PART 1 GENERAL

1.00 DESCRIPTION

A. Furnish and install complete Communications Rooms as specified herein and on Construction Drawings.

1.01 RELATED DOCUMENTS


C. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Refer to the following sections for additional requirements for the Communications Distribution System (CDS):

1. Standards Section 078413 (07841) – Through-Penetration Fire Stop System
2. Standards Section 101000 (10019) – Space Identification-Standard
3. Standards Section 260000 (16111) – Raceway System
4. Standards Section 260000 (16130) – Boxes (Sizes, Styles and Types)
5. Standards Section 260000 (16650) – Electrical System-CDS
6. Standards Section 132100 (16652) – Requirements for Communication Rooms
7. Standards Section 271000 (16651) – Communications Distribution System
8. Standards Section 271000 (16651) – APPENDIX-A CDS Approved Products
9. Standards Section 271000 (16651) – APPENDIX-B CDS Glossary of Terms
10. Standards Section 271000 (16651) – APPENDIX-C CDS Building Acronyms
11. Standards Section 271000 (16651) – APPENDIX-D CDS Station Cable Record
12. Standards Section 271000 (16651) – APPENDIX-E CDS Typical Rack Layout For Equipment
13. Standards Section 271000 (16651) – APPENDIX-F CDS Typical Rack Layout For Data Patch Panels
14. Standards Section 273226 (16630) – Rescue Assistance Telephone System
15. Standards Section 275316 (16680) – Clock System
16. Standards Section 275319 – Distributed Antenna System
17. Standards Section 274100 (16710) – Audio-Video (Multi-Media) Systems
18. Standards Section 281300 – Electronic Access Control and Intrusion Detection System
19. Standards Section 282300 (16710) – Video Surveillance System

1.03 WARRANTEES

A. Contractor shall provide Certificate of Warranty for the 1-year product warrantee on all materials and labor.

B. All installed products shall carry the manufacturer’s full warranty.

C. The Telecommunications Rooms shall be constructed, placed in service and then maintained under an in-place installation workmanship warranty for a period of one year from the date of acceptance.

1.04 SUBMITTALS

A. Contractor shall submit product description information prior to installation of product.

B. All product warrantees and manufacturer’s certificates of warranty.

C. Proofs of product manufacture installation certification.

D. Proof of appropriate State Labor and Industries Electrical licensing for each on-site employee.

1.05 MANUALS

A. The Contractor shall supply drawings in an Auto-CAD R-14 or 2000 DXF format, on a CD (Compact Disk).

B. Record drawings (as-built)

1. Record drawings shall be provided to the Owner.
2. These drawings shall show the locations of all cabinets, racks, cable, splice closures, cross-connects, cable routes, and outlets.
3. The record drawings prepared after installation shall indicate:

   a. Backboard layout detail for each Entrance and Distribution Facility including entrance penetration detail.
   b. Locations of power panels and un-interruptible power sources.
   c. Locations for protected, bonded, and grounded terminals.
   d. Location of all support hardware, installed equipment, and hardware.
   e. Associated building structures and equipment.
1.06 SCOPE OF WORK

A. Provide complete Communications Rooms as indicated on drawings.

B. The Communications Rooms shall include the following items as required to form a complete and operable system:

1. Construction of communication spaces and environmental support of these spaces.
2. Telephone backboards in all Communications Rooms.
3. Documentation showing as-built drawing.

C. The Contractor shall show satisfactory evidence that he maintains or retains a service organization capable of constructing the Communications Rooms.

1.07 REQUIREMENTS

A. Contractor shall submit a list of similar Communications Rooms previously constructed under supervision of the person who will oversee the construction of the Communications Rooms.

B. Projects shall have been operating for at least one year, but not more than three years.

C. Contractor shall provide name of persons to contact for each project and phone number for verification.

D. Contractor is responsible to provide all required installation and inspection permits.

E. Contractor shall be licensed and bonded in Washington State.

F. Special notes to Contractors:

1) All drawings are diagrammatic; therefore, device and pathway placement is only representative of a general location. Do not scale from the drawings in order to place a device or pathway, since the drawing location may not represent the actual location. It is the responsibility of the contractor to place these devices and pathway such that they offer full functionality without hindrance from casework, furniture, windows and doors, HVAC, and other building systems.

2) It is the contractor's responsibility to obtain and use the proper room and space numbers or names. If the Contractor receives from the university any shop drawings or previously constructed "as built" construction prints that do not contain proper room or space numbers, the contractor shall obtain the correct numbers. The Contractor shall provide correct numbers on all drawings and related records it provides to the owner.

3) Damage to equipment, service outages, and schedule delays caused by the contractor are both the financial and restorative responsibility of the Contractor.
4) The Contractor is responsible for removing all construction debris, boxes, and shipping containers. The work areas are to be swept clean and wet mopped prior to floor sealants or tile work.

G. There shall be **NO Cable Tray** installed in any Communications Room. That type of cable support shall be Cable Runway of the ladder rack type manufactured by Chatsworth Products Inc., and shall be installed by the Communications Distribution System installer.

1.08 COMMUNICATIONS ROOMS-PLACEMENT AND DESIGN.

A. The Entrance Facility Communication Room, referred to as the Building Entrance Terminal (BET), shall distribute services to the other Communications Rooms within the building, which are referred to as Intermediate Distribution Facilities (IDF’s). All Communications Rooms shall be dedicated areas, having hallway or public area access. These spaces shall not be used to house non-communications electrical distribution equipment, custodial supplies, transformers, or HVAC equipment that is not specific to the room.

1. These rooms shall house access control, data and telephone networking equipment, serve as a termination and distribution point for incoming telecommunication services to the building, and serve as a common distribution point for starred topological type distribution network cables to other Communications Rooms or distribution points within the building.

B. HVAC systems shall operate independent of building systems and shall be supported electrically from independent emergency power systems. These HVAC systems shall be “Direct Expansion Coil” type systems.

C. Building Entrance Terminals that serve only Voice and Data and not Video services shall be at least 120 square feet rectangular with a 2:3 ratio between room width and length. An additional 50 square feet of floor space shall be added to Communications Rooms that serve more than 50,000 square feet or serve as video distribution points. The minimum finished width of any room shall be 10 feet.

D. IDF’s shall be placed within the building in such a way as to prevent a service drop or outlet service cable from exceeding 90 meters in length. The total circuit length shall not exceed 100 meters, which includes station cabling and patch cords at the Communications Room and outlet ends.

E. Building Entrance Terminal Rooms may serve as station cable distribution points.

F. The BET and IDF’s shall be placed in a vertical arrangement or stacked, if possible, directly above one another.

1.09 SPECIAL EQUIPMENT CLOSETS FOR TECHNOLOGICALLY EQUIPPED CLASSROOMS, AUDITORIUMS and LARGE MULTI-PURPOSE ROOMS
A. Each Special Equipment Closet shall be of sufficient size to accommodate the following:

1. Special Equipment Closets shall house two each 6-foot high by 19 inches wide equipment racks.
2. There shall not be any requirement for plywood to be installed on the walls.
3. The Special Equipment Closet shall provide access to both sides of the equipment racks. The preferred access method is from the hallway by using a lockable, solid core door, in the event that this method of access is not practical, alternative access solutions shall be submitted to the owner for approval.
4. Building HVAC shall be required in each Special Equipment Closet location. Cooling shall be independent of control or airflow to the classroom or hallway.

PART 2 – PRODUCTS

(See this section and Specification Section 271000 (16651) - APPENDIX – A)

2.01 BACKBOARDS

A. All backboards shall be constructed of ¾ inch AC plywood, with one smooth side. The smooth side shall be mounted outward and painted, see 2.02.

2.02 PAINT

A. Paint shall have a Class “A” or III flame spread rating.

B. Backboard paint shall be White color with semi-gloss finish.

C. Contractor shall provide paint that is self-priming or be applied over compatible primer.

D. Exposed sheetrock shall be painted White color with semi-gloss finish.

2.03 DOORS AND LOCKS

A. Doors shall be of solid core construction, with neither lights nor other openings. It shall be similar in style to other hallway doors and have matching hardware.

B. Access Control Devices shall be installed for all Communications Rooms in buildings that are so equipped.

C. Doors shall be fitted with “BEST” brand cores using a 25J04 key code in buildings where access control panels are not available.

2.04 FIRE STOPPING (Also see Standards Section 078413 – Through-Penetration Fire Stop System).
A. When trays intersect with walls or other fire-rated barriers they shall employ the use of reusable, fire-rated pillows for Fire Stopping. The use of fiberglass insulation is not approved for this purpose.

B. All conduit, sleeves, and floor boxes shall be fire-calked using recognized UL 1479 and UL 2079 Elastomeric fire-rated calk. The use of latex or silicon products that do not conform to ASTM E-814 rating is prohibited.

C. All rated caulk shall be red, or reddish-brown color.

PART 3 – EXECUTION

3.01 GENERAL COMMUNICATIONS ROOM

A. Wall coverings

1. Walls shall extend up to the ceiling or roof deck using 5/8-inch minimum drywall.
2. All sheetrock shall be fire taped and finished smooth.
3. Exposed sections of wallboard shall be primed and painted with white, semi-gloss paint.
4. Each wall of the Communications Rooms shall be covered with ¾ inch, 5-ply minimum, AC plywood, with one smooth side and the SMOOTH side shall be facing into the room.
5. The plywood shall be placed 18 inches from the floor and run up the full 8-foot length of the sheet, or to the finished ceiling.
6. Sheets shall be fastened to the walls using counter sunk screws, which shall have the holes filled with wood putty, sanded smooth.
7. Each sheet shall be painted with white semi-gloss paint using a fire retardant paint which has a Class “C” or III flame spread rating.

B. Floor Coverings

1. Vinyl Anti-Static floor tile shall be the surface for Communications Room floors.
2. Tile shall be placed before the setting of racks and other equipment.
3. The tile shall be cleaned and waxed after the installation of all equipment and prior to final acceptance.
4. Tile shall be white in color with random light gray specs throughout and have a transition threshold at the doorway.
5. Four inch tall rubber base molding shall be installed along all walls.

C. HVAC

1. Each communications space shall have an independent environmental system that is neither part of nor dependent upon building HVAC systems.
2. Communications Room HVAC systems shall derive power for operation from “emergency” or back-up generator systems in the event of power loss to the building.
3. These HVAC Systems shall be “Direct Expansion Coil” type systems.
4. Environmental systems shall not be powered from the Communications Room power panel.
5. Heat recovery systems shall not interfere with Communications Room HVAC systems should a building shutdown occur.
6. Ductwork for Communications Room HVAC shall be run so that it will not eclipse trays or block access to other equipment.

F. TELEPHONE FOR COMMUNICATIONS ROOMS

1. Each Communications Room (BET, IDF’s) shall have a wall-mounted telephone outlet located on the wall that faces the front of the equipment rack. This outlet box shall be mounted at 54 inches, to the vertical center of the box above the finished floor. This shall be a Type 2 NIO (a single voice cable) Equipped with a SYSTIMAX®-SCS 630BH8 Wall Telephone Outlet.

3.02 CUSTOM TEMPLATES

A. A custom template shall be prepared for each major project by the owner.