electronically using AutoCAD 2013 or later version and on minimum "D" size reproducible paper prints.
- G. The contractor shall prepare 11" x 17" as-built serving zone drawings for each Telecommunication Room. The drawing shall be laminated, framed, and secured to the wall in the Telecom Room.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS – COPPER CONNECTIVITY SYSTEM

- A. All copper cables and components shall be provided and installed by manufacturer certified installers that shall provide an extended warranty of 20 year for certified installations. Manufacturer shall provide warranties and contractor shall provide documentation of certification by manufacturer. Acceptable copper solution manufacturers shall be the products of the following manufacturers:
 - 1. Commscope Uniprise Cabling System
- B. All materials and workmanship shall be fully guaranteed by the contractor for 25 years from transfer of title against defects. The defects which may occur, as the result of faulty materials or workmanship within the 25 years after installation and acceptance by the owner shall be corrected by the contractor at no additional cost to the owner. The contractor's warranties should commence with acceptance of/or payment for the work in full.

2.2 VELCRO STRAPS

- A. Approved Velcro Strap manufacturer(s):
 - 1. Panduit
 - 2. Tyco
 - 3. Hubbell
 - 4. Or Approved Equal

2.3 CABLE ADMINISTRATION/LABELING SOFTWARE PROGRAM

- A. Software program shall be of the following types or similar:
 - 1. PANDUIT labeling program
 - 2. Brady labeling program
 - 3. Thomas & Betts labeling program
 - 4. Excel, customized

PART 3 - EXECUTION

3.1 EXAMINATION OF SURFACE CONDITIONS

- A. Prior to the start of work, the Contractor shall carefully inspect the installed work of other trades and verify that such work is complete to the point where installation may properly commence. Start of work indicates acceptance of conditions.
- B. Install equipment in accordance with applicable codes and regulations, the original design and the referenced standards.
- C. In the event of a discrepancy, immediately notify the Project Manager.
- D. Do not proceed with installation until unsatisfactory conditions and discrepancies have been fully resolved.

3.2 PROTECTION OF SYSTEMS AND EQUIPMENT

- A. Protect materials and equipment from damage during storage at the site and throughout the construction period. Equipment and materials shall be protected during shipment and storage against physical damage, dirt, theft, moisture, extreme temperature and rain.
- B. Damage from rain, dirt, sun and ground water shall be prevented by storing the equipment on elevated supports and covering the sides with securely fastened protective rigid or flexible waterproof coverings.
- C. During installation, equipment shall be protected against entry of foreign matter on the inside and be vacuum cleaned both inside and outside before testing, operating or painting.
- D. As determined by the Project Manager, damaged equipment shall be fully repaired or shall be removed and replaced with new equipment to fully comply with requirements of the Contract Documents. Decision of the Project Manager shall be final.
- E. Damaged paint on equipment and materials shall be repainted with painting equipment and finished with the same quality of paint and workmanship as used by the manufacturer.

3.3 ACCESS TO EQUIPMENT

- A. Equipment shall be installed in location and manner that will allow convenient access for maintenance and inspection.
- B. Working spaces shall be not less than specified in the National Electrical Code (NEC) for voltages specified.
- C. Where the Project Manager determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled, one time only, as directed by the Project Manager, at no additional cost to the Owner. "Conveniently accessible" is defined as being capable of being reached without the use of ladders or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping and ductwork.

3.4 CLEANING

- A. During construction, and prior to Owner acceptance of the building, remove from the premises and dispose of packing material and debris caused by telecommunications work.
- B. Remove dust and debris from interiors and exteriors of electrical equipment. Clean accessible current carrying elements prior to being energized.

3.5 COMPLETION

- A. General: Upon completion of the work, remove excess debris, materials, equipment, apparatus, tools and similar items. Leave the premises clean, neat, and orderly.
- B. Results Expected: Systems shall be complete and operational and controls shall be set and calibrated. Testing, start-up and cleaning work shall be complete.

- C. Maintenance Materials: Special tools for proper operation and maintenance of the equipment provided under this Specification shall be delivered to the Owner.

3.6 TESTING AND VERIFICATION

- A. See specific Division 27 sections for testing parameters of sub-systems.
- B. The Contractor shall verify that requirements of this specification are met. Verification shall be through a combination of analyses, inspections, demonstrations and tests, as described below.
- C. Verification by inspection includes examination of items and comparison of pertinent characteristics against the qualitative or quantitative standard set forth in the Specifications. Inspection may require moving or partially disassembling the item to accomplish the verification, included as part of the work at no additional cost to the Owner.
- D. The Contractor shall verify by formal demonstrations or tests that the requirements of this Specification have been met. The Contractor shall demonstrate that the telecommunications systems, components and subsystems meet specification requirements in the "as-installed" operating environment during the "System Operation Test". Even though no formal environmental testing is required, the Contractor shall measure and record temperature, humidity, and other environmental parameters and the environmental conditions, which were encountered during the "System Operation Test".
- E. The Contractor shall carefully plan and coordinate the final acceptance tests so that tests can be satisfactorily completed. The Contractor shall provide the necessary instruments, labor, and materials required for tests, including the equipment manufacturer's technical representative and qualified technicians in sufficient numbers to perform the tests within a reasonable time.
- F. The Contractor shall satisfy all items detailed in the final acceptance check-off list (punch list). The list shall be a complete representation of specified installation requirements. At the time of final acceptance punch list items shall be corrected until the system is found to be acceptable to the Owner and the Project Manager.
- G. After the Contractor systems have been installed and tested, the completed test plan shall be signed by the Telecommunications Contractor Project Manager and submitted for approval.

END OF SECTION