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270513 - CATV Systems

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270513 - CATV Systems

SECTION 27 0513 – CABLE TELEVISION SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section provides general specifications and design guidelines for the design and installation of cable television systems the University Department of Housing oversees and operates. While service may be provided by outside commercial providers, all systems installed in UNH buildings shall be in conformance to these Guidelines will be considered for later take-over by UNH Housing.
- B. Any outlet intended to be accessible for viewing primarily by the public not affiliated with UNH **may not** be served by the Department of Housing cable system, and must be served by a completely separate commercial service and in-building infrastructure.

1.2 RELATED REQUIREMENTS FOUND ELSEWHERE

- A. See Chapter 5, Division 01, Section 017700.1.1.B.1.i Closeout Procedures - Project Record Documents for equipment list requirements for all equipment provided in this section.
- B. Related Sections
 - 1. Refer to electrical Section 26 0100 for Basic Electrical Requirements
 - 2. Refer to electrical Section 26 0530 for Conduits.
 - 3. Refer to electrical Section 26 0536 for Boxes and Fittings.

1.3 CODES AND STANDARDS

- A. all work shall comply with applicable NFPA 70 (NEC)

1.4 NOTES TO DESIGNERS:

- A. General:
 - 1. The Contractor is responsible for providing and installing all conduits, pathways, and drop and non-drop Cable TV (CATV) cables. The Contractor is also responsible for preparing a secure location for the Node or IDP closet as designated by the Designer for the Cable TV electronics. At the Contractor's option, UNH Telecommunications can be engaged to pull cables for the Contractor. Conduits and pathways are provided and installed by the Electrical Contractor. Final terminations, start-up, testing, and commissioning of drop cables shall be by UNH Housing or its designated agent.
 - 2. Generally a drop is defined as a cable where one end of the cable, the initiation end (drop initiation) is located at the Node or IDP closet. The other end of the cable, the termination end (drop termination) is located where the TV or monitor is expected to be located.

3. UNH Housing generally uses a Passive Optical Network Design to provide Cable TV. Consult with UNH Housing on project system design. All Node, IDP, and pathway plans and locations shall be offered for review and approval by UNH Housing.

B. Exterior and site Infrastructure

1. If no CATV service currently exists within the building, or at the site for a new building, or if service is to be provided by an outside commercial provider consult with UNH Housing and IT-Network operations (aka. UNH Telcom) as to the proper location where service shall originate from and provide a 4" diameter conduit from that point to the Node location. Refer to UNH Telcom standards for buried conduit requirements.
2. Ideally all infrastructure will be in underground pathways. However, when necessary aerial pathways can be used. All pathway must be approved by UNH Telecom, Campus Planning, and UNH Housing.

C. Electronics Locations:

1. Node Locations

- a. Designer shall designate and design for a Node such that the location is within 300' of the furthest drop termination served by the Node. See C-2-a when this is not possible.
- b. Nodes shall be located in secure room dedicated for the purpose, or may be located in a Telcom room as long as the room is large enough to accommodate the CATV floor area and equipment needs in addition to the minimum floor area needs required by Telcom.
- c. The minimum floor area for a Node and equipment is a clear space of 48" wide by 36" in depth. One of the 48" sides shall run adjacent to a clear unobstructed section of wall that is at least 8' in height, and covered by a single sheet of 3/4" marine grade plywood painted white or grey.
- d. Provide a 110 volt quad outlet with at least 5 amps of spare capacity at the upper left or right hand corner of the board.

2. Intermediate Distribution Points (IDP)

- a. When it is not possible to locate the Node within 300' of the furthest end user terminations, it is acceptable to use Intermediate Distribution Points (IDP's) to run what is typically a 1/2" to 3/4" diameter hard line coax between the two points as long as the distance between the Node and the IDP does not exceed 750'.
- b. IDP locations shall be centrally located to the drop locations they interface with and stacked vertically in the building as is best possible.
- c. Drop cable lengths shall not exceed 300' between the IDP and the drop termination.
- d. Contractor shall design and provide for a minimum 2-1/2" diameter conduit pathway between the Node location and any one IDP. When serving 2 or 3 IDP's in a continuous circuit from the Node, design and provide for a minimum 4" diameter conduit pathway. Pathway may contain no 90 degree bends and no more than four 45 degree bends.

- e. IDP's shall be located in secure room dedicated for the purpose, or may be located in a Telcom room as long as the room is large enough to accommodate CATV floor area needs in addition to minimum floor area needs required by Telcom.
- f. The minimum floor area for an IDP is a clear space of 48" wide by 36" in depth. One of the 48" sides shall run adjacent to a clear unobstructed section of wall that is at least 8' in height, and covered by a single sheet of ¾" marine grade plywood painted white or grey.

D. Interior Drop Locations: Design Requirements

1. Residential Facilities

- a. All designed 2 bed student and/or RA rooms shall have one CATV outlet installed.
- b. All designed 3 or 4 bed student rooms shall have one CATV outlet installed unless Housing requires a second drop to allow for variable TV placement in larger resident rooms. This will be decided on a case by case basis.
- c. Where a group of spaces are designed as an apartment, each bedroom shall have one CATV outlet installed, as well as one CATV outlet for the living room.
- d. All lounges shall have a minimum of one CATV outlet installed.
- e. All residence hall offices shall have one CATV outlet installed.

2. Non-residential Facilities

- a. CATV is not required in non-residential buildings. CATV is provided on an as-needed/requested basis.
- b. Where provided for new buildings, additions, and general renovations, drop locations, locations of Node and IDP's (if applicable), shall be shown on the plans. All interconnecting pathways between these locations shall be shown/noted on the electrical plans for installation by the electrical contractor, or references made on the electrical plans to other plans where these locations are shown and that the pathways are the responsibility of the electrical contractor.

PART 2 - PRODUCTS

2.1 CONDUITS AND RACEWAYS

- A. Concealed locations in walls shall be
 - 1. ½" minimum EMT serving one outlet box
 - 2. ¾" minimum EMT serving two outlet boxes.
- B. Surface mounted raceway
 - 1. Legrand/Wiremold
 - 2. Panduit by Unified Physical Infrastructure
- C. Above suspended lay-in ceilings - cable tray or J hooks

- D. Above any other type of ceiling – EMT of appropriate size.
- E. Node to IDP – 2 ½” or 4” EMT depending on number of IDP’s.

2.2 BOXES AND FITTINGS

- A. See Electrical.
- B. Flush fitting wall plate. Ivory White color unless a different finish or color is specified.

2.3 CABLE

- A. RG6 Quad-Shield, 75 Ohm, PVC jacketed coax cable, black color; plenum rated when required by code.

2.4 ELECTRONICS AND PASSIVE DEVICES

- A. Provide electronics and passive devices as specified by UNH Housing’s current list of approved products unless negotiated otherwise beforehand.

PART 3 - EXECUTION

3.1 INSTALLER QUALIFICATIONS

- A. Depending on workload and job size, UNH Housing will either pull and terminate cables itself or direct that a subcontractor be used. When a subcontractor is utilized employees must meet the following qualifications;
 - 1. Be certified by the Society of Telecommunications Engineers.
 - 2. Have a minimum of 3 years of experience.

3.2 OUTLET PLACEMENT

- A. Where called for, CATV outlets shall be placed 6” to the right of the UNH Telecommunications jack established for that location.
- B. For digital signage insure that all boxes are located behind monitor.

3.3 WIRING DETAILS

- A. All outlets shall be served by a single continuous (home run) drop cable that will terminate at a node or at an IDP.
- B. Drop cable routing shall be through the floors common wireway and if necessary through a horizontal or vertical sleeve and or conduit that is dedicated to the CATV network.
- C. All outlets shall be installed with a re-enterable pathway that begins at the outlet box and ends at the common wireway.
- D. All drops shall be installed per manufacturer’s recommendations.
- E. Drop cables must extend 6” beyond the plane of outlet box, coiled, inside, and covered with cover plate ready for termination.
- F. Drop cables that terminate at the Node or an IDP shall emerge at the top of the plywood board with 6 feet of extra length, all bundled and coiled together. Each drop shall be

legibly labeled corresponding to the room that the cable serves. If more than one cable serves a given room then the cable must be further detailed by labeling to precisely note the location of the outlet.

END OF SECTION 27 0513