

SECTION 27 05 00 - COMMUNICATIONS PARTS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide communications parts. The Telecommunication and Network Technology Division of Computing and Information Services (CIS-TNT) issues this specification for all construction performed for Brown University.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials. Warrantees must be submitted as a project deliverable.
 - 1. Data Installations, Warranty Period: 25-year Mission Critical Warrantee from Hubbell Premise Wiring.
 - 2. Fiber Installations, Warranty Period: Extended Warranty Program certification from Corning.
- D. Maintenance Data: Submit manufacturer's maintenance data, including maintenance schedule.
- E. Extra Stock: Submit extra stock equal to 2 percent of total used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 780, "Definitions" Article.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Faceplates:
 - 1. Provide faceplates equipped with labels and label holders.
 - 2. Single Gang 6 Port Faceplate: Hubbell P/N IFP16OW (Office White).
 - 3. Wall Phone Plates: Recessed Allen Tel P/N AT 219-6.
- B. Modular Inserts:
 - 1. Single Modular Inserts For Data Ports: Hubbell P/N HXJ6B (8-position blue universally wired category 6).
 - 2. Single Modular Inserts For Voice Port: Hubbell P/N HXJUOW (6-pos USOC Office

White).

3. Blank Modular Inserts: Hubbell P/N SFB10.
4. Single Modular Insert For Video: Hubbell P/N SFFX.
5. Position modular inserts in the faceplate as follows starting at the top left:
 - a. Voice jacks, followed by data jacks proceeding down the left column then down the right column. Name the first voice jack V1 in the tap list followed by V2. Name data jacks D1, D2, D3 and so forth in the tap list.
 - 1). The tap list is a schedule of all cables in the project that lists the name of the communications outlet, the type of outlet, and destination communications room.

C. Horizontal Cable:

1. The UTP Horizontal cable utilized for the distribution of data shall meet or exceed Category 6 cable standards and shall comply with the Hubbell 25 year Mission Critical Warranty. Color shall be blue. Manufacturer shall be Mohawk P/N M57202B (non-plenum) P/N M57193B (plenum).
2. The UTP Horizontal cable utilized for the distribution of voice, shall meet or exceed Category 6 cable standards and shall comply with the Hubbell 25 year Mission Critical Warranty. Color shall be white. . Manufacturer shall be Mohawk P/N M56889B (non-plenum) P/N M56905B (plenum).

D. Data Patch Panels (Communications Room):

1. 48-port modular patch panels shall be 8 position, 8 conductor, Category 6, manufactured by Hubbell P/N P6E48U.
2. 24-port modular patch panels, if approved, shall be 8 position, 8 conductor, Category 6, manufactured by Hubbell P/N P6E24U. Use of a 24 port panel must be approved in writing by CIS.
3. Horizontal wire management, when required, shall be manufactured by Hubbell P/N HC219ME3N.

E. Fiber Optic Termination Hardware (Communications Room):

1. 72 port Simplex fiber optic closet connector housing shall be Corning P/N CCH-04U.
2. 48 port fiber optic closet connector housing shall be Corning P/N CCH-02U.
3. 24 port fiber optic closet connector housing shall be Corning P/N CCH-01U.
4. 12 port fiber connector-housing panels for multi mode fiber shall be Corning SC duplex panels P/N CCH-CP12-91.
5. 12 port fiber connector-housing panels for single mode shall be Corning SC duplex panels P/N CCH-CP12-59.
6. Fiber optic horizontal manager shall be Corning P/N CJP-02U.
7. Multi mode connectors shall be 50 micron laser optimized OM3 with SC UNICAM connectors manufactured by Corning P/N 95-050-41-X.
8. Single-mode connectors shall be SC UNICAM manufactured by Corning P/N 95-200-41.

F. Voice Termination Hardware (Communications Room):

1. The 300 pair BIX mount shall be Nordx P/N QMBIX12E.
2. The 50 pair BIX mount shall be Nordx P/N QMBIX10C.
3. The 25 pair BIX connector shall be Nordx P/N QCBIX1A.
4. The 4 pair Bix connector shall be Nordx P/N QCBIX1A4.
5. The Bix designation labels shall be Nordx. Label colors shall be:

- a. GREEN toward switch.
 - b. BLUE toward telephone.
 6. Building Entrance Terminals (BIX connectors IN and OUT with splice chamber):
Manufactured by CIRCA:
 - a. 25 pair- PN- 2100SB-25.
 - b. 50 pair- PN -2250SBP-50.
 - c. 100 pair- PN -2200SBP-100.
 7. Surge Protection Modules: PN- C3B1FS, by CIRCA.
- G. Media Technology Service (AV): Specification of current equipment models must be MTS approved equal or equivalent.
1. Projector Models Specified on Recent Projects:
 - a. Eiki LC-XL200 (XGA – 1024 x 768, 6000 ANSI lumens, 1000:1 contrast ratio)
 - b. Eiki LC-WXL200 (WXGA – 1280 x 800, 5500 ANSI lumens, 800:1 contrast ratio)
 - c. Eiki LC-WUL100 (WUXGA – 1920 x 1200, 5000 ANSI lumens, 2000:1 contrast ratio)
 2. Required Crestron components to support RoomView remote access in an analog-hybrid space:
 - a. Multimedia presentation System (MPS-100)
 - b. Tilt mount Color 6” touch panel (TPS-6)
 - c. Network preparation to include space on Crestron network for RoomView access
 - d. Programming on the RoomView server to add new room
 3. Required Crestron components to support RoomView remote access in a digital space:
 - a. Crestron digital media switcher (DM-MD8x8)
 - b. Crestron DM input cards (DMC-HD/CAT)
 - c. Crestron Room Controller + DM CAT receiver (DM-RMC-100)
 - d. Crestron Ethernet card (C2ENET-2)
 - e. Crestron Digital media CAT transmitter wallplate (DM-TX400-3G)
 4. Tanberg Standard Equipment Specifications:
 - a. C20:
 - 1). 1 - CTS-QSC20-K9, QuickSet C20 - Incl NPP, PreHD1080pCam, Mic, Rmt, Cbls
 - 2). 1 - CTS-PHD-1080P12X, 12 X Zoom Percision HD Camera
 - 3). 1 - CTS-PHD-1080P4XSI, 4 X zoom Percision HD Camera
 - 4). 1 - LIC-QSC20-DD, QuickSet C20 - Dual Display Option (requires LIC-QSC20-HD)
 - 5). 1 - LIC-QSC20-HD, QuickSet C20 - HD (720p) option
 - 6). 1 - LIC-QSC20-PR, QuickSet C20 - Premium Resolution Option (requires LIC-QSC20-HD)
 - 7). Support 1-3yr
 - b. C40:
 - 1). 1 - CTS-INTP-C40-K9, IntPkg C40 - NPP, PHD 1080p Cam, Rmt Cntrl, Mic, Cbls ++
 - 2). 1 - LIC-INTP-C40-DD, Codec C40 Integrator Package Dual Display (DD) Option
 - 3). 1 - LIC-INTP-C40-MS, IntPkg C40, 4Way Individual Transcoding Multisite Option
 - 4). 1 - LIC-INTP-C40-PR, IntPkg C40 Premium Resolution (1080p/720p60) Option
 - 5). Support 1-3yr
 - c. C60:

- 1). 1 - CTS-INTP-C60-K9, IntPkg C60 - NPP, PHD 1080p Cam, Rmt Cntrl, Mic, Cbls ++
- 2). 1 - LIC-INTP-C60-MS, IntPkg C60, 4 Way HD Multisite (HD-MS)
- 3). 1 - LIC-INTP-C60-PR, IntPkg C60 Premium Resolution (1080p/UXGA) Option
- 4). Support 1-3yr
5. Any installation of Video Conferencing equipment must be coordinated with CIS Media Technology Services. This coordination will ensure that proper equipment is selected and that the units can communicate with the CIS Central Video Conferencing Infrastructure.

H. Intra Building Backbone Cable:

1. The in-building backbone cables for voice shall be manufactured by ESSEX.
2. The in –building backbone cable for data shall be a minimum of 12 strands single-mode and 12 stands multimode (50 micron laser optimized OM3) manufactured by Corning and installed by a Corning EWP certified vendor.
3. Category 6 riser - minimum 12 to the main Telecom Equipment Room

I. Inter Building Backbone Cables:

1. The Inter building backbone cable for voice shall be manufactured by Essex.
2. The Inter building backbone cable for data shall be manufactured by Corning and installed by a Corning EWP certified vendor.

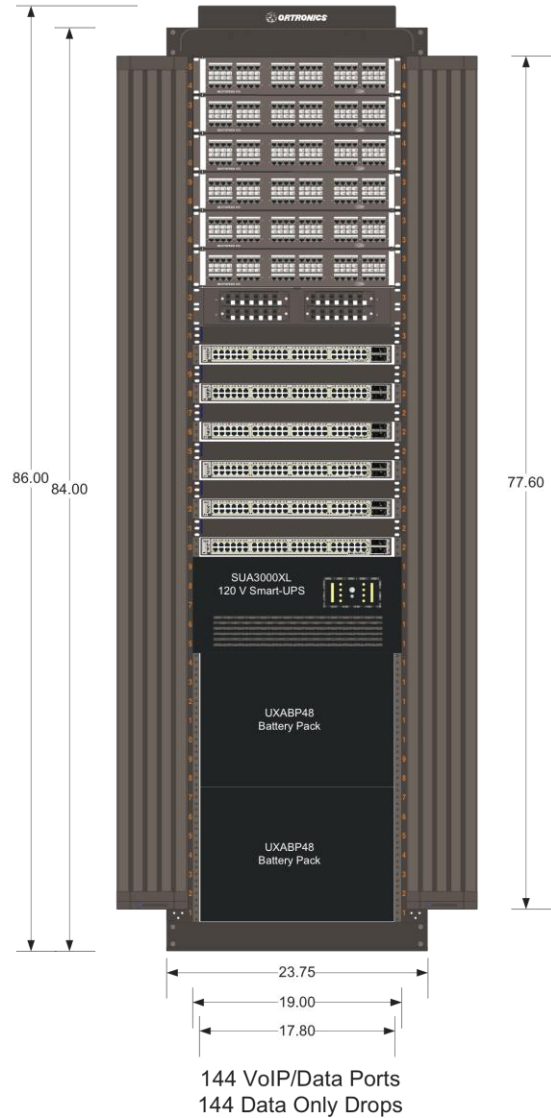
J. Equipment Racks:

1. Ortronics Mighty Mo 10 Cable Management Rack: P/N OR-MM10716.
2. Ortronics Mighty Mo Blank Filler Panels:
 - a. 1U – P/N OR-401004788
 - b. 2U – P/N OR-401004789
 - c. 3U – P/N OR-401004790
 - d. 4U – P/N OR-401004791
3. Vertical Cable Management System:
 - a. Single Rack Line-Up: Two Ortronics Mighty Mo Cable Management Cages with Door are required: P/N OR-MM6VMD706.
 - 1). The two Cable Management Cages for 7-foot racks are mounted at the front on each side.
 - 2). These Cable Management Cages are attached to the rack directly on their near sides and with end support brackets on their far sides.
 - 3). The doors open to either side as necessary.
 - b. Multi-Rack Line-Up: Two Ortronics Mighty Mo Cable Management Cages with Door (6-inch) are required – one each, on the left and right ends of the rack line-up: P/N ORMM6VMD706.
 - 1). The two 6-inch Cable Management Cages for 7-foot racks are mounted at the front on the left and right sides, respectively, of the left-most and right-most rack in the line-up.
 - 2). These Cable Management Cages are attached to their respective racks directly on their near sides and with end support brackets on their far sides.
 - 3). The doors open to either side as necessary.
 - c. Multi-Rack Line-Up: One Ortronics Mighty Mo Cable Management Cage with Door (12-Inch) is required between each adjoining rack: P/N OR-MM10VMD712.
 - 1). The adjoining racks must be set exactly 8.5 inches apart so the 8.5-inch extrusion at the back of the 12-inch cage will fit between them.

- 2). The 12-inch Cable Management Cage is mounted directly to the front of the adjoining racks.
 - 3). The door opens to either side as necessary.
- K. Edge Network Electronics: Supplied by CIS. Cisco: P/N WS-3750-48P-S.
1. 1U 48-port PoE Edge Switch
 2. Cisco 3750 PoE maximum draw is 370 Watts
- L. Wireless Devices: Supplied by CIS.
1. Indoor:
 - a. Aruba AP-105 Access Point (802.11 a/b/g/n)
 - b. <http://www.arubanetworks.com/product/aruba-ap-105-access-point/>
 - c. AP-105-MNT - Aruba 105 Access Point Mounting Kit for flat surfaces or wall boxes (note: covers DC power interface)
 - d. AP-105-MNT-C Aruba 105 Access Point Ceiling Mounting Kit (rail adapters)
 - e. AP-105-MNT-DC Aruba 105 Access Point Mounting Kit for flat surfaces or wall boxes (leaves DC power interface exposed)
 2. Outdoor:
 - a. Aruba AP-124 Access Point <http://www.arubanetworks.com/products/access-points/ap-70.php>. Mounted inside close to the antenna on exterior
 - b. Aruba AP-ANT-17 (specifically for AP-124), requires special cable depending on distance to AP
- M. Uninterruptible Power Supply (UPS): Supplied by CIS.
1. American Power Conversion (APC): P/N SURTA3000RMXL3U. APC Smart-UPS RT 3000VA Rack Tower 120V.
 - a. Rack Height: 3U.
 - b. Net Weight: 140 lbs.
 - c. Online Thermal Dissipation 305 BTU.
 - d. Input Connections NEMA L5-30P outlet mounted to back of rack at 18 inches AFF.
 - e. Cord Length: 8 feet.
 2. UPS Battery Pack When Backup Generator is Not Available: American Power Conversion (APC): P/N SURT192RMXLBP3U.
 - a. Rack Height: 3U.
 - b. Net Weight: 200 lbs.
 3. Building Wide UPS: Supplied by the Project. American Power Conversion (APC) Galaxy model with network management.
- N. Rack Equipment Layout:
1. The standard network equipment rack is sized to hold six patch panels or filler panels, 2U each, one 2U fiber patch panel and six sets of 48-port Cisco 3750 PoE Edge Switch and 1U blank filler panel, or 2 U filler panels, and one 3U rack-mounted UPS and one or two 3U Battery Packs.
 2. The patch panel field begins with the top patch panel mounted at RUs 43 and 42.
 3. Additional patch panels, up to the rack maximum of six, shall be mounted immediately below the previous panel, without skipping RUs, with the sixth panel mounted at RUs 33 and 32.
 4. There are no horizontal cable management or blank filler panels to be placed between the

- patch panels.
 - 5. The fiber LIU is mounted between the patch panels and electronics.
 - 6. The edge switch field begins with a 1U blank filler panel at RU 31.
 - 7. Immediately below that filler panel, the first 1U edge switch is mounted at U30.
 - 8. Additional filler panel/edge switch pairs are added in order immediately below switch one, up to the rack maximum of six pairs with the sixth switch mounted at RU 20.
 - 9. Empty rack units will be filled as necessary by panels sized to fit the rack switch count.
- O. Dressing of Horizontal Distribution Cables:
- 1. All horizontal distribution cables to a single patch panel shall be dressed to one channel of the rack.
 - 2. Cables to the various patch panels shall be dressed to alternate side channels, beginning with the right channel (facing the rear) for patch panel one.
- P. Rack UPS Layout (One Battery Pack): For one to three switches per rack.
- 1. The first 3U Battery Pack is placed through the rack until the front of the pack is even with the leading edge of the front angle support and rests directly on the front and rear angle supports.
 - 2. Above the battery pack, the 3U UPS is mounted using the set of rack rails ordered with the UPS.
 - 3. Total height of the UPS and Battery pack is 6U.
 - 4. Blank filler panels are installed between the top of the UPS and the bottom of the lowest 3750 edge switch.
- Q. Rack UPS Layout (Two Battery Packs): For four to six switches per rack.
- 1. The first 3U Battery Pack is placed through the rack until the front of the pack is even with the leading edge of the front angle support and rests directly on the front and rear angle supports.
 - 2. The second 3U Battery Pack is placed through the rack and rests directly on the first battery pack.
 - 3. Above the second battery pack, the 3U UPS is mounted using the set of rack rails ordered with the UPS.
 - 4. Total height of the UPS and Battery pack is 9U.
 - 5. Blank filler panels are installed between the top of the UPS and the bottom of the lowest 3750 edge switch.
 - 6. A drawing of a typical rack with six switches:

Standard 6-Switch Rack



R. Cable Supports / Cable Raceway:

1. The Consulting Engineer shall specify Cable raceway and supports subject to approval by CIS.
2. Snap in fittings for surface raceway may use a Wiremold adapter manufactured by Hubbell

(A22).

3. Furniture adapter plates are available for Steelcase, Haworth, etc are available from Hubbell (A21).

S. Outside Emergency Phones:

1. Manufacturer: Ramtel, Johnston, RI (www.ramtel.com).
2. Micro Processor based hands free dual purpose phone with sealed chrome keypad and four auto dial buttons, Brown University stencil P/N RR734/3.
3. Stainless steel Enclosure P/N 926.
4. Heater/ clip on P/N 800-1072.
5. 24v transformer P/N 600-1011.
6. Blinking blue light P/N BL-1A.
7. Free Standing stanchion 10 ft high x 10 in wide x 2 in deep.

T. Elevator Emergency Phones:

1. Elevator Phones: Ramtel P/N RR833.
2. Phone in Bezel Enclosure: Ramtel P/N RR833-906.

U. Wheelchair Lift Phones:

1. One Button Wheelchair Assistance Phone (on the lift): P/N RR733M.
2. Regular Phone With Blue Button For Wheelchair Lift (on each end of the lift): P/N RR734.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Restore or replace damaged components and finishes. Test for proper operation. Clean and protect work from damage.

END OF SECTION