

## 271119-TC

### Termination Blocks and Patch Panels for Telecommunications Systems (Copper)

#### General

#### 1.1 Work Included

- A. Provide all labor, materials, tools and equipment required for the complete installation of work called for in the Construction Documents

#### 1.2 Scope of Work

- A. This document describes the products and execution requirements relating to furnishing and installing Telecommunications Cabling. Termination blocks and patch panels are covered under this document.
- B. The Communication Equipment Room shall support a minimum of (4) 4-pair Unshielded Twisted Pair (UTP) Copper Cables to each work area outlet unless otherwise noted for specific locations. The cables shall be installed from the Work Area Outlet to the Telecommunications Room (TR) located on the same floor, and routed to the appropriate rack serving that area and terminated as specified in this document.
- C. This section includes minimum requirements for the following:
  - Termination blocks
  - Patch panels/Copper – **Fiber refer to section S7 271323-TC**
- D. All cables and related terminations, support and grounding hardware shall be furnished, installed, wired, tested, labeled, and documented by the telecommunications contractor as detailed in this document.
- E. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities of telecommunications outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document. If the bid documents are in conflict, this specification shall take precedence. The successful vendor shall meet or exceed all requirements for the cable system described in this document.

### 1.3 Regulatory References

- A. The following industry standards are the basis for the structured cabling system described in this document.

#### 1. TIA/EIA

|               |   |
|---------------|---|
| TIA/EIA-568-B | Commercial Building Telecommunications Cabling Standard                                   |
| TIA/EIA-569-A | Commercial Building Standard for Telecom Pathways and Spaces                              |
| TIA/EIA-606   | Administration Standard for the Telecommunications Infrastructure of Commercial Buildings |
| TIA/EIA-607   | Commercial Building Grounding/Bonding Requirements  |

#### NFPA

|         |                                   |
|---------|-----------------------------------|
| NFPA-70 | National Electric Code (NEC)-1999 |
|---------|-----------------------------------|

#### ISO/IEC

|               |                                       |
|---------------|---------------------------------------|
| ISO/IEC 11801 | Generic Cabling for Customer Premises |
|---------------|---------------------------------------|

- B. The most recent versions of all documents apply to this project. If there is a conflict between applicable documents, the order above shall dictate the order of precedence in resolving the issue unless an enforceable local or national code is in effect.

### 1.4 Cable Termination Hardware – Category 6

Each horizontal or backbone cabling run will be terminated using appropriate connectors or connecting blocks depending upon the cable type. Matching patch cords will be used to perform cross-connect activities or to connect into the networking/voice hardware.

Category 6 Unshielded Twisted Pair UTP. Four-pair Category 6 cabling shall be terminated onto modular patch panels, punch down style patch panels or punch down style connecting blocks where specified in the plans, OT Engineer will determine placement of all blocks and panels. Rack mountable patch panels shall mount to standard EIA 19" and 23" racks.

Four-pair Category 6 UTP cabling shall be terminated onto a four-pair Category 6 module. All modules shall be terminated using the T568B wiring scheme. The eight-position module shall exceed the connector requirements of the TIA/EIA Category 6 standard.

Products shall provide labeling options that comply with the TIA/EIA-606-A Standard. All products shall be clearly identified with the use of a thermal transfer printer; hand-printed labels are not acceptable and will be rejected. Products shall include faceplates, surface mount boxes, patch panels, marker ties, printers and accessories. All label heights shall be the same to allow for consistent labeling.

Modular Patch Panels shall be of a metal design with 48 ports. Patch panels shall be available with and without labels. Refer to section S9 for approved products.

## **Part 2 - Execution**

### **2.1 Horizontal Cross Connect Installation**

Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-B standard, manufacturer's recommendations and best industry practices.

Pair untwist at the termination shall not exceed 0.5".

Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.

Cables shall be neatly bundled groups of 24 and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

The cable jacket shall be maintained as close as possible to the termination point.

Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.

## 2.2 Copper Termination Hardware

Cables shall be dressed and terminated in accordance with the recommendations made in the ANSI/TIA/EIA-568-B standard, manufacturer's recommendations and best industry practice.

Pair untwist at the termination shall not exceed 0.5".

Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.

Cables shall be neatly bundled in groups of 24 and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

The cable jacket shall be maintained to within 25 mm (one inch) of the termination point.

Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.

## 2.3 Testing and Acceptance

### A. General

1. All cables shall be labeled prior to testing. All cables and termination hardware shall be 100% tested for defects in installation and to verify cabling system performance under installed conditions per the requirements of ANSI/TIA/EIA-568-A. All pairs of each installed cable shall be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, patch panels, and connector blocks shall be repaired or replaced to ensure 100% useable conductors in all cables installed. Refer to section S7 271519-TC
2. All cables shall be tested in accordance with this document, the ANSI/TIA/EIA standards and best industry practice. If any of these are in conflict, the Contractor shall bring any discrepancies to the attention of the project team for clarification and resolution.