

Specifications for UT Telephone Services
Communications Rooms and Vertical
And Horizontal Wiring

April 14, 2008

TELECOMMUNICATIONS REQUIREMENTS

1. Service entrance room size to be minimum 10 x 12. (See Communications Room Typical)
2. Secondary communication rooms to be minimum 10 x 10.
3. All walls in communication rooms to be covered with ¾ inch plywood 2' from floor to a height of 6 feet. Plywood to be fire retardant or painted with fire retardant paint.
4. Communication room walls to have cable tray around the perimeter and the entrance tray will extend to the wall opposite its entrance point. Also, there shall be no ceiling in communication rooms which restricts complete access to any cable tray.
5. All communication rooms will have a ground bus connected to MNG.
6. All communication rooms will have a minimum of three 4 inch entrance penetrations with conduit, connectors and bushings installed.
7. All communication rooms need 1 dedicated 20 amp 120 volt (NEMA 5-20R) quad power outlet mounted on the ceiling in the center of the room, or above the location of the data cabinet(s). also, 2 quad power outlets on a dedicated circuit placed under plywood on wall where outside feed enters room. The "MAIN" communication room, usually where the service enters the building, requires one single phase , 30 amp, 200-240 volt circuit (NEMA L6-30R) in addition to the 20 amp circuit. In buildings where applicable, all electrical circuits in communication rooms are to be connected to emergency generator backup power. Where generator power is not available, UPS's will be used to maintain operation of the main uplink equipment for a minimum of 2 hours and secondary rooms as deemed necessary.
8. A conduit is required for telecommunications from the cable tray to each of the following; FACP, HVAC monitoring, Master Clock control and to the elevator equipment room. Conduit size and number to elevator room(s) may vary depending on the quantity of elevators.
9. All communication rooms will meet or exceed all codes and standards as outlined by BICSI, EIA/TIA and the NEC.
10. Communication rooms shall be used for communication only (i.e., no storage, servers, electrical panels, etc.). There should also be no restricted access to communication rooms (i.e., located in locked offices, labs, etc.).
11. The temperature in communication rooms is to be maintained at 70-72 degrees Fahrenheit and the relative humidity at 50-60 percent via either building HVAC or a wall-mounted unit dedicated to the room. If a dedicated temperature control unit is used, steps must be taken to ensure proper heat exhaust, condensation drainage, and placement of any plumbing should be such that equipment is not subject to water damage.
12. Communication rooms should have no windows which open to the outside. Where this is not possible, the window should be sealed and Lexan (or equivalent) attached to the inside window frame.
13. Communication rooms should be relatively free from dust and other contaminates (i.e. automated roach sprayers). Environmentally unfriendly areas may require environmentally-controlled equipment cabinets.
14. Room should be located as near as possible to center of building.

15. If building has more than one floor, it is preferred (depending upon floor size) that each floor has a communication room.
16. If communication rooms are situated such that the room serves more than one floor, distance between outlet (wall outlet where terminating jack from computer is located) and the patch panel located in the communications cabinet does not exceed 295 feet.
17. There must be one communication room for every 10,000 square feet of building space (per BICSI standards).
18. Conduit from each outlet box to extend to cable tray (max 6" from tray).
19. Place cable tray to extend into communications room and full length of communications room on each floor.
20. Saddles in place of cable tray – place saddles at 36" intervals from end of conduit to communications room.
21. Place 3-4" conduit (minimum) from communications room to communications room. (Add additional 4" conduit if number of wires calls for it.) Use BICSI standards.
22. Place entrance conduits (3-4" or 2-5") from main communications room to existing service that will feed building - co-ordinate with UT Telephone Services.
23. Set of as-builts of building concerning communications wiring.
24. All work must meet fire codes and all state and local building codes.

Wiring Routes above suspended ceilings

- A. Attachments to support wires a maximum of every 48" (4 ft). Shorter intervals must be used if size or weight of wire deems it necessary to properly support the wiring. The intervals should be of uniform lengths (48-48, 36-36, 24-24).
- B. All telephony wiring should not be closer than 5" to any fluorescent light fixtures. (Code)
- C. Wiring should not be closer than 6" to a suspended ceiling . (Standard) Space above the suspended ceiling may not allow 6" to be obtained every time.
- D. Do not use electrical conduit, water pipes, heating and air conditioning duct, existing cabling or wiring as a support structure. (Code)
- E. Wiring must not lay on top of suspended ceilings. (Standard)

Sleeves

- A. Use a minimum of 1 " conduit (EMT or schedule 40 PVC) for sleeving material (Standard)
- B. Size sleeving for maximum number of stations that can be placed in the area to be served. (1 station per 100 sq ft, 10' x 10' area) (Standard)
- C. All sleeves must be fire stopped around the outside of the sleeve at the wall and also at each end of the sleeve around the wires. (Code)

IDF and MDF Wiring Standards

- A. Jumpers should be run in D-rings or on spools around connecting blocks. Jumpers will not cross the face of the blocks. Jumpers to be run in a uniform fashion so as to resemble that all jumper wires are one in the same. (Standard)
- B. Backbone cables to be placed to enter the terminating blocks vertically and be secured to the backboard in a proper manner. These attachments may be made by cable straps, buttonhole ties, tie-wrapped to a D-ring, etc. (Standard)
- C. Each MDF and IDF in the real environment is going to be somewhat different due to access, space, and the sharing of areas with other departments. Therefore, good judgment and common sense by the technician when building and laying out a telecommunications closet is essential to build and maintain a proper working environment for Telephone Services.

Specifications for inside wiring materials:

- 1) Termination on the data and phone wires will be made using either Panduit or Hubbell products. Data jacks should be yellow and phone jacks should be blue
- 2) Terminations for the data wires in the communications rooms will be made in a Hubbell cabinet. Use either Panduit or Hubbell patch panels with appropriate wire management products. Do not mix and match, use all Panduit or all Hubbell on both ends. Avoid using wall mount racks for the data patch panels unless specifically called for on that project. The jacks will be yellow in color.
- 3) The phone wires will be terminated on either Panduit or Hubbell products at the station end. The jacks will be blue in color.
- 4) The telephone station wires terminated in the communication rooms will be punched down on 66 blocks (split 50's) or on 110 blocks. The blocks will be labeled per UT's standard.
- 5) D-rings or spools will be placed to accommodate the placement of jumpers on the phone blocks in a neat and orderly manner.
- 6) Data wiring shall be CAT-6. Wiring & jacks shall be yellow.
- 7) Telephony wiring shall be CAT-5E. Wiring & jacks shall be blue.
- 8) All conduit shall be minimum 1" in size.
- 9) Contact UT Telephone Services Technical Supervisor for additional information on materials and products. 865-974-3121

COMMUNICATIONS ROOM TYPICAL

3 EA 4" CONDUITS TO FEED BUILDING FROM OUTSIDE
3 EA 4" CONDUITS TO EXTEND FROM COMM ROOM TO COMM ROOM

1" CONDUIT TO
EXTEND FROM OUTLET
BOX TO WITHIN 6" OF
CABLE TRAY

COMM ROOM

TYPICAL CABLE TRAY RUN WITH 1" CONDUITS RUNNING FROM OUTLET
BOXES TO WITHIN 6" OF CABLE TRAY

