

OVERVIEW

This document outlines the standards and design criteria for Architects, Contractors, and Telecommunication Design Professionals working on University at Buffalo projects involving telecommunications systems. It serves as a guide for both renovations affecting existing telecommunications infrastructure and new construction projects where telecommunications services are provided by the University.

OUTSIDE PLANT

Item	Requirement
Fiber Optic Connectivity	Provide two 24-strand Single Mode fiber optic cables utilizing diverse paths to core network sites identified by UBIT.
Verizon Legacy Copper Service	UBIT to consult with Verizon to remove legacy Verizon-owned infrastructure.
Wireless Access Points	Outdoor wireless coverage to be provided on all projects within construction boundary through bollard and building attached installations. UBIT to wireless access point placement design. Install 2 data cables per wireless access point.
Security Cameras	Outdoor security coverage design to be provided by University Police. Provide 1 data cable per security camera.
Event Space	Design dependent on requirements for space.

TELECOMMUNICATION ROOMS (TR)

GENERAL

Description	Requirement
Quantity	Minimum 1 per floor. Main TR to be located on lowest floor.
Growth Factor	20%
Programming	Avoid locating adjacent to wet services and sources of EMI. Locate away from spaces sensitive to noise (e.g. classrooms, offices, conference rooms). Locate off a common corridor. Stack TR's vertical where possible. Building services that do not serve the space should not traverse it.
Dimension	Standard Telecom Room: 11' x 11' (Serves 720 Data Outlets) Shallow Telecom Room: 9' x 3' 6" (Serves 240 Data Outlets) *Deviations for Shallow TR's defined below with *
Air changes an hour	At least one air change per hour.
Pressure	Maintain positive pressure.
Setpoint Alarm	If temperature exceeds setpoint thresholds.
Humidity	30% to 50% relative humidity.
Temperature	Maintain 64°F-75°F
Clearances	Minimum 3' of unobstructed space must be provided for installation and servicing of all cabling and equipment mounted on walls or equipment racks in TRs.

ELECTRICAL REQUIREMENTS

Item	Requirement
Lighting	No dimmer or vacancy sensor. Install rocker switch at entry to room. Minimum one fixture per room to be emergency luminaire. Provide circuitry for lighting fixtures from a different electrical distribution panel, do not use panel provided for TR. Provide 540 lux to front and rear of rack at lowest point.
Distribution Panel	Locate two panels within room to allow A and B circuiting. Locate distribution panel with room. Only circuitry service telecom room shall be provided by panel located within the TR. *Distribution Panel not required in Shallow TR
Grounding	Providing bonding busbar integrated with building TG&B system.
Power at Equipment Rack	Provide two dedicated circuits for each rack. Outlets to be NEMA L6-20R type. <ul style="list-style-type: none"> • One circuit to be standby generator power • One circuit to be house power
Convenience Power	Install quad double-gang outlets 18" AFF at intervals of 4' around the perimeter of the TR. This circuit can be provided by the distribution panel within the TR.
Power Distribution Units (PDU)	Provide 2 PDU's for each equipment rack installed in a TR.
Power Survivability	UBIT does not install UPS's in TR's by default. Occupants can request and shall utilize the UBIT UPS service offering.

FIRE DETECTION

Item	Requirement
Smoke Detection	Per Code
Heat Detection	Per Code

FIRE PROTECTION

Item	Requirement
Building Extinguishant	Pre-action sprinkler head preferred.
Building Extinguishant	Sprinkler with guard sited mount on wall. Install drainage trough under sprinkler pipes.
Fail-safe Door Lock Under Fire Condition	Electronic lock securing door into and out of TR should not be disabled on activation of a fire alarm signal.

SIGNAGE

Item	Requirement
Room Sign	Only include room number. Do not identify space as a telecommunication room.

ACCESS

Item	Requirement
Doorway	No sill between door and floor. Hinged to open outward.
Doorway Width	3' 6" Wide and 72" High *Shallow TR requires double-door for access.

DOOR

Item	Requirement
Door Type	Hollow metal door.
Fire Rating	Match surrounding wall type.
Door Hardware	Keyed to UBIT TR core.

WALL BUILD-UP

Item	Requirement
Wall Build-Up	Cement board

FINISHES

Item	Requirement
Walls	All walls except door wall should be covered in 8' high ¾" A-C plywood.
Floors	Floor finish to be anti-static.
Ceiling	No suspended ceiling.
Ceiling Slab	Painted white.

SECURING DEVICES

Item	Requirement
Door Position Switch	Yes

CLOSING AND CONTROL DEVICE

Item	Requirement
Door Closer	None
Overhead door stops and/or holders	None

PROTECTIVE PLATES AND TRIM

Item	Requirement
Armor Plate	None
Door Edge Guards	None
Kickplate	None
Mop plate	None
Stretcher Plate	None

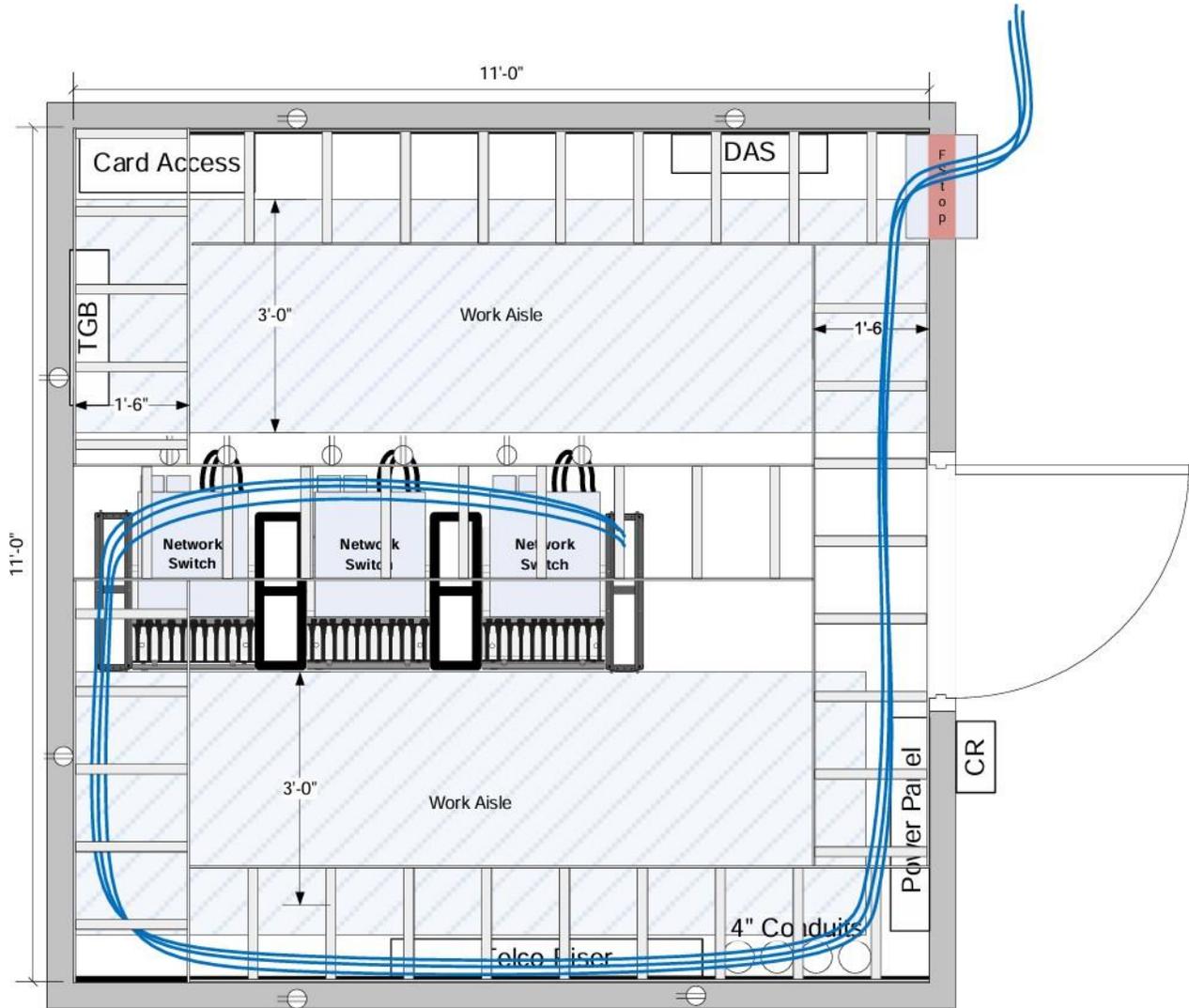
STOPS AND HOLDERS

Item	Requirement
Manual Door Holder	None
Electronic Door Holder	None
Floor Stop	None
Wall Stop	None

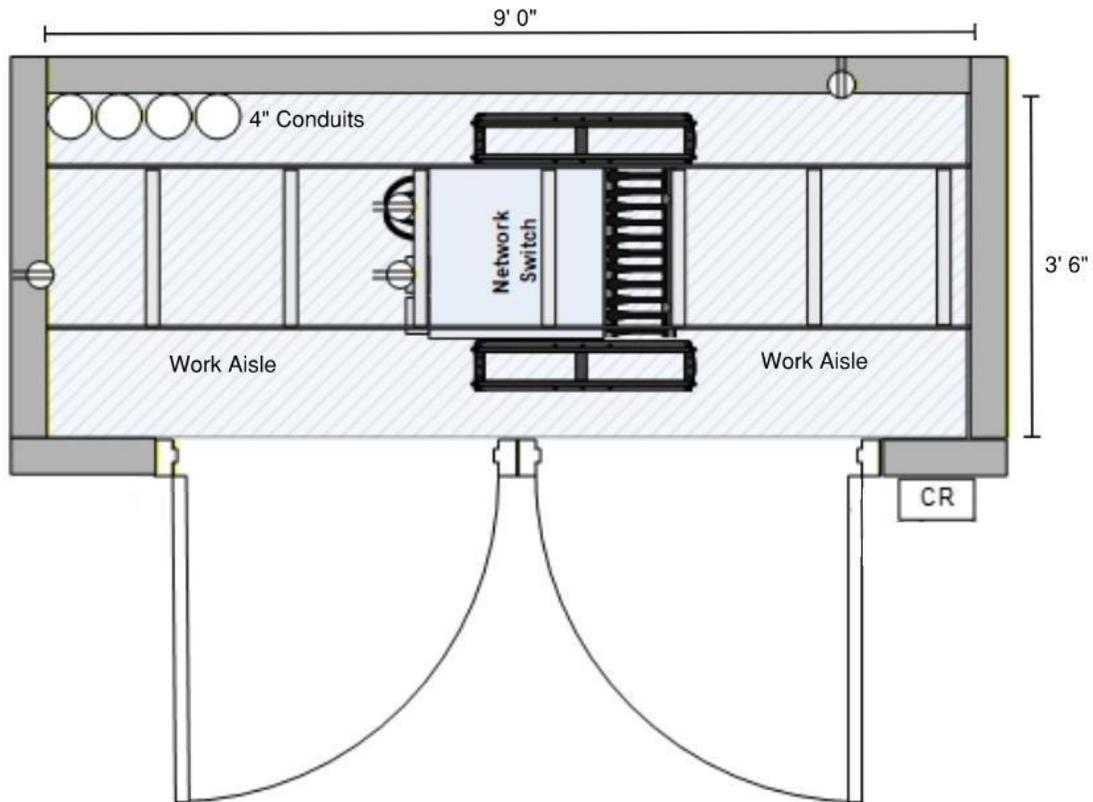
ACCESSORIES

Item	Requirement
Security Requirements	Provide card swipe access. No security camera required in TR.
Wall Mountable Services	Wall space within the TR may be used to install: <ul style="list-style-type: none"> • Card Access Panels • Security Camera I/O Devices • Copper Riser • Distributed Antenna Systems

STANDARD TELECOMMUNICATIN ROOM LAYOUT



SHALLOW TELECOMMUNICATION ROOM LAYOUT



RACK ELEVATIONS



PATHWAYS AND CONTAINMENT

Between OSP and Entrance Facility

- 4 trade size 4 conduits. 2 entry points into the building. Entry points should be 2 diverse pathways.

Between Entrance Facility and Main TR

- 4 trade size 4 conduits.

Riser System between Main TR and Each TR

- 4 trade size 4 conduits.
- TG&B systems requires separate pathway.

Horizontal and Vertical cabling must be supported in alignment with BICSI best practices. A combination of basket tray, ladder rack, j-hooks, and conduit can be used to support cabling.

- All cabling with TR's shall be supported by Ladder Rack.
- Horizontal cabling distribution system shall be designed using basket tray and minimizing the use of j-hooks.
- In non-accessible ceilings, the cabling shall be routed in conduit.
- Floor mounted outlets will be poke-throughs or floor boxes fed from the TR on the same floor.

STRUCTURED CABLING SYSTEM

Backbone Distribution Systems

- 12 Strands Single Mode OS2 between Main TR and each TR
- 25 Pair Copper between Main TR and each TR
- 24 Strand Single Mode OS2 between MDF and Campus Core Network Site 1 (to be identified by UBIT)
- 24 Strand Single Mode OS2 between MDF and Campus Core Network Site 2 (to be identified by UBIT)

Horizontal Distribution Systems

- All horizontal cables will be Cat 6A F/UTP.
- All cabling will be plenum rated.
- Minimum 1" conduit for cable installed to 5"x5"x2 7/8" wall box.
- All outlet positions will have a minimum of 2 data cables unless specified otherwise.
- Typical office has 2 data outlet positions on opposite walls for 4 total data cables. Outlet positions shall be aligned with power receptacle and furniture layout.
- 2 data cables per wireless access point.

- Typical conference room requires 4 data cables to equipment room/cabinet service the room.
- Typical classroom requires 4 data cables to teaching station location.
- Security camera requires 1 data cable.

Patch Cords

- Project will provide patch cords for cable activations in the TR as well as patch cords for all user outlet locations.

BONDING AND GROUNDING

- All components must be properly bonded to the telecommunications grounding system as per TIA-607-B.
- A full Telecommunications Grounding and Bonding system must be provided in new constructions and renovations where there is no existing system.

WIRELESS ACCESS POINTS

- UBIT will provide a wireless access point design to be incorporated in to the Design Manual Phase.
- UBIT will provide wireless access point mounting sketches to incorporate into construction drawings.
- Wireless access points will be owner-furnished, contractor-installed (OFCI).

DISTRIBUTED ANTENNA SYSTEM (DAS)

- Verizon provides and installs all DAS service on campus. DAS is only in use on the North campus.
- UBIT will consult with Verizon for inclusion of DAS antenna system.
- Project will be responsible for providing space and power for DAS in TR's if required.

RENOVATIONS

Renovations need to consider the condition of existing telecommunication rooms, data cabling, and pathway as in most cases legacy installations do not meet current UBIT standards. Any renovation where telecommunications systems are included must bring those systems up to current UBIT standards.

BID PACKAGE SPECIFICATIONS & DRAWINGS

- The design team shall use the latest UBIT Division 27 specification guidelines in development of project specification. The guidelines may be obtained by contacting the UBIT representative.
- Telecommunication Drawings shall be placed in a dedicated 'T' series numbered as outlined below:
 - T-0xx – Site Plans: exterior pathways and inter-building backbones
 - T-1xx – Floor Plans: TR distribution zones and backbone riser systems for each floor, including symbol legend.
 - T-2xx – All telecommunication outlet locations.
 - T-3xx – Equipment rooms, layout view, TR details, wall elevations, equipment rack layouts, and related details for all communication rooms.
 - T-4xx – Typical Drawings: faceplate configurations, labeling, grounding, risers, firestopping, ADA, wireless access mounting details.
 - T-5xx – Schedules: cable wiring schedules and related tabular information.

CONSTRUCTION TRAILERS

Contractors installing construction trailers on campus are required to procure Spectrum internet service for connectivity. Designated staging areas for construction trailers are available on both the North and South Campuses. Contractors placing trailers in these staging areas must install a single-mode fiber optic cable from their trailer to the designated fiber cabinet. This cabinet will server as the meet-me point where UBIT will extend the contractor-procured Spectrum service.

Trailers placed outside of designated staging areas will require additional coordination to determine how Spectrum service can be provided.

Note that Spectrum service activation may take up to one month from the time the contractor selects and agrees to a service plan.