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

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1.0 GENERAL

.1   This document outlines the 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 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 end service location to its termination point within the communication room must not exceed 90-meter length, per TIA 568.

.3   Buildings with Communication rooms on more than one floor should be arranged so that Communication rooms on different floors are vertically aligned (stacked), one above the other.

.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.

.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 via the UIT-Project Coordinator.

.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 via the 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 new buildings and/or net new communication rooms will leverage a patch panel design for termination of horizontal cables

.4 Flooring

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

   .2   Allowable floor loading is to be rated in excess of 750 Kilograms per square meter.

.5 Keying and Door Access

   .1   All rooms will be keyed with a number 3 lock and no duplicate keys 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 the Central Door Access Control system, will be installed for all communications rooms.

.6 Painting and Finishing Schedule

   .1   All 4 walls within the Communication Room will be sheeted in 2.4H x 1.5W meters of 20 mm thick plywood. The plywood will be fire resistance treated plywood or will be painted in fire retardant paint.

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

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

   .4   There must NOT be any exposed concrete surfaces left unsealed.

   .5   Doors will be provided with a sweep and with weather stripping on all sides. The purpose of these measures is to minimize intrusion of dust into the room from outside.

.7 Signage

.1   During construction all doors to Communication Rooms will have signage informing external service technicians to contact UIT Network Operations for authorization prior to accessing rooms.

.2   Doors to Communication Rooms will have signage posted indicating that an alarm will sound automatically if the door is left ajar for more than 2 minutes.

.3   During construction phase 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.

.8 Smoke Detector, Heat Detector and Sprinkler System

.1   Sprinkler head placements should <u>not</u> 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.

.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 four 208V 20Amp circuits must be provided within each rack. Use cab tire drop from ceiling into equipment racks with cord end L6-20 receptacles unless otherwise specified by the project. Strain relief must be used at ceiling anchors. Exact quantities and design requirements will be reviewed after wired network design completion and will be communicated to CSBO-Project Manager.

.3   Two 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.

.5   Each room will have a building ground bus.

.10   Communication Rooms Ventilation

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

.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 20C not to increase above 26C 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 which vents from front to back of rack

.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 shutdowns, 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.

.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.

.12   Equipment Cabinets

.1   There should be a minimum of 1-meter clearance in the front and back of each 4 post equipment 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 in the equipment racks

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

.13   Equipment Racks

.1   When used, each 2 post equipment rack must be a minimum of 76.2W cm x 178 H, and capable of housing 40U of IEA-310 standard (19Inch)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.

.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 to racks, BIX fields, cable 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 183cm and 400 cm.

.15   Horizontal Cables

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

.16   Labeling

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

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

.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 or access to 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

.1   Flooring

.1   Static dissipative and grounded conductive floor tiles must be used for flooring in communications rooms.

.2   Fire Stopping

.1   Hilti Products, STI EZPath or similar products are to be used for all cable pathway fire stopping.

.2 The firestopping in communications room cable access pathways must be reusable pathways, not permanently sealed systems or fillers

.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 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.

.4 Equipment Racks

.1 To be specified as required.

.5 Cable Trays

.1 All cable trays will be a minimum of 45.72 cm (18 inch) wide inside the communications rooms. Cable tray capacity must be less than 40% full as determined by the static load capacity of the tray and length of the support span at the completion of construction.

.2 Use the same recommended manufactures as detailed in division 27 15 00 – Horizontal Cable requirements section 2.1.

.6 Labels

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

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

3.0 EXECUTION

.1 Refer to associated document 27 15 00 Horizontal Cable requirement

.1 Equipment Cabinets

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

.2 Cable Trays

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

End of Section 27 05 05