

## SECTION 27 11 16 - COMMUNICATIONS RACKS, FRAMES, AND ENCLOSURES

### 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.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. 19-inch equipment cabinets.
  - 2. Power strips.
  - 3. Grounding.
  - 4. Labeling.

- B. Related Requirements:

- 1. Section 27 11 10 "Communications Equipment Room Fittings" for backboards and accessories.
  - 2. Section 27 05 26 "Grounding and Bonding for Telecommunications Equipment" for PBBs and SBBs.
  - 3. Section 27 15 13 "Communications Copper Horizontal Cabling" for copper data cabling associated with system panels and devices.

#### 1.3 DEFINITIONS

- A. Access Provider: An operator that provides a circuit path or facility between the service provider and user. An access provider can also be a service provider.
- B. BICSI: Building Industry Consulting Service International.
- C. LAN: Local Area Network.
- D. PBB: Primary Bonding Busbar (formerly TMGB).
- E. RBB: Rack Bonding Busbar.
- F. RCDD: Registered Communications Distribution Designer.
- G. SBB: Secondary Bonding Busbar (formerly TGB).
- H. Service Provider: The operator of a telecommunications transmission service delivered through access provider facilities.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for equipment racks and cabinets.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, certifications, standards compliance, and furnished specialties and accessories.
- B. Shop Drawings: For communications racks, frames, and enclosures. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 2. Equipment Racks and Cabinets: Include workspace requirements and access for cable connections.
  - 3. Grounding: Indicate location of PBB or SBB and its mounting detail showing standoff insulators and wall-mounting brackets.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified layout technician, installation supervisor, and field inspector.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling installer must have personnel certified by BICSI on staff.
  - 1. Layout Responsibility: Preparation of Shop Drawings shall be under direct supervision of RCDD.
  - 2. Installation Supervision: Installation shall be under direct supervision of Installer 2, Copper or Fiber, who shall be present at all times when Work of this Section is performed at Project site.
  - 3. Field Inspector: Currently registered by BICSI as RCDD to perform on-site inspection.
  - 4. Installer shall be certified by Owner as an approved data equipment installer.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. UL listed.
- B. RoHS compliant.
- C. Compliant with requirements of the Payment Card Industry Data Security Standard.

## 2.2 19-INCH EQUIPMENT CABINETS

- A. Equipment cabinet frames, doors and covers will be furnished by Owner, installed by General Contractor. Internal components including patch panels, fiber termination racks and shelves shall be furnished by Owner and installed by Electrical Contractor. Provide one (1) power strip and one (1) grounding strip in each cabinet.

## 2.3 POWER STRIPS

- A. Power Strips: Comply with UL 1363.
  - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  - 2. Rack mounting.
  - 3. Six 20-A, 120-V ac, NEMA WD 6, Configuration 5-20R receptacles.
  - 4. LED indicator lights for power and protection status.
  - 5. LED indicator lights for reverse polarity and open outlet ground.
  - 6. Circuit Breaker and Thermal Fusing: Unit continues to supply power if protection is lost.
  - 7. Cord connected with 15-foot line cord.
  - 8. Rocker-type on-off switch, illuminated when in on position.
  - 9. Peak Single-Impulse Surge Current Rating: 33 kA per phase.
  - 10. Protection modes shall be line to neutral, line to ground, and neutral to ground. UL 1449 clamping voltage for all three modes shall be not more than 330 V.

## 2.4 GROUNDING

- A. Comply with requirements in Section 27 05 26 "Grounding and Bonding for Communications Systems" for grounding conductors and connectors.

## 2.5 LABELING

- A. Comply with TIA-606-B and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with NECA 1.
- B. Comply with BICSI TDMM for layout of communications equipment spaces.
- C. Comply with BICSI ITSIMM for installation of communications equipment spaces.
- D. Bundle, lace, and train conductors and cables to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

- E. Coordinate final rack layouts with fiber termination enclosures, patch panels, wire management panels and equipment to be furnished by the Owner prior to installation.
- F. Coordinate location of power raceways and receptacles with locations of communications equipment requiring electrical power to operate.
  - 1. Mount receptacles inside cabinet.

### 3.2 GROUNDING

- A. Comply with NECA/BICSI 607.
- B. Install grounding according to BICSI ITSIMM, "Bonding, Grounding (Earthing) and Electrical Protection" Ch.

### 3.3 IDENTIFICATION

- A. Coordinate system components, wiring, and cabling complying with TIA-606-B. Comply with requirements in Section 27 05 53 "Identification for Electrical Systems."
- B. Comply with requirements in Section 09 91 23 "Interior Painting" for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.
- C. Paint and label colors for equipment identification shall comply with TIA-606-B for Class 3 level of administration[, including optional identification requirements of this standard].
- D. Labels shall be machine printed.

END OF SECTION