27 00 00 - TELECOMMUNICATIONS & VOICE DATA SYSTEMS

A. General

1. The University Office of Telecommunications is responsible for managing the entire telecommunications network. This includes determining suitability of proposed uses, compliance with appropriate codes and standards, periodic removal and/or replacement of network components, and extensions and additions to the network. Telecommunications Standards can be viewed on their Colorado State University website at the following address:

http://www.colostate.edu/depts/telecommunications/Technical/TelecommunicationStandardsMain.html

2. The Office of University Telecommunications shall be consulted, through the University Representative, during the project design phase. They will provide design parameters for the distribution system and for the systems in individual buildings prior to construction.

B. Applicable Codes and Standards:

1. The following codes and recommended standards shall be followed for Colorado State University telecommunications services. They are incorporated by reference.

a. NEC National Electric Code, as revised.

b. EIA/TIA RS 569 Commercial Building Standard for Telecommunications Pathways and Spaces.

c. EIA/TIA RS 568A Commercial Building Wiring Standard

d. TIA/EIA 607 Commercial Building Grounding and Bonding Requirements for Telecommunications

e. ANSI/IEEE 802.3-1993 Local Area Network Wiring Specifications

f. OSHA Standard 29 CFR 1910.268

g. SCS Lucent Systimax Structured Cabling System standards

2. Variations from NEC requirements are prohibited.

3. Variations from the standards requirements of EIA/TIA RS 569 and 568A above, may be allowed on a case-by-case basis with written approval by CSU Telecommunications.

C. Procedures:

1. Planning

a. Facilities Management will provide the University Telecommunications Office with floor plan drawings for new building construction and/or major remodel projects.

b. Office of Telecommunications personnel will meet with building occupants, Academic Networking and Computing Services, and any other interested parties to determine the communications requirements for specific projects.

c. The preliminary plans shall be marked to show service locations and space requirement; then returned to Facilities Management for inclusion in the final plans.
d. The University will reserve the right to include any or all portions of the telecommunications work on projects for which bids are being sought.

2. Implementation:

a. Contractors performing telecommunications work on University projects will ensure that all material and equipment meet the requirements of the above listed codes and standards.

b. Upon request, by the University Representative, contractors will provide catalog numbers and samples of materials and equipment to be supplied; along with the manufacturer’s name, address, and telephone number.

c. This information will also indicate that the material and equipment meet all the above-mentioned codes and standards.

d. University building officials, through the University Representative, must approve the use of specific material and equipment.

D. Construction Notes:

1. A plywood backboard is required in telecommunications distribution terminal areas. Provide 3/4-inch A/C grade, painted white with two coats of fire-resistant matte finish. The backboard shall be sized to fit the specific location and secured to the wall with appropriate anchors.

2. A Specification Grade 120V double duplex convenience outlet with two separate circuits is required at the lower right or lower left corner of the backboard, 12 inches above finished floor.

3. Lighting in telecommunications distribution terminal areas shall be switched at all doors and shall provide a minimum of 75 fc.

4. When conduit is required from the service jack location to the associated terminal closet, it shall be minimum 3/4 inch EMT. All open conduit ends must be reamed and have bushings installed.

5. Unless otherwise specified, each telecommunications service outlet shall be a 4-plex w/ring J-box type outlet with a 1 inch EMT conduit stubbed above the suspended ceiling.

6. Other specific requirements for floor spaces, wall space, conduits, raceways, racks and distribution infrastructure shall be specified in coordination with CSU Telecommunications.

7. Energy conservation measures require that individual cooling systems be installed to accommodate telecommunications room cooling loads independent of the major building systems. Many major systems will be shutdown or modified to a level that can not provide the necessary cooling requirements during unoccupied conditions. Generally equipment BTU loads are assumed to be as follows: Main Distribution Frames (MDF) 3650 BTUs and Intermediate Distribution Frames (IDF) 725 BTUs per hour.

8. All conduits shall be sized as shown and include a #200 nylon pull cord.

9. Service entrance conduits shall be spaced a minimum of 12 inches from the electrical service.

10. Conduit runs shall not have more than the equivalent of three 90-degree bends between outlets and pull boxes. All conduits shall have bushings.
27 40 00 – AUDIO VIDEO SYSTEMS

A. General

1. Design and construction of audio and video systems shall be coordinated with Classroom Technical Services, a division of CSU Academic Computing and Network Services.

B. Classroom Video Display:

1. Locate 110-volt duplex outlet and signal cable outlet at each video display location 90 inches above floor (or just below ceiling level).

2. Switch all video display outlets in a single room from a common switch convenient to the front of the room, painted red, and labeled Video. In lecture rooms, video displays should be switched from the podium by low voltage relay control.

3. Use locking wall-mount brackets. Projecting brackets and displays shall be designed so no part is lower than 80” above the finished floor unless projection is less than 4” from the wall.

4. Provide conduit for signal cable from equipment room to the video display signal outlet.

5. Coordinate mounting of large, heavy and bulky displays with Classroom Technical Services and Facilities Management – Design and Construction. CRT displays should be avoided.

C. Classroom Audio-Visual:

1. Junction boxes and conduit from the front to the back of the room shall be provided to allow front control of projectors in the back of the room.

2. Lecture rooms shall have a control room, which will also allow sound, light, and video control from a podium.

3. Classrooms should have a mechanical or motorized projection screen at the aspect ratio of 16:10 for a wide image data projector. Bottom of screen should be 4 feet above floor when screen is extended.

4. Classrooms that incorporate a front projection data projector and have ceiling heights greater than 12 feet should include a motorized projector maintenance lift.

5. Classrooms with multiple banks of lights require the lighting controls near the projection screen. Large lecture halls should have a low voltage controllable lighting system that can be controlled by the Smart Room Touch Panel at the Lectern.

6. Classrooms where large flat panel monitors are to be installed, a recessed junction box providing power and signal conduit shall be provided. Additional support structure/backing should also be provided for monitors in excess of 65 lbs.

7. Electrical outlets should be provided in the ceiling of classrooms for computer projectors as needed.

8. In classrooms designed “Smart Rooms” at least one, in some cases two, 1” conduits shall be provided from the classroom floor where the podium will be placed to the ceiling access or outside room access. This will provide paths for projector source and control wiring, audio wiring, lighting control wiring, rear projection control wiring, and network wiring.
9. In classrooms designed “Smart Rooms” at least 2 fourplex outlets providing 120 volt power should be located in the floor where the lecture podium is to be placed. This may be a junction box that will allow flex conduit and duplexes to be placed inside the podium once it is in place.

D. Projection Rooms:

a. Lighting in projection rooms shall be on a dimmer switch.

b. Height from the floor to the top of the projection shelf shall not exceed 42 inches.