SECTION 271100 - COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the requirements for the equipment materials and installation practices for the fit out of the Communications and Audio/Visual Equipment Rooms, and includes by is not limited to:

1. Telecommunications mounting elements.
2. Backboards.
3. Telecommunications equipment racks and cabinets.
4. Power strips.
5. Grounding.

1.2 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. Related Sections:

1. Section 270200 – Communications Demolition
2. Section 270524 – Communications Firestopping
3. Section 270526 – Grounding and Bonding for Communications Systems
4. Section 270528 – Pathways for Communications Systems
5. Section 271100 – Communications Equipment Rooms Fittings
6. Section 271323 – Communications Optical Fiber Backbone Cabling
7. Section 271513 – Communications Copper Horizontal Cabling
8. Section 275123 – Intercom Systems
9. Section 281300 – Access Control System
10. Section 282300 – Video Surveillance
11. Section 284810 – Emergency Responder Radio System Testing

12. Division 1 – General Requirements

13. Division 2 – Earthwork

14. Division 7 – Firestopping

15. Division 9 – Finish Painting

16. Division 11 – Equipment

17. Division 14 – Conveying Systems

18. Division 25 – Mechanical

19. Division 26 – Electrical

1.3 DEFINITIONS

A. BICSI: Building Industry Consulting Service International.

B. LAN: Local area network.

C. RCDD: Registered Communications Distribution Designer.

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, and furnished specialties and accessories.

B. Shop Drawings: For communications equipment room fittings. 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 grounding bus bar and its mounting detail showing standoff insulators and wall mounting brackets.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For RCDD, Layout Technician, Installation Supervisor, and Field Inspector.

1.6 QUALITY ASSURANCE

A. The terms RCDD, Registered Technician, and Registered Installer shall be as defined and certified by BICSI.

B. Installer Qualifications: Cabling Contractor/Installer must have personnel certified by BICSI on staff as full time employees. Use of Contract employees to fulfill these quality assurance roles if unacceptable.

1. Project Manager: Full time employee for the Contractor/Installer, and currently Registered with BICSI at the time of bid submission and throughout the duration of the project. Project manager shall act as the sole point of contact and shall bear responsibility for the quality review and assessment of all Work of this Scope

2. Layout Responsibility: Preparation of Shop Drawings shall be by a full time employee of the Contractor/Installer and under the direct supervision of the RCDD assigned to this project.

3. Installation Supervision: Installation shall be under the direct supervision of full time employee of Cabling Contractor/Installer who shall be a Registered Technician, and shall be present at all times when Work of this Section is performed at Project site.

4. Field Inspector: Full time employee of Cabling Contractor/Installer, currently registered by BICSI as an RCDD and assigned to this project.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 BACKBOARDS

A. Backboards: AC Plywood, 3/4 by 48 by 96 inches. Comply with requirements for plywood backing panels specified in Section 061000 "Rough Carpentry."

1. AC Plywood shall be painted with (2) coats of fire retardant white paint on ALL sides prior to installation. Backboards shall be mounted 6" above the finished floor with the blemish free side, or "A" side" facing the user, unless otherwise noted on the Drawings. The receptacles shown on the boards shall be mounted at 18 inches above the finished floor, unless otherwise noted, and shall be installed in surface mounted, single gang outlet boxes with stamped, sheet metal cover plates.

2. Failure to paint or mount the backboard as indicated herein shall be corrected by removing all equipment and devices mounted to the backboard, making all necessary corrections, retouching all paint on the backboard and mounting and/or painting the backboard as specified. Any blemishes shall be corrected so as to provide backboard in like new condition, at the discretion of the Engineer. The cost for any/all corrective actions shall be borne by the Contractor responsible for the hanging of the plywood. All equipment being removed and remounted shall be completed by the provider of said equipment so as to not void any warranties, and assure no damage to the devices and/or equipment. Such costs for

this removing and remounting shall also be borne by the Contractor responsible for hanging the plywood.

2.3 EQUIPMENT FRAMES

A. General Frame Requirements:

1. Distribution Frames: Freestanding and wall-mounting, modular-steel units designed for telecommunications terminal support and coordinated with dimensions of units to be supported.

2. Module Dimension: Width compatible with EIA 310-D standard, 19-inchpanel mounting.

3. Finish: Manufacturer's standard, baked-polyester powder coat.

4. Manufacturers: Ortronics, Panduit, Great Lakes, unless otherwise noted

B. Floor-Mounted Racks: Modular-type, steel construction.

1. Vertical and horizontal cable management channels, top and bottom cable troughs, grounding lug, and a power strip.

2. Baked-polyester powder coat finish.

C. Modular Freestanding Cabinets:

1. Removable and lockable side panels.

2. Hinged and lockable front and rear doors.

3. Adjustable feet for leveling.

4. Screened ventilation openings in the roof and rear door.

5. Cable access provisions in the roof and base.

6. Grounding bus bar.

7. Roof-mounted, 550-cfmfan with filter.

8. Power strip.

9. Baked-polyester powder coat finish.

10. All cabinets keyed alike.

11. Middle Atlantic ERK Series, 44U x 25” Deep

D. Modular Wall Cabinets:

1. Wall mounting.
2. Steel construction.
3. Treated to resist corrosion.
4. Lockable front and rear doors.
5. Louvered side panels.
6. Cable access provisions top and bottom.
7. Grounding lug.
8. Roof-mounted, 250-cfmfan.
9. Power strip.
10. All cabinets keyed alike.

E. Cable Management for Equipment Frames:

1. Metal, with integral wire retaining fingers.
2. Baked-polyester powder coat finish.
3. Vertical cable management panels shall have front and rear channels, with covers.
4. Provide horizontal crossover cable manager at the top of each relay rack, with a minimum height of two rack units each.
5. Horizontal: 2U as manufactured by rack manufacturer
6. Vertical: 6” as manufactured by the rack manufacturer

2.4 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 15-A, 120-V ac, NEMA WD 6, Configuration 5-15R 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: When protection is lost, circuit opens and cannot be reset.

7. Circuit Breaker and Thermal Fusing: Unit continues to supply power if protection is lost.

8. Cord connected with 15-footline cord.

9. Rocker-type on-off switch, illuminated when in on position.

10. Peak Single-Impulse Surge Current Rating: 26 kA per phase.

11. 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.

2.5 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 ENTRANCE FACILITIES

A. Contact telecommunications service provider and arrange for installation of demarcation point, protected entrance terminals, and a housing when so directed by service provider.

B. Comply with requirements in Section 270528 "Pathways for Communications Systems" for materials and installation requirements for pathways.

3.2 INSTALLATION

A. Comply with NECA 1.

B. Comply with BICSI TDMM for layout and installation of communications equipment rooms.

C. Bundle, lace, and train conductors and cables to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

D. Coordinate layout and installation of communications equipment with Owner's telecommunications and LAN equipment and service suppliers. Coordinate service entrance arrangement with local exchange carrier.

1. Meet jointly with telecommunications and LAN equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.

2. Record agreements reached in meetings and distribute them to other participants.

3. Adjust arrangements and locations of distribution frames, cross-connects, and patch panels in equipment rooms to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment.

4. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other communications, electronic safety and security, and related systems that share space in the equipment room.

E. Coordinate location of power raceways and receptacles with locations of communications equipment requiring electrical power to operate.

3.3 SLEEVE AND SLEEVE SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 270544 "Sleeves and Sleeve Seals for Communications Pathways and Cabling."

3.4 FIRESTOPPING

A. Comply with requirements in Section 078413 "Penetration Firestopping."

B. Comply with TIA-569-D, Annex A, "Firestopping."

C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.5 GROUNDING

A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

B. Comply with TIA-607-B and Section 270526 Grounding for Communications Systems.

C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inchclearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.

D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

1. Bond the shield of shielded cable to the grounding bus bar in communications rooms and spaces.

3.6 IDENTIFICATION

A. Identify system components, wiring, and cabling complying with TIA-606-B. Comply with requirements in Section 260553 "Identification for Electrical Systems."

B. Comply with requirements in Section 099123 "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 2 level of administration including optional identification requirements of this standard.

D. Labels shall be preprinted or computer-printed type.

END OF SECTION 271100