Note to the Designer/Architect/Engineer/Installer: These Specifications are basic minimum criteria to be met in preparing the final project specifications for this section, which is the responsibility of the Designer

York University Building Standards

Prepared by: Tracy Wechsler
Reviewed by; Mike Daigle
Authorized by: Chris Russel

Project Administrator/ Equipment Analyst, UIT-Infrastructure Planning Administration	Manager, UIT-Network Operations	Director, ICT Infrastructure

1.0. GENERAL

.1 Planning, placement and design of all communication rooms and main entrance rooms.

.2 The purpose of Communication Rooms is to safely and securely house all of the horizontal cable terminations, network switches/equipment, telecommunications equipment and backbone cabling.

.3 Each building will contain one Main Communication Room (MCR) where the building entrance fibre is fed into and terminated.

1.1. Communication Room Locations

.1 Locations of Communication Rooms must be selected to ensure accessibility from faceplates anywhere within the building envelope. This should be reviewed during the conceptual design phase with approval from UIT-Project Coordinator.

.2 Cable pathways between a faceplate to its termination point within the communication room must not exceed 90-meter length, per TIA 568.

.3 Buildings with requirements for multiple Communication rooms should be placed within the same location, vertically aligned, for each floor.

.4 All Communication Rooms will be accessible through a public thoroughfare and not a secured area.

.5 All Communication Room doorways and access ways must accommodate delivery of UIT standard racks and equipment.

1.2. Communication Room Restrictions

.1 All Communication Rooms will be secured and owned by UIT. Access to and use of Communication Rooms will be managed by UIT.

.2 No other materials or services will be installed or stored in the Communication Rooms without UIT approval.

.3 Access hatches within the Communication Rooms must be reviewed during the conceptual design phase and approved by UIT-Project Coordinator.

1.3. Communication Room Layout

.1 The preferred dimensions for each Communication Room are; 3W x 4.8D x 4.5H meters. Exceptions (smaller) must be reviewed during the

conceptual design phase and approval is required by UIT-Project Coordinator.

.2 4 x 10.16 cm conduit sleeves are to be installed between vertically stacked communication rooms that connect one another above and below floors.

.3 All 4 walls within the Communication Room will be sheeted in 2.4H x 1.5W meters of 20 mm thick plywood.

.4 All new buildings and/or net new communication rooms will leverage a patch panel design.

.5 The plywood will be fire resistance treated plywood or will be painted in fire retardant paint.

.6 The ceiling in each Communication room will be sealed with a dust retardant finish.

.7 Each room will have a building ground bus.

1.4. Flooring

.1 All Communication Rooms flooring will be covered with anti-static tiles. Vinyl tiles are <u>not</u> acceptable. Sealed concrete is <u>not</u> acceptable for flooring.

.2 Allowable floor loading is to be rated in excess of 68 kilograms per 30.50 centimeters.

1.5. Keying

.1 All rooms will be keyed with a number 3 lock and no duplicates are to be made.

.2 Distribution of keys for access during construction will be signed out with the Network Operations Manager.

.3 Electronic door access, utilizing campus door access control systems, may be specified by UIT for Communication Rooms.

1.6. Painting and Finishing Schedule

.1 All walls will be treated with fire retardant paint if not applying fire resistant treated plywood.

.2 All walls and ceiling will be painted the white.

1.7. Signage

.1 All Communication Rooms will have signage informing external service technicians to contact Network Operations Manager if accessing services within the rooms.

.2 The project will provide interim room signage for all new or renovated Communication Rooms (using CSBO permanent York University room number assignment). Temporary or architectural number assignments must not be used.

1.8. Smoke Detector, Heat Detector and Sprinkler System

.1 All sprinkler head placements should not be directly above the network switches. Placement will need to be reviewed during the conceptual design phase and approved by UIT-Project Coordinator.

.2 A drip tray is required for sprinkler heads that are located above equipment racks.

1.9. Back-Up Power and Power Outlets

.1 A dedicated main feed-off of the main building distribution panel breaker will be fed to a 100 AMP 208/120 Volt three-phase electrical panel within each Communication Room. Minimum 42 circuit panel.

.2 A minimum of 2-208V 20Amp circuits must be provided within each rack. Use cab tire drop from ceiling into equipment racks with cord end receptacles. Strain relief must be used at ceiling anchors. Exact quantities and design requirements will be reviewed subsequent to wired network design completion and will be communicated to CSBO-Project Manager.

.3 2-Service outlets will be mounted on opposite walls. These outlets must be standard duplex receptacles serviced by independent 120V 15A breakers in the room power panel.

.4 Dedicated conduit to be installed for any electrical requirements and will not be shared with communications cabling.

1.10. Communication Rooms Ventilation

.1 Each Communication room will have its own air conditioning unit and will operate independently of season and building shut downs.

.2 All air conditioning equipment will be powered by independent branch circuits from the communication room distribution panel.

.3 Each unit will operate independently of the building HVAC system and will maintain a minimum temperature of 15C not to increase above 22C degrees.

.4 Communication Room cooling must be designed for equipment cooling (not comfort air) and provide an efficiently designed airflow plan for rack mounted equipment.

.5 The temperature will be maintained 24 hours a day by 365 days per year.

.6 Each Communication Room will have its own temperature control thermostat.

.7 48-hour notifications of any scheduled shut downs, utility and/or A/C, must be communicated to UIT-Network Operations.

.8 The network design will dictate the air conditioning capacity requirements for each Communication Room.

1.11. Fire-stopping

.1 All fire stopping will be completed by the Contractor once all horizontal and vertical cables have been installed.

.2 All open spaces between adjoining rooms will be sealed.

1.12. Equipment Cabinets

.1 There should be a minimum of 1-meter clearance in the front and back of each cabinet to provide access. The standard cabinet size is 76.2 W x 66.D x 213.36H cm.

.2 There will be a minimum of 15cm of clearance between any wall and the sides of the equipment cabinets.

.3 The colour preference for the cabinet is black.

.4 The minimum distance between the equipment cabinet and any other equipment within the communication Room is 1 meter (except as noted in 1.12.2).

.5 The minimum distance between the top of the cabinet and the bottom of the lighting fixture is 15cm. Lighting fixtures should not be placed above

planned equipment rack locations. Lighting fixtures should not be placed within 30cm of cable trays.

.6 Each room will house fibre patch panels.

.7 All equipment cabinets will have cable-management trays.

1.13. Equipment Racks

.1 When used, each rack must be a minimum of 76.2W cm x 178 H, and capable of housing 40U of IEA-310 standard 48.26 cm rack mount equipment.

.2 Rack designs, which will reflect the network requirements for that room, will be created for each Communication Room during the planning phase.

.3 There should be a minimum of 1-meter clearance in the front and back of each rack to provide access.

.4 There will be a minimum of 15 cm of clearance between any wall and any side of the equipment rack.

1.14. Cable Trays

.1 All pathways for horizontal cable trays within the Communication rooms will be routed to avoid utilities and electrical interference.

.2 Each tray width will be a minimum of 45.72 cm.

.3 There must be a minimum of 30 cm. of vertical space above each cable tray.

.4 Cable trays will be used to service all areas within the Communication Rooms where cables are required such to racks, BIX fields, entrance areas, patch panels and planned spaces.

.5 The minimum distance between trays is 60 cm.

.6 The minimum vertical distance below a tray and the top of other equipment is 15 cm.

.7 The distance between the bottom of a tray and the floor must be between 3 and 4 meters.

1.15. Horizontal Cables

.1 All horizontal cables will be bundled separately from entrance cables.

.2 A minimum of 5 meters slack will be left on unterminated cables within the Communication Rooms.

.3 All horizontal cables in the Communication Rooms must run in bundles attached to the walls, within cable trays, within rack-managed spaces or in the furred out space behind the MDF.

1.16. Labeling

.1 Each Communication Room will have its own unique room number following the UIT Network Operations Standards.

.2 The colour codes of the labels for the cross connect fields will follow the BICSI Industry Standards and GigaBIX labeling Standards.

1.17. Lighting

.1 Wall mounted lighting fixtures are preferred.

.2 Suspended lighting, when used, must be suspended from the ceiling and will not interfere with cable trays.

.3 Each Communication Room will have provisioning for Emergency Lighting in the event of a power interruption.

.4 Illumination levels are to be according to WSBC Industry Standards for safety and comfort.

.5 On/Off switch to be located inside the door and be dedicated solely for the Communication Room.

2.0. PRODUCTS

2.1 Flooring

.1 3M Static Control Vinyl Floor Tile 8400 Series or similar specification. Refer to 3M Product Data Sheet http://multimedia.3m.com/mws/mediawebserver?mwsId=SSSSSuUn_zu8l00xl8_Zo82vlv70k17zHvu9lxtD7SSSSSS-- Ver. 11/03/09

2.2 Fire Stopping

.1 Only Hilti Products to be used for all fire stopping

2.3 Equipment Cabinets

.1 RF Mote RFM-303683-1-F Fortress Frame-Full Height. Frame only-73 W cm x 94.4D cm x 210.8H cm. W/O Caster Plate Black.

.2 RF Mote RFM-FORT-MA SQ Combo Cabinet Mounting Angle for 182.5 H cm Fortress-2- Cabinet Black only.

.3 RF Mote RFM-672-VCT-Vertical Cable Manager Narrow for 60.9 W cm x 182.5 H cm H Frame, 15.2 W cm Black.

2.4 Equipment Racks

.1 To be specified as required.

2.5 Cable Trays

.1 Chatsworth trays. Refer to Chatsworth Product Data sheet http://www.chatsworth.com/products/cable-pathway/cable-runway/PATHWAY_SIGNATURE_PIECE-1.pdf, Rev.2 01/09

2.6 Labels

.1 For Miscellaneous Field, use Silver Fox Belden GigaBIX and Cross-Connectors AX101536 15.8mm x 168mm YELLOW.

.2 For BIX Cross-Connectors-DATA Field, use Silver Fox Belden BIX Cross-Connect AX101537 15.8mm x 168mm GREEN.

.3 For 25 pair, use Silver Fox Belden GigaBIX and Cross-Connectors AX101539 15.8mm x 168mm PURPLE.

.4 For Horizontal Cross Connect, use Silver Fox Belden GigaBIX and Cross-Connector AX101532-41 15.8mm x 168mm BLUE.

.5 For Cable wraps, use Silver Fox Belden 4-Pair Cables AX101555 25mm x 12mm WHITE.

.6 Patch Panel horizontal cable ranges should be labeled on the left side of the rack, when facing the front of the rack.

3.0. EXECUTION

3.1 Equipment Cabinets

.1 Rail spacing and cable manager alignment to conform to UIT-Infrastructure Standards for Communication Rooms.

3.2 Cable Trays

.1 Manufacturers, BICSI and TIA installation codes will be strictly adhered to upon installation.

End of Section 27 05 05