

**SPECIAL SPECIFICATION**  
**SECTION 25030S**  
**ADMINISTRATION REQUIREMENTS**

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## **SPECIAL SPECIFICATION**

### **SECTION 25030S**

#### **ADMINISTRATION REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION OF WORK**

- A. Section Includes: Administrative Requirements for installation of the telecommunications infrastructure for the MESA Project at Sandia National Laboratories, New Mexico (SNL/NM).
1. Telecommunications system installation and testing shall be performed only by a licensed telecommunications contractor that is certified by Avaya, Inc. as a Value-added Reseller (VAR) for their telecommunication products.
  2. Where telecommunications installation work is performed as part of a subcontract for a larger project, the General Contractor shall subcontract directly to the telecommunications subcontractor.
  3. Exterior and interior raceway systems shall be installed by a licensed and qualified telecommunications contractor or an electrical contractor under subcontract with a licensed and qualified telecommunications contractor. A qualified telecommunications contractor is a company that is certified as an Avaya, Inc. VAR.
  4. Cable terminations and testing shall be performed only by installers who are BICSI-certified at the Technician II level, as a minimum.
  5. Additional requirements for the telecommunications contractor are found in Division 25, Section "Quality Assurance and Documentation."
- D. Project may have Contractor-furnished material and/or Sandia-furnished material (SFM) as detailed in Statement of Work and/or elsewhere in Contract documents.
- E. All or part of Work may be included in Project, as stated in Contract documents.
- F. Related Sections: Refer to the following sections for related work.
1. Division 1, Section "Descriptive Submittals."
  2. Division 1, Section "Environment, Safety and Health for construction and Maintenance Service Contracts."
  3. Division 25, Section "Quality Assurance and Documentation."

4. Division 25, Section “Main Distribution Frames and Service Entrances”
5. Division 25, Section “Interior Telecommunications Pathways”
6. Division 25, Section “Exterior Telecommunications Pathways”
7. Division 25, Section “Telecommunications Cabling”

#### 1.02 REFERENCES

- A. Electronics Industries Association/Telecommunications Industries Association (EIA/TIA)
  - 606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- B. National Fire Protection Association (NFPA)
  - 70 National Electrical Code (NEC)
- C. Occupational Safety and Health Administration (OSHA)
  - 29 CFR Part 1910 Permit-Required Confined Spaces for General Industry; Final Rule
- D. Supplementary References: Publications listed below are not referenced in this specification. Publications are listed as they contain design and technical criteria that are pertinent to Project. Commencement of work shall indicate a working familiarity on the part of the Contractor with each of these standards.

#### Building Industry Consulting Service International (BICSI)

Telecommunications Distribution Methods Manual

LAN and Internetworking Design Manual

Telecommunications Cabling Installation Manual

#### 1.03 DEFINITIONS

- A. Intra-Building Cable: Network Cable within building.
- B. Inter-Building Cable: Network Cable between buildings.

#### 1.04 QUALITY ASSURANCE

Quality Assurance shall be as delineated in Division 25, Section “Quality Assurance and Documentation.”

### PART 2 - PRODUCTS

#### 2.01 GENERAL

Provide products that are new and currently in production, as specified elsewhere in the Contract documents.

## 2.02 INTRA-BUILDING TELECOMMUNICATION CABLING TERMINATION AND TERMINATION COMPONENTS

Telecommunications cabling and termination components shall be as delineated in Division 25, Section "Telecommunications Cabling."

## 2.03 LABELS

- A. General: Refer to Paragraph 3.03 of this specification for label information.
- B. Intra-Building and Inter-Building Cables: Twisted pair copper cable, optical fiber cable. Label each cable at each end with unique identifier.
  - 1. Use portable labeling system printer, Brady LS2000 or approved equal.
  - 2. Mark each cable with shrinkable wire marker sleeve. Do not shrink sleeves.
- C. Copper Cable 110 Wiring Units: Floor-standing frames and wall-mounted 110 wiring blocks, 100 or 300 pair.
  - 1. Provide each frame- or wall-mounted cabinet housing, 110 blocks with engraved quality (ABS) plastic label.
  - 2. Contact the Sandia Designated Representative (SDR) for pre-assigned frame/block layouts before terminating or labeling cables.
- D. Lightguide Interconnection Unit (LIU): Provide each LIU with engraved quality (ABS) plastic label. See Drawing TN/TJ5005STD for label specification and sequence of information.
- E. Telecommunication Cabinet: Provide each floor-standing cabinet and wall-mounted cabinet with engraved quality (ABS) plastic label.
- F. Lightguide Termination Shelf: Each cable terminated to termination shelf shall be labeled on outside of shelf door.
  - Use portable labeling system printer, Brady LS2000 or approved equal.
- G. Backbone Conduit Pullbox: Provide each pullbox with engraved quality (ABS) plastic label. See Drawing TN/TJ5002STD, Detail 7 for label specification and sequence of information.
- H. Conduit: Provide each conduit end point with Panduit, #PLM4S-C tie wrap label tag or approved equal.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Consult with SDR to verify areas that are confined spaces as defined in OSHA 29 CFR Parts 1910, requiring special permits for access. Comply with requirements of

Administration Requirements

OSHA 29 CFR Part 1910, Section 146 when working in permit-required confined spaces.

- B. Locations of hazardous materials areas are shown on Drawings.
  - 1. Avoid disturbance of hazardous materials in making acceptable modifications of raceway routing, mounting of equipment, and other work.
  - 2. Do not mount conduit, equipment, hangers, and other accessories on surface materials known to contain asbestos or other hazardous materials without written authorization from SDR outlining method of installation.
  - 3. If hazardous materials or conditions not shown on Drawings are encountered, stop work immediately and vacate area. Take the following actions:
    - a. Immediately notify SDR of condition encountered.
    - b. Do not enter area or work in area until receiving written authorization from SDR.
- C. Do not install damaged or defective components.
  - 1. If SFM are found to be defective, immediately report problem to SDR and provide documentation with sufficient engineering data to confirm defect.
  - 2. Contractor shall receive replacement SFM materials only after defective materials have been returned to SDR and defect has been confirmed.
  - 3. If SFM are rendered unusable due to Contractor error or improper installation as determined by SDR, materials shall be replaced at Contractor's expense.

### 3.02 RACEWAY AND CABLE INSTALLATION

Install system components and appurtenances in accordance with manufacturer's instructions, as described in Contract documents, and as shown in Drawings. Refer also to Division 25, Section "Telecommunications Cabling," Division 25, Section "Exterior Telecommunications Pathways," and Division 25, Section "Telecommunications Cabling."

### 3.03 LABELING

- A. General: Missing or unclear nomenclature shall not be construed as reason for not identifying items, and shall be brought to SDR's attention.
- B. Intra-Building Cables: UTP and EUTP cable, optical fiber cable. Label each cable at each end with unique identifier. See Appendix, Figure 4 for label specification and sequence of information.
  - 1. Floor designation for horizontal cables, and cables to desktop shall be same as desktop outlet location.
  - 2. Floor designation for backbone cables, cables from MDR to IDR, and IDR to IDR shall be floor where cable originates from, with origin point being MDR.

3. SDR shall provide numeric sequence information for Projects.

If any of the characters change, with exception of last four, then numeric sequence shall start at 0001.

C. Inter-Building: Twisted pair copper cables, optical fiber cable. Label each cable(s) at each end with unique identifier that is the same as intra-building cables, except for the following:

Inter-building cable names shall not have building numbers associated with them.

D. Copper Cable 110 Wiring Blocks: Floor-standing frames and wall or cabinet-mounted 110 wiring blocks, 100- or 300- pair.

1. Wire punched down on 110 wiring blocks shall be labeled on 110 wiring blocks as individual pairs.
2. Label 110 wiring block pair count using Excel spreadsheet template, along with color transparent plastic strip (SFM) for color-coding. Refer to Appendix, Figure 1.
3. Voice and data 110 wiring block labels will be distinguished by the following acronyms:

Data Frame Example: 8361FADC

DT = Data Campus Cable

DM = Data Backbone Cable

DL= Data Network Cable

DU = Data Horizontal Cable

Voice Frame Example: 836FAVC

VT = Voice Campus Cable

VM = Voice Backbone Cable

VP = Voice ISDN Power Cable

VU = Voice Horizontal Cable

4. Skip 25th position on each strip of 110 wiring block when wiring 4-pair cable.
5. Provide floor-standing frames with 300-pair 110 wiring blocks and/or 600 pair protector frames, as required. Group of blocks are to be designated as campus cables and/or backbone cables, power cables, network cables, and horizontal voice or data cables. See Drawing TN5004STD, Details 2 and 3 for layout.
6. Install engraved label on each floor-standing frame. See Appendix, Figure 3, for label specification and sequence of information.
7. Label network equipment 110 wiring blocks with equipment number, slot, and port number.
8. Insert SFM color-coded plastic slides over 110 block labels. See Appendix, Figure 1A for color definition.
9. Network equipment cross connects shall be labeled by SNL/NM Telecommunications Operations Department.

E. Lightguide Interconnection Unit (LIU)

1. Attach engraved label to door of LIU. LIU label shall have building number, IDR number, and numeric sequence. See Drawing TN/TJ5005STD, Detail 5 for layout.
  2. List cable(s) and room number on LIU along with LIU name. See Drawing TN/TJ5005STD, Detail 6 for layout.
  3. Provide continuous numbering sequence for individual fibers. Number individual fiber strands in LIU from 1 through 24, for cables with 24 fiber strands or less. See Drawing TN/TJ5006STD, Detail 2 for layout.
  4. Use multiple LIUs for cables with greater than 24 fiber strands, and label sequentially according to number of fiber strands. See Drawing TN/TJ5006STD, Detail 2.
- F. Telecommunication Cabinet: Floor-standing cabinet and wall-mounted cabinet.
1. Floor-standing cabinet label shall have building number, color designation for classification of network, IDR number, and sequential character. See Appendix, Figure 2.
  2. Label red (SCN) and black (SRN/SON) cabinets as two separate systems.
  3. Center label at top of front door of cabinet.
  4. Sequential character shall start over when any of the other characters change.
- G. Lightguide Termination Shelf
1. Label cable designation(s) on outside door of termination shelf.
  2. Single shelf may hold more than one campus, backbone or horizontal cable. Do not split a single cable between shelves. Start numbering sequence from 1 within the shelf, and continue to last fiber strand within that cable, for cable larger than 4 fibers. See Drawing TN/TJ5006STD, Detail 3 for layout.
  3. Label each individual coupler on coupler plate with appropriate sequential number for terminating shelves.
  4. Each shelf shall contain either single-mode or multi-mode red or black, not both.
  5. Install multiple shelves for cables greater than 72 optical fibers. Label sequentially according to number of optical fibers.
  6. Label 4-fiber user cables according to number of couplers in the shelf.
- H. Optical Data Telecommunication Outlet: Red (SCN) and Black(SRN/SON)
1. The SDR will provide label sticker(s) for red and black sections of Data outlets.
  2. Attach red and/or black sticker with pre-assigned numeric value to outlet cover for appropriate outlet. See Drawing TN/TJ5003STD, Details 3 and 7 for examples of sticker placement.

3. Tamper Indicating Prismatic Seals (TIPS) – Red System Only: It is the design intent to not have to use TIPS. The Contractor shall install all conduit concealed in walls in the manner illustrated in Drawing TJ5001STD as much as is practicable to avoid rendering it non-inspectable. Consult with the MESA PTS Coordinator for alternate installation recommendations if necessary to avoid making conduit non-inspectable. A recommended alternative shall be used only after approval by the SDR. If conduit must be installed in a location or manner that renders it non-inspectable, the following requirements apply:
  - a. TIPS shall be installed on any non-inspectable conduit couplings and connectors by qualified persons (i.e. Q-cleared persons who are sufficiently trained for applying TIPS and are approved by the MESA PTS Coordinator).
  - b. TIPS shall be installed on connectors at conduit rough-in, before conduit is made non-inspectable by installation of building finishes.
  - c. Attach TIPS “Warning” sticker with point of contact information to outside of cover of red outlet.

I. Telecommunication Outlet: Voice/Data (SRN/SON)

1. The SDR will provide label sticker(s) for Voice/Data outlets.
2. Attach sticker with preassigned numeric value to outlet cover for appropriate outlet. See Drawing TN/TJ5003STD, Details 3 and 7 for examples of sticker placement.

J. Backbone Conduit Pullbox: Install engraved plastic label to cover of pullbox. See Drawing TN/TJ5002STD, Detail 7.

K. Conduit: Label conduits with appropriate color-coded tape. Refer to Standard Drawing 73740/E1.

1. Install tie wrap label tag on each conduit end point that terminates in IDR, MDR, or stubbed through floor, ceiling or wall without pullbox.
2. Hand-letter with permanent black ink, in block type letters with clear, legible letters.
3. Match label information to information in nearest J-Box label that conduit leads to.

END OF SECTION