SECTION 16713 - 27 11 00 COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to:

1. Architectural construction of a telecommunications room

2. Installation components of a telecommunications room including but not limited to: racks, ladder, cable management, etc.

3. Location of specific components in the room.

1.02 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. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

C. Section 27 05 26 – Grounding and Bonding for Communications Systems

D. Section 27 05 28.33 – Conduit and Backboxes for Communications Systems

E. Section 27 05 28.34 – Pull and Junction Boxes for Communications Systems

F. Section 27 05 53 – Identification for Communications Systems

1.03 REFERENCE STANDARDS

A. National Electric Code (NEC)

1.04 SUBMITTALS

A. Written confirmation by either drawings or document which outlines the construction of each Telecom room in the project.

B. Submit manufacturer’s product sheets for all components used in the construction of a telecommunications room.

PART 2 - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. All materials used shall comply with at least a one hour fire rating or a higher rating if a higher rating is further required by current local and national codes.

C. Only designated manufacturer’s system components shall be used for the installation of a system.
2.02 RACKS
A. 19 inch black open frame racks which are 7 foot high shall be used.
B. Manufacturer: CPI, PN: 66353-703, Desc.: Standard Rack, 6” Flange x 7’ x 19”, UL listed, Black

2.03 CABLE LADDER
A. 18” Cable ladder shall be used unless otherwise stated in the drawings.
B. All attachment hardware shall be manufacturer approved for use with the installation of the ladder.
C. Cable falls and transitions shall be installed for any vertical transition of 6” or more.
D. Manufacturer: CPI, PN: 10250-718, Desc.: Universal 10’ x 18”, UL listed, Black
E. Manufacturer: CPI, PN: 10250-724, Desc.: Universal 10’ x 24”, UL listed, Black

2.04 VERTICAL CABLE MANAGEMENT
A. Vertical cable management shall be 10” between racks and 10” on ends.
B. Manufacturer: CPI, PN: 35513-703 Desc.: Evolution G1 Vertical Cable Manager, single side, 10” wide

2.05 HORIZONTAL CABLE MANAGEMENT
A. One upper and one lower horizontal cable management sections shall be installed per rack.
B. Manufacturer: CPI, PN: 13183-719, Desc.: Upper Jumper and Transition Tray, Deep, Black
C. Manufacturer: CPI, PN: 12187-719, Desc.: Lower Jumper and Transition Tray, Double, Black

2.06 WALL BOARD
A. Fire rated wallboard shall be installed on at least two walls of a telecommunications room.
B. The minimum size of a wall’s board will be 8’ by 8’ or the size of the wall.

2.07 RACK POWER STRIPS
A. Each rack will contain one (1) 110v 20Amp rack mounted power strip with a minimum of six (6) outlets. The strip will have a display on it which will minimally display the current Amps in use. Each strip will be fed from one of the circuits in the room or from its own circuit.

PART 3 - EXECUTION

3.01 ROOM REQUIREMENTS
A. All telecom rooms shall have walls which extend to the underside of the structural floor or roof deck above. The room itself will have a minimum of a one hour fire rating or if a higher rating is required by either local or national code that rating.
B. There shall be no ceiling obstructions impeding the installation of the telecommunications systems.
C. Lighting shall be chain hung or well supported from the ceiling.
D. The floor shall be tiled and edged or may be sealed concrete within the room. Tiled floor shall be used when the outside area around telecom room is carpeted.
E. Any wall mounted boards shall be fire rated.

F. Any door to the room shall have direct access to a hallway and be placed on a corner of the room with the hinge towards the corner. Doors shall open outwards, unless the room is larger than 10'x10' and approved by the Owner designated Network Engineers.

G. A minimum of a single 110V 20amp dedicated circuit outlet shall be installed in a 8’x8’ or smaller room. For rooms up to 140 Square Feet at least two outlets of the same type shall be installed. Larger rooms shall have at least one dedicated circuit outlet on each wall. Additional circuits may be required for Telecommunications equipment in the room.

H. Any wall, floor, or ceiling penetration into the room shall be fire rated to meet or exceed the walls fire rating. Any conduits penetrating the room shall have fire rated pillows which meet or exceed the fire rating of the wall. Each penetration shall be labeled and dated to document its correct installation.

3.02 GROUNDING REQUIREMENTS

A. Communication bonding and grounding shall be in accordance with the National Electrical Code (NEC) and NFPA.

B. A central grounding buss bar for the Telecom room shall be installed to the building's main grounding location.

C. The buss bar shall have enough capacity to ground each individual structural system in the room using no more than 50% of it's total capacity.

D. Metallic panels and raceways shall be bonded to an equipment grounding conductor and these shall be bonded to the grounded electrical service.

E. A communications ground is required and may be typically found in one of the following:

1. Communications Entrance Facility
2. Equipment Room
3. Communications Equipment Closet

F. The grounding system shall not rely on plumbing systems or building structure.

G. Bonding conductors shall be routed with a minimum number of bends. The bends placed in the conductor shall be sweeping.

H. Make all bonding connections with listed bolts, certified crimp pressure connectors, clamps or lugs.

I. Multiple buss bars placed in a building shall each be directly bonded with minimum size 6AWG high strand count plenum insulated copper conductor.

J. All grounding conductors and buss bars shall be labeled and identified.

3.03 RACK INSTALLATION

A. Racks shall be anchored to the floor with all mounting holes.

B. Riser bolts shall be cut off and filed so they are no more ¼” above the top of the retaining nut.

C. Racks shall be installed level and plum so they may be attached to adjoining vertical cable management.
D. Racks shall be installed parallel to wall surfaces.

3.04 CABLE LADDER INSTALLATION

A. Cable ladder shall be installed above the racks and around the perimeter of the room unless otherwise stated in the drawings and approved by the Owners designated Network Engineers.

B. Cable ladder shall be installed so that cable may lay inside the ladder within the sides, rungs being towards the bottom.

C. Any vertical transition of 6 inches or more requires a cable fall.

D. All attachment hardware shall be manufacturer approved for use with the installation of the ladder.

E. Cable ladder shall be vertically supported at least every 6 feet where appropriate. If installed next to a wall, an appropriate under ladder system may be used which will carry sufficient weight.

3.05 VERTICAL CABLE MANAGEMENT INSTALLATION

A. Vertical cable management shall be attached to adjoining racks in at least four (4) places.

B. The management shall be installed plum and true.

C. The management shall be installed flush with rack faces where appropriate.

3.06 HORIZONTAL CABLE MANAGEMENT INSTALLATION

A. Two upper horizontal cable management sections shall be installed at the top of each rack.

B. Two lower horizontal cable management sections shall be installed at the bottom of the rack above the power strip.

3.07 WALL BOARD

A. The fire rated wallboard shall be installed on at least two walls of a telecommunications room.

B. The wallboard shall be well anchored and begin one foot from the floor or as specified in the drawings.

3.08 RACK POWER STRIPS

A. A rack power strip shall be installed in the bottom of each rack.

B. The power cord for the strip shall be securely fastened and labeled.

END OF SECTION 16713 - 27 11 00