
GENERAL:

1. To provide minimum standards for Telephone and Data Rooms for **UMKC**. See specific campus standards for more details. For **MU** and **UMSL**, see **27 0000 Telecom Construction Standards**. For **MS&T**, see **27 0000 Telecommunications**.
2. The design of all communications systems will be coordinated and approved with campus Telecommunications. The Project Manager will coordinate a meeting with the consultant and the Telecommunications Department.
3. Ensure construction drawings include details for all the proposed firestopping systems that could be encountered on the project based on the construction type and rating of the assemblies being penetrated. A specific Division 27 firestopping spec can be inserted, or reference related section 078400 for details.

DESIGN GUIDELINES:

1. All telephone and data network topology will conform to EIA/TIA Building Telecommunications Wiring Standards.
2. Telephone and Data Rooms/Closets
 - 2.1. All telecommunications closets should be considered as proprietary, and no other utility service distribution shall be housed in these rooms. Spaces will comply with EIA basic standards.
 - 2.2. Size: minimum size requirements - 5' x 6' with door opening out or 5' x 8' with door opening into the room.
 - 2.3. ~~Ceiling height: minimum 8' to ceiling grid or cable distribution system.~~
 - 2.3 Doorways: minimum size requirements - nominal 3' W x 6'-8" H clear opening. Must be equipped with a locking door. Handle to have a knurled finish.
 - 2.4 Location: minimum of one telephone/data room will be located on each floor. One room should be allocated for every 10,000 gross square feet of floor area. Distance limitations or other considerations may require more than one room. Rooms should be located as close to the core of the structure as possible and should be vertically stacked in multiple story buildings. Average cable runs should not exceed 150' with no single cable run exceeding 295'.
 - 2.5 Floor finish: install vinyl composition tile or use a concrete sealer.
 - 2.6 Power: each closet must have a minimum of two 110V AC duplex outlet. Outlets must be separately fused, 20 amp, 3-wire grounding and on a nonswitched circuit. Outlets should be located below the termination board location, if known.
 - 2.7 Grounding: ability to attach to building ground must be provided.
 - 2.8 Lighting: minimum equivalent of 538 lux measured at 4' above finished floor.

2.9 Conduit/Cores: each closet must be constructed with a minimum of 2"-4" cores equipped with sleeves extending a minimum of 1" above finished floor. Two additional 4" cores are required for each additional 10,000 square feet per floor.

~~2.10 Environment: temperature ranges 60°F to 80°F; humidity ranges 20% to 60% relative; heat dissipation 750 to 5,000 BTU's per hour per cabinet~~

3 Telephone and Data Equipment Rooms

3.1 Telephone and data equipment rooms are special purpose rooms that serve space and environmental needs of large pieces of telecommunications and data equipment and may not be required in all buildings. The need for these rooms should be determined by Campus Telecommunications and Campus Computing. Equipment rooms are connected to all building distribution media and are required to have exacting environmental standards due to the nature of the equipment housed in the room. These rooms will meet the following requirements:

3.2 Telecom room construction requirements:

3.2.1. Room construction, fire protection, and fire-resistant penetrations and openings protection shall be per NFPA 75.

3.2.2. The room shall be constructed as a fire-resistant rated enclosure with a minimum 1 hour rating. 2 hour rated construction shall be provided where required.

3.2.3. Walls shall extend to the deck of the floor above, with no ceilings.

3.2.4. Telecom rooms on the upper most story shall have a 1 or 2 hour rated ceiling as required or extend to the roof.

3.2.5. Telecom room door ratings shall be per NFPA 75.

3.2.6. Telecom room floor loading: 100# psf.

3.2.7. Air ducts and air transfer openings shall be provided with automatic fire and smoke dampers with ratings commensurate to the enclosure rating.

3.2.8. Wall, floor, deck, and ceiling penetrations shall be fire stopped with fire stop systems commensurate with the penetrated assembly rating.

3.2.9. Automatic fire protection systems shall be installed as required by NFPA 75.

3.3 Size: Depending on the number of data drops and server racks, the minimum size requirement could be as large as 15' x 15' (225 net square feet). Consult with UMKC IT.

~~3.3.1 Ceiling height: minimum 8'-6" to ceiling grid or cable distribution system.~~

3.3.1 Doorways: minimum size requirements - nominal 3'W x 6'-8"H clear opening. Must be equipped with a locking door (may be integrated with building security system. Handle to have a knurled finish.

- 3.3.2. Floor finish: install vinyl composition tile or use a concrete sealer.
- 3.3.3. Floor loading: minimum 100 lbs/sf equipment load.
- 3.4 Environment: temperature ranges 60°F to 80°F; humidity ranges 20% to 60% relative; ~~heat dissipation 750 to 5,000 BTU's per hour per cabinet~~; assume a 12,000 BTU heat load per rack for calculations unless another value is confirmed by the Project Manager.
- 3.5 Electrical: each manufacturer's equipment is different. The following are requirements generic to all systems' requirements:
 - 3.5.1.1 Dedicated branch circuits (unique, non-shared phase conductor, neutral conductor, equipment grounding conductor)
 - 3.5.1.2 Sharing or daisy-chaining of any conductors is prohibited
 - 3.5.1.3 Isolated grounding
 - 3.5.1.4 Dedicated feeder
 - 3.5.2 Lighting: minimum equivalent of 538 lux measured at 4' above finished floor.
 - 3.5.3 Power: each closet must have a minimum of two 110V AC duplex outlets. Outlets must be separately fused, 20 amp, 3-wire grounding and on a non-switched circuit. Outlets should be located below the termination board location, if known.
- 4 Telecommunications Service Entrances
 - 4.2 Telecommunication facilities must enter and terminate in an area providing optimum utilization for end user requirements. All entrances will be underground, in conduit.
 - 4.3 Sizing of underground entrance facilities fluctuates with many variables but minimum conduits required for a building entrance will be as follows:
 - 4.3.1 Two-4" conduits per 200,000 square feet of usable office space.
 - 4.3.2 One spare conduit for each 2 conduits to be used.
 - 4.3.3 No more than 2 - 90° bends between pulling points.
 - 4.3.4 All ends of metallic conduit must be reamed and brushed.
 - 4.3.5 All conduits will have a pull string installed.
 - 4.3.6 Metal sleeves through foundation walls must extend a minimum 20' beyond the wall.
 - 4.4 A pathway should be available from building entrance to the Telecommunication Equipment Rooms. This should be part of any initial installation, but also provide a path or conduit system for future expansion. The same should be provided between Telecommunication Equipment Rooms within the same building.
- 5 Pathways (interior)
 - (a) Pathways must support cables and provide protection. Pathways should be planned to facilitate original installation of voice/data cabling as well

as ongoing maintenance, additions, and relocations. For new construction and in renovations where possible, cable trays or conduit for horizontal distribution will be installed in corridors. In renovations of existing facilities, existing conduits or other pathways may be used.