

SECTION 271343 - TV DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Applicable requirements of Division 27 Communications shall be considered a part of this section and shall have the same force as if printed herein full.
- B. This document describes the products and execution requirements relating to the CATV Distribution System. The system is existing; work includes new TV ports.
- C. Product specifications, general design considerations, and installation guidelines are provided in this document. Locations of horizontal cabling and typical installation details will be provided on Drawings as an attachment to this document. If the bid documents are in conflict, the Drawings shall take precedence. The successful vendor shall meet or exceed all requirements described in this document.

1.2 SUBMITTALS

- A. Within 30 days of notice to proceed, contractor shall deliver all required submittals.
- B. All submittals shall be prepared in a line by line format corresponding to these specifications and shall indicate compliance with each requirement specified herein and indicated in the contract drawings.
- C. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of system equipment.
- D. Shop Drawings: Submit shop drawings that contain complete wiring and schematic diagrams and other details required to demonstrate that the system has been fully coordinated and will function properly as a system. All drawings shall be produced with Autodesk AutoCAD compatible with version 2012. All floor plans, large scales and elevations are to be scaled. Drawings shall include but not be limited to the following:
 - 1. Site plan layout identifying all exterior mounted devices, outdoor / underground cable routing.
 - 2. Floor plan layouts showing device, equipment locations and cable / conduit routing.
 - 3. Functional one-line diagrams showing all devices and cable infrastructure.
 - 4. Equipment rack / cabinet details and elevations identifying sizes and type. Identify equipment placement in equipment racks / cabinets and enclosures.
 - 5. Elevations for wall mounted equipment racks, cabinets and enclosures.
 - 6. Device mounting details identifying mounting procedures / requirements.
- E. Contractor is responsible to maintain a full-size set of drawings on site throughout the project. These drawings shall be updated daily identifying installation progress and any changes to work.
- F. Test Plan: Contractor shall submit a test plan that defines the tests required to ensure that the system meets technical, operational, and performance

specifications. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested and include detailed instructions for the setup and execution of each test and procedure for evaluation and documentation of the results.

1.3 DRAWINGS

- A. The Drawings indicate the arrangement of the CATV Distribution system. Coordinate installation of equipment with the structural, mechanical and electrical equipment and access thereto.
- B. Raceways shown on the CATV Distribution system shall be installed as shown on the Drawings, and as required by the associated equipment manufacturers.

1.4 RECORD DRAWINGS (AS-BUILTS)

- A. Contractor shall submit as-built / record documentation for approval 30 days prior to final inspection. Provide three (3) sets of complete data on the CATV Distribution system equipment used in this project. This data shall be in bound form and shall include all shop drawings on 11 x 17 tri-folded. Provide three (3) copies of the Operation and Maintenance Manuals including any equipment provided under this contract that can be operated or maintained by the customer.
- B. As-built drawings shall contain exact cable patch and cable labeling information.
- C. All record drawings shall include "as built" system interconnection diagrams with major components identified by manufacturer and part number and the system wiring identified by number and type of interconnecting conductors. As-built drawings are to show wiring for all installed equipment. Head end equipment details shall be included with wiring interconnection properly identified as the system has been installed. Three (3) sets of full size (30"x42") As-built drawings must be provided. Corrected point-to-point drawings for all systems to show the actual as-built conditions. Original content from the contract documents (key notes, one-lines, device details) will not be accepted.
- D. The As-built drawings must be provided with the Contractor's title block on all sheets identifying the installation company and the project specific details.
- E. All drawings shall be produced with Autodesk AutoCAD compatible with version 2012. Provide two (2) CD/DVD with all drawings in electronic format.
- F. Provide a Warranty Letter in each O&M Manual Binder (2 copies total).
- G. Document and provide two (2) copies of network configuration (such as a list of IP addresses and the devices the addresses belong to, line diagram demonstrating network topology, etc.).
- H. The final pay application will not be approved until the post final inspection is completed, all Construction Observation items have been satisfied, and all of the above requirements for record documents are submitted and approved.

1.5 WORK INCLUDED

- A. This section of the Specifications requires the complete installation of the Cable Antenna Television Distribution System (CATV) for the reception, amplification, and reproductions of television channels as indicated on the drawings and/or specified

herein. Provide all labor, materials, equipment and supervision to install, check out, adjust and calibrate total system.

- B. The CATV Contactor shall extend the existing CATV system into the project space. Provide a minimum signal strength of 3 dBmV and a maximum of 15 dBmV for each channel available on the existing system.
- C. Reference one-line diagram in contract documents and floor plan drawings for complete requirements. The work shall consist of the installation of a complete television signal distribution system consisting essentially of, but not limited to, the following major components:
 - 1. Amplifier
 - 2. Passive Splitters and Taps
 - 3. TV Outlets
 - 4. Wired TV remote to Nurse Call Outlet
 - 5. Terminating Devices
 - 6. System Wiring

1.6 QUALITY CRITERIA & STANDARDS

- A. CATV wiring, devices, and equipment shall comply with applicable UL, NEC, and NEMA standards and requirements and shall be UL-listed and labeled.
- B. CATV wiring systems shall conform to established trade and industry standards.

1.7 CONTRACTOR REQUIREMENTS

- A. The Contractor must be licensed in the State of Georgia as a Low Voltage Telecommunications (LV-T) or Low Voltage Unlimited (LV-U) class certification.
- B. Contractor shall have a minimum of three (3) years of experience of installing, terminating, and testing CATV wiring systems. If requested, the Contractor must show proof of being in the CATV installation trade for a minimum of three years and provide three (3) references with contact names and telephone numbers regarding successful completion of CATV wiring projects.

PART 2 - PRODUCTS

2.1 CATV STATION JACKS, FACEPLATES, AND ASSOCIATED COMPONENTS

- A. The contractor shall be responsible for coordinating the location of the CATV jacks with AC power and TV mount locations.
- B. Faceplates shall be modular and shall be able to accept RJ-45, Coax "F" connectors, and/or Fiber LC Connectors.
- C. Blank inserts shall be used in faceplates with less than the maximum number of ports used.
- D. Connectors shall meet the following requirements:
 - 1. RG-6 - "PCT-P"

2. RG-11 compression type

2.2 CATV STATION AND DISTRIBUTION CABLE

- A. RG-6/U 18 AWG, 75 Ohm, quad-shield cable with a copper covered steel center conductor. Cable shall be capable of 5-1000 MHz. RG-6/U cable shield construction shall have 2 Foils + 2-60% AL and a nominal DCR of 5.3 Ohms per 1000'. RG-6/U shall be used for station drops to 200'.
- B. Coordinate color requirements with owner prior to ordering.
- C. Approved cables include:
 - 1. Commscope Uniprise RG 6 quad shield plenum cable
 - 2. Engineer Approved Equal
- D. All CATV cables shall be tested. All cable lengths shall be noted and indicated on each label affixed to each end of each cable. The length of each cable shall be recorded and included with test reporting.

2.3 TV STATION OUTLET

- A. Provide at each typical TV Station outlet location (see floor plans for variation, ex. Patient rooms, projectors, etc):
 - 1. One (1) M14L-262 L TYPE FLUSH MOUNT FACEPLATE, 4 PORT WHITE
 - 2. Two (2) M20AP-266, M20 DUST COVER FOR THE M SERIES FACEPLAC, WHITE
 - 3. One (1) M81C COUPLER, F ADAPTER, CATV INTERFACE
 - 4. One (1) UNJ600-BL, TYPE U/UTP 8 PIN JACK, WHITE

2.4 CATV DISTRIBUTION ACTIVE AND PASSIVE ELECTRONIC COMPONENTS

- A. All CATV distribution active and passive electronic components shall be capable of operating in the 5 MHz -1GHz (minimum) bandwidth.
- B. All CATV distribution active and passive electronic components shall be capable of two-way signal operation.

2.5 SPLITTERS

- A. Splitters shall have a frequency range of 5 – 1000 MHz, have available ports of 2, 3, 4, 6, and 8-way models. Impedance:
 - 1. 75 ohms

2.6 DIRECTIONAL COUPLERS

- A. Directional Couplers shall have frequency range of 5 – 1000MHz, and have available ports of 2, 4, and 8-way models.
 - 1. Impedance: 75 ohms
 - 2. 2-Way models with isolation values ranging from 4, 8, 11, 14, 17, 20, 23, 26, 29, and 32 Db

3. 4-Way models with isolation values ranging from 8, 11, 14, 17, 20, 23, 26, 29, 32, and 35 dB
4. 8-Way models with isolation values ranging from 11, 14, 17, 20, 23, 26, 29, 32, and 35 dB

2.7 MANUFACTURERS

- A. Acceptable manufacturers of RG-6/U CATV Quad shielded, plenum station and distribution cables are:
 1. Commscope Uniprise RG 6 quad shield plenum cable
- B. Acceptable manufacturers of CATV station and distribution connectors and associated components are:
 1. PCT Type Only

PART 3 - EXECUTION

3.1 INSTALLATION OF CATV STATION JACKS AND FACEPLATES

- A. CATV station jacks and faceplates shall be installed per manufacturer's written instructions.
- B. The cables shall be installed in faceplate so that mechanical strain does not degrade the connection.
- C. The contractor shall be responsible for coordinating the location of the CATV jacks with TV mounts. Reference architectural drawings for exact locations.

3.2 INSTALLATION OF CATV STATION CABLE

- A. CATV station cable shall be installed per manufacturer's written instructions. Do not exceed the minimum bend radius (per the manufacturer's cable specifications) during installation.
- B. See Horizontal Cabling Section of specifications for complete requirements.
- C. The cable shall not be compressed, crimped, crushed, or stretched. The cable jacket shall not be cut or damaged in any way which would expose the inside wire.
- D. Protection shall be provided against sharp edges or possible damage caused by work done in the vicinity of the cable. Cable routing shall follow the dictates of the design while avoiding of adverse environmental conditions.
- E. Tag each end of all cables with the room numbers.
- F. Cables shall be place on termination panel in ascending room order starting with the room having the lowest number and ending with the room with the highest number. Label with room numbers.

3.3 COAXIAL WIRING TESTS

- A. Contractor shall provide all necessary testing equipment to test all cables.
- B. Each cable shall be tested from each end to determine length, continuity, and that all connectors have been properly made.

- C. The contractor shall test all station cables with a Time Domain Reflectometer (TDR). TDR shall be supplied by the contractor.
- D. A hard copy of the test results shall be submitted for review to the owner's Project Superintendent in notebook format. Test report data shall reference cables by cable labeling standards.

3.4 SYSTEM ACCEPTANCE

- A. Before the system is accepted by owner, the contractor shall be required to walk-through the installation with the owner's representative and the design engineer to verify proper installation. The contractor may be requested to pull faceplates to verify cable labeling and/or installation compliance.

END OF SECTION