

## 271116-TC

### Cabinets, Racks, Frames and Enclosures for Data Systems

#### Part 1 - 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 furnished and installed. Communication Equipment Room Fittings of cabinets, racks, frames and enclosures are covered under this document.
- B. This section includes minimum requirements for the following:
  - Cabinets
  - Racks and Rack Cable Management
  - Frames
  - Enclosures
- C. 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.
- D. 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. MAA/OT will assist in the design, layout and specification detail needed to clarify any ambiguity between this document and other construction documentation. 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.

**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
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**ISO/IEC**

ISO/IEC 11801	Generic Cabling for Customer Premises
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- B. The most recent versions of all documents shall 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.

**Equipment Racks and Cabinets**

**1.4**

**General Requirements:** A minimum of two 19" open face EIA relay racks shall be provided for each communications room. One rack to house fiber optic termination patch panels. The second rack shall be utilized for MAA network hardware, special systems hardware, data patch panels and growth. Normal clearances from walls are 36" to front and 36" to rear of equipment. Enclosed equipment racks/cabinets may be required for other system applications with approval of OT Engineer.

**Termination Data Panels:**

Each data rack/cabinet shall have the necessary quantity of termination panels plus one spare.

**Fiber Enclosures:**

Each fiber rack shall have the necessary quantity of Fiber Enclosures.

**Grounding/Bonding:**

Each rack/cabinet shall be grounded and bonded per 270526-TC. In existing installations, any existing grounding system shall be tested by contractor to verify it meets 270526-TC. If it does not, it shall be brought up to current standard.

**Anchoring:**

Each rack shall be securely anchored to the concrete floor with the use of recommended drop in anchors. Cabinets may not be anchored but secured using the 4 leveling feet.

**Rack Management:**

Each rack shall have horizontal and vertical Cable Management  
Please refer to the approved products for installation.

The Cable Management System shall be used to provide a neat and efficient means for routing and protecting fiber and copper cables and patch cords on telecommunication racks and enclosures. The system shall be a complete cable management system comprised of vertical cable managers, horizontal cable manager, and cable management accessories used throughout the cabling system. The system shall protect network investment by maintaining system performance, controlling cable bend radius and providing cable strain relief.

**Part 2 - Execution**

- A. Provide rack as shown on the Drawings and as specified in this section.
- B. The Rack system shall meet all EIA requirements as defined in EIA-310-D.
- C. Provide all mounting components and accessories to securely fix racks to floor and supporting walls. Provide overhead ladder rack either fixed to the top of each rack and running from the top of the rack to the telephone backboard where the feeder and distribution cables run, or supported above with ½ inch all-thread, as shown on the drawings. Provide cable bend management fixtures to maintain the proper bend radius as the cables drop into the rack. Do not allow cables to be unsupported beyond 2 feet as they run from conduit or cable tray to equipment cabinets. Racks to be seismically braced in accordance with local seismic bracing requirements. Racks are to be braced against sway on all three axes. Horizontal cable tray or other cable support that is also rated as a seismic brace may be used to meet some of the seismic bracing requirements.
- D. Each rack shall be UL listed for a load-carrying capacity of 1000 lbs. (454 kg.).
- E. Provide patch management ring runs in each rack. Provide (1) 2U high horizontal patch management between each panel of each rack.
- F. Provide side-mounted vertical cable management with covers on both sides of each rack. The cable management shall be with cover plates and bracket kits as needed to attach to adjacent racks.
- G. Provide strain relief and cable management at the rear of each data panel to ensure uniform routing of all feeder and distribution cables.
- H. The rack shall be manufactured from extruded aluminum and marked with Rack Unit spacing.
- I. Provide all racks with grounding kits and wires.
- J. Provide Raised Floor Rack Supports from rack manufacturer for all equipment racks mounted on raised “access” floor in the

Computer Room. Racks installed on raised floors are to be bolted through the raised floor directly into the concrete flooring below.

- K. The rack system solution shall provide integral cable management including vertical channels, pass through holes and slots for additional cable management accessories.
- L. Pass through holes shall be located on the front, back and side of the rack for maximum flexibility.
- M. Racks are to be threaded for #12-24 threads.
- N. OT to make final determination on rack type/manufacture, Cable management and placement within each TC.
- O. Install Horizontal Wire Managers above and below each data patch panel

**1.5 Enclosures** – Wall mounted fiber optic enclosures shall not be allowed without a variance from OT.

**1.6** Existing racks shall be used.

**1.7** Contractor must follow the approved product list in section S9

**1.8** No substitutes will be allowed with the approval from the OT Engineer.