

## SECTION 27 11 20 – COMMUNICATIONS HORIZONTAL TERMINATION HARDWARE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section
- B. Section 27 00 00 – Communications General
- C. Section 27 05 00 – Common Work Results for Communications
- D. Section 27 11 13 – Communications Entrance Protection
- E. Section 27 11 16 – Communications Cabinets, Racks, Frames, and Enclosures
- F. Section 27 11 20 – Communications Horizontal Termination Hardware
- G. Section 27 11 23 – Communications Cable Management and Runway
- H. Section 27 13 13 – Communications Copper Backbone Cabling
- I. Section 27 13 23 – Communications Optical Backbone Cabling
- J. Section 27 15 13 – Communications Horizontal Cabling
- K. Section 27 15 43 – Communications Faceplates and Connectors
- L. Section 27 16 19 – Communications Patch Cords, Station Cords, and Cross-Connect Wires

#### 1.2 CODES AND STANDARDS

- A. Refer to Section 27 00 00 – Communications General
- B. Refer to Division 01

#### 1.3 SUMMARY OF WORK

- A. This Section includes:
  - 1. Patch Panels for Copper Horizontal Cabling Systems
  - 2. Termination Blocks for Copper Horizontal Cabling Systems
  - 3. Connector Housings for Optical Fiber Horizontal Cabling Systems. Note that not all projects include horizontal fiber. Refer to Project Drawings for all requirements.
- B. Devices shown on Plans are existing, to be re-cabled. Locations shown are approximate.
- C. Furnish and install new horizontal Category 6A "Data" Cabling from Telecommunications Rooms to WAO and TO locations as indicated on Plans. Furnish and install new jacks. Terminate, test, label, and document all locations.

- D. "Voice" Telephone" cabling is to remain as existing. Furnish and install new "Voice" and "Telephone" jacks for all Category 3/5/5e locations as indicated on Plans. Re-terminate, test, and label all locations.
- E. Division 27 shall be required to remove obstructing furniture in close coordination with the COTR.
- F. Furnish normal and after-hours conversion services required to replace existing in-service cabling and connections. Examples include:
  - 1. Existing horizontal "Data" cabling operating from the old "A-Stack" TR that is to be replaced with new horizontal cabling originating in the new "A-Stack" and "B-Stack" TR(s). Owner shall provide live network switching system to which Division 27 will apply patch cords in coordination with the conversion of each WAO location. Contractor shall be required to replace existing work area drops with new while maintaining both until new is patched in and verified in-service. Contractor shall then return to each location to remove and dispose of old cabling back to the original patch panel point of termination.
  - 2. For existing "Voice" and "Telephone" cabling that is to be re-terminated on the station end, Division 27 shall re-terminate quantity of jacks and pairs as existing and shall verify stations are in-service prior to moving to next location.
  - 3. All exceptions shall be noted and compiled at the close of each work shift for immediate presentation to the Owner for tracking and resolution.

#### 1.4 DEFINITIONS

- A. Refer to Section 27 00 00 – Communications General

#### 1.5 ACRONYMS & ABBREVIATIONS

- A. Refer to Section 27 00 00 – Communications General

#### 1.6 SUBMITTALS

- A. Refer to Section 27 00 00 – Communications General

### PART 2 - PRODUCTS

#### 2.1 APPROVED MANUFACTURERS

- A. Products by the following manufacturers shall be considered equal where applied to the Basis of Design and Reference Part Number listed within this section.
  - 1. Leviton Network Solutions
  - 2. Corning Cable Systems
  - 3. VAAAHs approved equal, documented by a pre-bid addendum

#### 2.2 BASIS OF DESIGN AND REFERENCE PART NUMBERS

- A. Bidder shall confirm all reference part numbers, listed within Division 27, as current and suitable for the items described and specified and shall file a formal RFI for all perceived discrepancies prior to bidding.
- B. Refer to Section 27 00 00 Communications General, Part 2.

2.3 PATCH PANELS FOR COPPER HORIZONTAL CABLING – SINGLE OPEN RACK CONFIGURATION **INCLUDING “SIDECAR” RACK CONFIGURATION**

- A. For ER, TR, and other information transport distribution spaces:
1. Provide High Density **Recessed Angled** 48-Port Category 6A UTP Patch Panels with insulation displacement connecting blocks for termination of all horizontal channels. Insulation displacement connecting blocks shall be based on component-rated ~~110-style~~ connector technology.
  2. Patch Panels shall contain 8-position RJ-45 UTP ports that meet or exceed transmission performance of Category 6A for the horizontal system.
  3. Patch Panels shall terminate four (4) pairs of Category 6A UTP horizontal cabling per port.

2.4 PATCH PANELS FOR COPPER HORIZONTAL CABLING – DUAL **FULL HEIGHT** OPEN RACK “SIDE-BY-SIDE” RACK CONFIGURATION

- A. For ER, TR, and other information transport distribution spaces:
1. Provide High Density **Flat** 48-Port Category 6A UTP Patch Panels with insulation displacement connecting blocks for termination of all horizontal channels. Insulation displacement connecting blocks shall be based on component-rated 110-style connector technology.
  2. Patch Panels shall contain 8-position RJ-45 UTP ports that meet or exceed transmission performance of Category 6A for the horizontal system.
  3. Patch Panels shall terminate four (4) pairs of Category 6A UTP horizontal cabling per port.

2.5 TERMINATION BLOCKS FOR COPPER HORIZONTAL CABLING

- A. Termination Blocks shall be 4-pair connector clips rated for Category 5e performance, at minimum.
1. 300-pair 110-style termination blocks; wall mount with legs for TR applications.
- B. Blocks shall include clear plastic label holders with protected label strips, colored **white** for horizontal terminations.

2.6 CONNECTOR HOUSINGS FOR OPTICAL FIBER HORIZONTAL CABLING

- A. Connector Housings shall be rack mounted enclosures with front and rear removable doors, removable top, large front-mounted fiber guides, splice tray option, and integrated hinged optical jumper manager.
1. 144-port units shall accept up to twelve (12) Pigtail Modules, supporting a maximum of one-hundred forty-four (144) LC style couplings in 4U rack space.
  2. 48-port units shall accept up to four (4) Pigtail Modules, supporting a maximum of forty-eight (48) LC style couplings in 2U rack space
- B. Each housing shall include a full complement of blank panels, labels, cable storage accessories, cable grounding hardware kits, optical fiber cable routing accessory kit, and splice tray brackets. Housing shall be **black** in color.
- C. Connector Housings shall include duplex LC style coupler panels and connectors as required for the complement of multimode and single mode optical fiber elements, indicated on Project Drawings.

- D. Multimode Pigtail Modules shall each contain six (6) LC style duplex adapters and shall be color coded according to the optical fiber type for which they are applied. Laser-optimized 50/125µm multimode shall be aqua in color.
- 2.7 Single Mode Pigtail Modules shall each contain six (6) LC style duplex adapters and shall be color coded according to the optical fiber type for which they are applied. 8.2/125µm single mode shall be blue in color.
- 2.8 LABELING
  - A. Adhesive machine printed white background with black lettering in all cases.
  - B. ¼" Black on White – equals are permitted. Refer to "PART 3 – EXECUTION" for details.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. All Panels shall be securely mounted in the rack with a minimum of four (4) rack screws located in the four (4) corners of each panel.
- B. All Blocks shall be securely mounted to the wall panel or frame with a minimum of four (4) screws located in the four (4) corners of each block.
- C. All Panels and Blocks shall be arranged in sequential order from top to bottom and left to right within racks and shall be labeled in alphanumeric order according to the VAAAHS-approved labeling scheme.
- D. Panels for shielded cabling, where applicable, shall be bonded and grounded to rack frames within which they are installed and terminated directly to the TGB (Telecommunications Grounding Busbar) within each ER/TR space.
- E. Category 5e Station cables shall be terminated as required on 110 blocks separate from those used for Riser/Feeder/OSP Cable and shall be mounted on a floor mounted frame (ER) or plywood backboard (TR). Station cable shall be routed from the overhead cable runway around the perimeter of the plywood using metal D-Rings. All cabling shall approach the point of termination from the top, entering in the top of the block. All cables shall be neatly organized and dressed (combed) using plastic tie wraps with metal reinforced locking tabs. Cable management hardware shall be furnished and installed by the Contractor to ensure that the installation is neatly organized and readily identifiable. Station cabling shall be routed using metal D-Rings.

#### 3.2 LABELING

- A. Labeling shall be furnished and installed by the Contractor according to the details provided by VAAAHS the COTR. Contractor shall make early contact with the COTR to obtain the approved identifiers and any other special requirements for each project.
- B. General: Mechanically printed, adhesive labels shall be used in all cases. Labels shall have a white background with black lettering. Brother P-Touch labels, or equal, are recommended for all types of panel labels.

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END OF SECTION 27 11 19