

1.0 GENERAL

The purpose of this section is to define the design guidelines for communications entrance facilities for the local BSU and remote BSU campuses and to document the known issues associated with the existing spaces based solely on discussions with the University. No fieldwork was conducted at this point in the project.

In general, the communications entrance facility is the location in a building for interconnection to the cable plant and communication services originating from the communications hub facility.

Guidelines identified below are minimum design guidelines tailored to the University's specific communication needs and operational requirements.

2.0 COMMUNICATIONS ENTRANCE FACILITY DESIGN GUIDELINES

The following design guidelines will be the basis upon which the suggested and proposed communications entrance facilities were evaluated and selected:

2.1 General

- A. The communications entrance facility is the location in the building where campus (outside plant) and intra-building services interconnect. The entrance facility houses the main cross connect frame (MC) for the building, typically for both the copper and fiber. Copper and fiber backbone cables extend from the MC to telecommunication closets.
- B. The communications entrance facility shall be suitable space for communications equipment and for copper and optical fiber cable termination.
- C. Typically, the MC may also serve as a horizontal cross connect (HC) point for horizontal station cable from the work area.

2.2 Location & Size

- A. There shall be one communications entrance facility per building.
- B. The size of a typical communications entrance facility is derived from the buildings net square footage and the services provided from the space. If the communications entrance facility serves as a horizontal cross-connect as well as an entrance facility, then the space is typically sized based upon the square footage of the floor area served (typically one 10'x11' space per 10,000 square feet of floor space served). Following is the more significant criteria:
 - 1. The minimum closet size shall be 110 square feet. The smallest wall-to-wall dimension of the space shall be no less than 8 feet.
 - 2. The space shall accommodate two 19" x 7'-0" equipment racks placed side-by-side with cable management between the equipment racks (total of 5'-6").
 - 3. The ceiling height shall be no less than 8'-6".

- C. The existing communications entrance facility shall be the first consideration toward meeting the space requirements. Alternate locations should be proposed where necessary. It is recognized that availability of unoccupied or non-assigned space may be difficult. The occupants of proposed alternative spaces shall not be consulted by the survey team. Following are significant considerations in identifying communications entrance facility locations:
1. Make use of permanent walls (i.e., outside walls, structural walls, etc.). Consider the capability for future expansion of the space.
 2. Locate the communications entrance facility on grade or one floor above grade if possible. If located below grade the space must not be susceptible to flooding.
 3. Centrally locate the communications entrance facility within the floor area it serves.
 4. The communications entrance facility should be located within 50 feet of the building penetration where practical.
 5. Consider the location of the communications entrance facility with respect to the location of other telecommunications closets. Ideally, the communications entrance facility should be located near stacked telecommunications closets.
 6. The communications entrance facility should be enterable from a common space such as a corridor, mechanical room, etc. The door should swing out if permitted by building codes and the door opening should be 3'-0" x 7'-0".
 7. The communications entrance facility shall not be susceptible to moisture entry.
 8. It is highly desirable to NOT share the space with other functions such as custodial services, electric power distribution, storage, or mechanical equipment.
- D. The communications entrance facility should accommodate pathway entry at ceiling level for distribution of cables. It is preferable to NOT have a suspended ceiling in the space.
- E. All walls used to route cable, support equipment and hardware within the communications entrance facility should be covered with $\frac{3}{4}$ " A-C plywood to a height of 8'-4" A.F.F. The bottom edge of the plywood should be 4" A.F.F. The plywood shall be painted white with fire retardant paint. Fire rated plywood is not required.
- F. There should be at least two, 2-lamp fluorescent fixtures in the space or the equivalent illumination. Lighting shall be a minimum of 50 foot candles measured at 3 feet above finished floor in middle of aisles.
- G. Floor covering in the communications entrance facility should be tile or bare sealed concrete. The floor should be in good physical condition.

2.3 Security

- A. It is highly desirable to NOT share the space with other functions such as custodial services, electric power distribution, storage, or mechanical equipment.
- B. The space shall be keyed for a “telecommunications key”. The key may be an electronic key (e.g., Diebold) or standard metal key.
- C. An alarm system for the communications entrance facility should NOT be considered (at this time) although monitoring of the space may be applicable.
- D. Other security exposures shall be identified and means of securing access proposed (for example windows and other doors into the space).

2.4 Power

- A. Equipment in the communications entrance facility interconnects the equipment in other telecommunications closets in the building with the campus network. Uninterrupted stable power for the equipment shall be available typically, from a local portable UPS.
- B. Where equipment contains two power supplies, one power supply is powered by a UPS and the second supply is powered from commercial power. Power strips are placed at the equipment racks for distribution of UPS and building power.
- C. Each wall in the communications entrance facility shall have at least one power double-duplex outlet (20 amp, 110 volt receptacles) for convenience purposes.
- D. Minimum power requirements for communication equipment is one double duplex outlet, 20 amp receptacles (NEMA 5-20R) with a 20 amp circuit to each receptacle, separate neutrals to each circuit (one plug for UPS, two plugs for power strips for commercial power), and separate equipment (green-wire) ground. Placement of receptacles to be determined during design.
- E. A power panelboard in the communications entrance facility is not desirable. Circuits from an existing power panelboard shall be used only if:
 - 1. The power panelboard is nearby.
 - 2. Access to circuit breakers are secure.
 - 3. The panelboard does not contain lighting and motor type loads.
 - 4. Panelboards containing communications circuits shall contain the labeling identifying the room, circuit number, and outlet information for that circuit in the room.

2.5 Mechanical Systems (HVAC)

- A. The room temperature shall be automatically controlled to maintain a constant temperature 24 hours per day, 365 days per year. The thermostat shall reside in the room. The mechanical system should take advantage of outside air where possible. All air supplies shall be filtered.
- B. The adjustable temperature range of the room shall be 65 to 72 degrees Fahrenheit.

- C. Window air conditioners shall not be used as a cooling method.

2.6 Pathways for Outside Plant Fiber

- A. Pathways for outside plant should enter the communications entrance facility through the floor or through the wall near the ceiling.
- B. Cable rack should be placed around the room to support communications cable. Placement of the cable rack and sizing will be determined during design.
- C. Cable tray is the preferable pathway for routing cable through the interior of the building to the communications entrance facility. Conduit may be necessary to satisfy the electrical code.

2.7 Communications Grounding

- A. The communications entrance facility shall be equipped with a main grounding busbar for communications equipment and hardware bonding.
- B. The busbar shall be bonded to the building service entrance ground with a 3/0 insulated copper conductor.

2.8 Definitions

- A. Entrance Facility (EF)
- B. Telecommunications Closet (TC)
- C. Main Distribution Frame (MDF)
- D. Main Cross-connect frame (MC)
- E. Horizontal Cross-connect frame (HC)

2.9 Standards and Codes

- A. All work shall be in accordance with National and State laws, ordinances, and regulations.
- B. The following Communications Performance Standards shall be applied:
 - 1. ANSI/TIA/EIA 568-A Commercial Building Telecommunications Cabling Standard.
 - 2. ANSI/EIA/TIA 569-A Commercial Building Standard for Telecommunications Pathways and Spaces.
 - 3. ANSI/TIA/EIA 607 Commercial Building Grounding and Bonding Requirements for Telecommunications.

- C. The following codes and practices shall be applied. The version of the codes shall be the one adopted by the State of Idaho, Division of Building Safety and the State Fire Marshall:
1. NFPA 70 - National Electrical Code (NEC)
 2. ANSI/IEEE C-2 National Electrical Safety Code
 3. Uniform Building Code
 4. Uniform Fire Code
 5. Uniform Mechanical Code
 6. Building Industry Consulting Service International (BICSI),
Telecommunications Distribution Methods Manual (TDMM)