

SECTION 27 11 00 COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 – GENERAL

1.1 TELECOM ROOM STANDARDS

- A. Dedicated use (Divisions 23, 25, and 28 coordination): Telecom rooms (MDF/IDF) are dedicated to communications infrastructure. Other electronic systems — including BAS and HVAC controllers, gateways, and panels; door/access-control panels; and unrelated control equipment — shall not be installed in telecom rooms. This is an access-control and security-audit requirement, not a space-planning preference: equipment belonging to other systems creates a standing, ongoing need for third-party access to the rooms housing KU IT infrastructure, expands the population holding access beyond KU IT and its authorized personnel, and degrades KU's ability to control, audit, and attest who has physical access to communications equipment (see §1.2). It also consumes rack, wall, and pathway capacity reserved for communications growth and adds heat load to HVAC sized under §1.1.E for communications equipment. This Paragraph states the Owner's requirement for the design of these spaces; the equipment it addresses is furnished and installed under Divisions 23, 25, and 28 and located by the Contract Documents. Locations for network-connected BAS, access-control, and similar controllers, gateways, panels, workstations, and head-ends are established during design review under Section 27 05 00 §1.10.C and shown on the Drawings; Division 27 provides structured cabling to those locations per §1.10.C.4 and §1.10.C.5 and its scope ends at the terminated jack. Deliverable: Show the locations of BAS, access-control, and other non-communications system controllers and panels, outside telecom rooms, on the Drawings.
- B. Flooring (Division 09 coordination): Telecom rooms shall be provided with VCT or sealed hard-surface flooring; carpet is not permitted. Telecom room flooring and finishes are Division 09 (Finishes) work unless the Contract Documents assign them otherwise. Deliverable: Identify telecom room flooring on the architectural room finish schedule.
- C. Backboards (Division 06 / Division 09 coordination): Telecom rooms shall be provided with 3/4-inch fire-retardant-treated plywood backboards, painted a light color (white or equivalent). Plywood backboards are Division 06 (Rough Carpentry) work and painting is Division 09 (Finishes) work unless the Contract Documents assign them otherwise. Deliverable: Show backboard locations, extent, and mounting height on the Drawings.
- D. Lighting (Division 26 coordination): Telecom room lighting is Division 26 (Electrical) work; this Paragraph states the telecommunications-use requirements the lighting design is to satisfy, and Division 26 specifies the fixtures, illumination levels, and controls. Telecom rooms require lighting adequate for installing, servicing, and reading equipment labels and patch fields at the racks and cabinets, with fixtures located over the working aisles rather than directly above the racks/cabinets so that rack faces, patch fields, and labels are not

shadowed; the illumination level and fixture type are as specified by Division 26 for equipment/utility rooms and consistent with ANSI/TIA-569. Lighting shall not be subject to automatic shut-off while personnel are working in the room; where an automatic shut-off control (for example, an occupancy or vacancy sensor) is required by the applicable energy code, a readily accessible manual override within the room is required. Coordinate the lighting and control approach with Division 26 and KU IT. Deliverable: telecom room lighting, fixture locations relative to racks and aisles, and the control type and any required override are shown on the electrical drawings. Division 27 shall not install equipment, cable tray, runway, or other items where they obstruct fixtures or light distribution.

E. HVAC (Division 23 coordination): Provide one dedicated ductless mini-split HVAC system serving each MDF, IDF, telecommunications room, and IT closet. The system shall operate continuously, independent of normal building occupancy schedules, and shall be sized by Division 23 for continuous telecommunications-room cooling. Because these rooms are dedicated to communications equipment (Paragraph A) and do not house other systems' equipment, their heat load is modest and consistent; sizing need not assume data-center density. Where a project places an unusual electronics load in a telecommunications room, that condition is identified during design review for coordination. This is the KU campus standard system arrangement; it does not specify a particular manufacturer or model. A shared building air-handling system, or a unit subject to occupancy setback or scheduled shutdown, does not satisfy this requirement. Provide controls, condensate disposal, electrical power, outdoor-unit placement, and service access under Division 23 and Division 26 as applicable. Dedicated telecom-room HVAC is Division 23 (HVAC) work unless the Contract Documents assign it otherwise. Deliverable: Identify the dedicated mini-split system for each telecommunications room and its continuous operation on the mechanical drawings and control sequences.

F. Generator / Emergency Power Coordination (Division 26): When the project includes an emergency generator and automatic transfer switch (ATS) serving building loads, telecommunications rooms (MDF/IDF) serving the project area shall be provided with generator-backed electrical power for communications equipment branch circuits and associated rack receptacles. Coordinate circuiting, panelboard assignment, and ATS source with Division 26. Deliverable: Identify telecom room circuits and rack receptacles served by emergency power on electrical shop drawings and panel schedules.

G. Emergency / Egress Lighting (Division 26 coordination): Confirm whether emergency or egress lighting is required for telecommunications rooms by the applicable building and life-safety codes and the AHJ, and whether KU IT requires it independent of code. The generator-backed power required by Paragraph F applies to communications equipment branch circuits and associated rack receptacles and does not include telecom room lighting unless expressly indicated; telecom rooms are typically windowless, so loss of normal power can leave personnel working in the room without illumination. Emergency or egress lighting, where required, is Division 26 (Electrical) work unless the Contract Documents assign it otherwise.

Deliverable: Identify any required emergency or egress lighting serving telecom rooms, and its power source, on the electrical drawings.

1.2 ACCESS CONTROL

- A. Telecom rooms shall be secured in accordance with University access control standards. University card access is the preferred method.
- B. Mechanical keys may be permitted where necessary in accordance with University guidelines for IT/telecom spaces.

1.3 WIRING ROOM ENVIRONMENT (DUST CONTROL – COORDINATED)

- A. Provide filtration and room envelope practices intended to minimize dust and airborne particulate migration into telecom rooms, including sealing penetrations and maintaining rooms in a clean condition. Coordinate HVAC filtration/pressurization approach with Division 23.
- B. Where positive pressurization is used, coordinate door hardware and air balance to maintain desired airflow and reduce dust ingress.

1.4 DOORS AND ACCESS (DOOR SWEEPS)

- A. Where telecom rooms are designed/operated with filtered air and positive pressurization, provide perimeter gasketing and a door sweep (or other threshold sealing method) to reduce unfiltered air infiltration, provided it does not conflict with fire rating requirements, accessibility, or HVAC air balance. Coordinate with the Architect, Division 23, and AHJ.

1.5 INFRASTRUCTURE (VELCRO ONLY)

- A. Cable ties: ONLY hook-and-loop (Velcro) devices are permitted for cable bundling and support. Nylon zip ties are not permitted.

PART 2 – PRODUCTS

2.1 FLOOR MOUNTED RACK

- A. Floor Mounted Rack: KU Campus Standard: Ortronics Model No. OR-MM20710.
- B. Construction: Rack shall be 19-inch EIA equipment mounting (EIA-310) and constructed of rust-resistant metal with durable powder coat finish. Height shall be approximately 7 ft (45U nominal) unless otherwise required by the Drawings. Rack shall be securely anchored to the floor.
- C. Provide vertical and horizontal cable management channels with channel retainers and Velcro ties; provide ground terminal block/lug for each rack.
- D. Provide appropriate mounting hardware and runway connector kits. Where runway is provided above rack, provide additional bracing between rack and runway.

- E. Hole spacing: EIA-310 standard universal mounting hole pattern (1/2", 1/2", 5/8").
- F. Patch panel constraints: Unless otherwise approved by KU IT, individual patch panels shall have a maximum of 48 ports.
- G. Cable management: All patch panels shall have cable management above and below. Where more than one rack is installed, provide vertical cable management between racks and manage cabling front and rear.
- H. Bottom clearance: Unless otherwise approved by KU IT, keep the bottom 2.5 feet of each rack open for air circulation and service clearance.

2.2 RACK PLACEMENT AND IN-RACK EQUIPMENT COORDINATION

- A. Coordinate rack/cabinet placement, orientation, and clearances with KU IT prior to installation.
- B. Coordinate the placement of all items installed within the rack (patch panels, fiber enclosures, cable managers, blank panels, rack PDUs, etc.) with KU IT.
- C. Coordinate the placement of rack-mounted or rack-adjacent quad receptacles with KU IT prior to installation. Final outlet placement shall support safe cord routing, airflow, and serviceability.
- D. Include in project costs all required runway/ladder rack, cable waterfall fittings, and transitions necessary to route cabling from the pathway system to the final rack placement as directed by KU IT. Provide waterfalls where required to maintain bend radius and orderly cable routing into racks/cabinets.

2.3 RACK POWER (BRANCH CIRCUITS AND QUADS)

- A. Coordinate with Division 26 to provide a minimum of two (2) dedicated 120V, 20-amp branch circuits to each telecommunications rack, terminating in NEMA 5-20R receptacles. Branch circuits, panelboard work, and receptacles are provided under Division 26 unless otherwise indicated in the Contract Documents.
- B. Each circuit shall terminate in a quad receptacle mounted on the rack or immediately adjacent to the rack as approved by KU IT; coordinate final location with Division 26 prior to rough-in.
- C. Receptacles serving a single rack shall be supplied by separate branch circuits provided under Division 26.
- D. Receptacle type and configuration shall be coordinated with Owner-furnished UPS equipment, rack power requirements, KU IT, and Division 26 prior to rough-in.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install telecommunications room fittings, racks, and accessories in accordance with manufacturer instructions and the Contract Documents.
- B. Coordinate final rack/cabinet placement, elevations, and in-rack equipment layout with KU IT prior to installation.
- C. Provide neat cable management and dressing using hook-and-loop (Velcro) only; nylon zip ties are not permitted.
- D. Bond/ground metallic racks/cabinets and associated metallic support hardware in accordance with Section 27 05 26 and ANSI/TIA-607.
- E. Provide labeling of racks, patch panels, and terminations in accordance with Section 27 05 53 and the project labeling legend/template where provided.