

*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 The backbone provides inter connections between the communication rooms and the structures cabling.
- .2 The backbone consists of intermediate and main cross connects mechanical terminations, patch cords and cabling between buildings.
- .3 The Main Entrance Communication Rooms (MCR) are to house the backbone cable terminations from each Communication Room. All communications cable entering the building must terminate in the MCR.

### **1.1. Intra-Building Backbone Cables**

- .1 Intra-Building cable, or inside plant cables consist of distribution trunks between the communications rooms in a building. York standard requirements are for MM fiber, SM fiber and copper trunks between all communications rooms. Typically, distribution is arranged in a star pattern with the building entrance room as the hub. Deviation for the typical arrangement should be consulted with UIT during the design phase.
- .2 Copper connections between any two telecommunications closets should pass through no more than two cross connects, not including the horizontal cross connect.

### **1.2. Inter-Building Backbone Cables**

- .1 Inter-Building cable, or outside plant cables consist of distribution trunks between buildings. York standard requirements are for MM fiber, SM fiber and copper trunks between all buildings on a campus. Typically distribution is logically configured in a dual star topology.
- .2 Each building has a dedicated fiber trunk to the nearest IDF (Intermediate Distribution Frame). Each IDF has large backbone trunks to the two MDFs located in core data centres. Deviation for the typical arrangement should be consulted with UIT during the design phase.

### **1.3. Fibre Optic Cables**

- .1 The numbering scheme for MDF to IDF trunk fibre strands will continue in sequential order with the next available number on the MDF in the terminating Data Centre.
- .2 Strand numbering for building to IDF trunks is unique to each trunk.
- .3 The trunk and termination panel must be labelled with the Building number, name and MDF room number at the IDF end.

- .4 The trunk and termination panel must be labelled with the IDF at the building end.
- .5 The SM fibre optic backbone shall support 10Gps or higher performance.
- .6 Fibre optic cables shall be terminated in standardized duplex SC Connectors.
- .7 A minimum of 24-strand single mode fibre optic cable shall be provided to each Communication Room from the Main Entrance Room unless specified by the UIT- Project Coordinator.

#### **1.4. Copper**

- .1 Copper backbone trunk must terminate in MCR.
- .2 Intra-Building copper trunks must terminate in Communication Rooms.

#### **1.5. Service Entry Ways (Inter-Building Pathways)**

- .1 This consists of the cabling infrastructure pathways between the building and the entrance from the service tunnel.
- .2 The communication room located closest to the service entrance (BE room) will have 4-10 centimeter ducts to the service tunnel from the originating point. If the distance exceeds 59 meters then a utility access will be required to maintain cable pulled of less than 61 meters.
- .3 For Remote Site locations the Contractor must contact the UIT Project Coordinator to plan pathway.

#### **1.6. Conduit**

- .1 All conduits should be plugged to prevent water seepage, waste accumulation or rodent access.
- .2 All conduits must be fire-stopped at building element penetrations according to fire regulation standards.
- .3 All conduits between building spaces must be internally fire-stopped after cable is installed.
- .4 All entrance conduits will be housed separately from other electrical utilities.
- .5 A minimum of 4-10 centimeters conduit of duct constructed of PVC type B, C or D.

- .6 No more than two 90 degree manufactured bends are permitted within the length of the conduit.
- .7 Conduit fill should not exceed 40%.
- .8 All exterior underground conduits used for communication applications will be 10.16 centimeters EMA TC-6 Type EB PVC plastic duct encased in concrete.
- .9 Conduit slots and sleeves must extend above the floor level by a minimum of 2.54 cm at the entry point in the Communication Room.

### **1.7. Building Entrance Facility**

- .1 The Building Entrance facility is the termination equipment within the building entrance room or MCR. This includes terminations for copper trunks, MM fiber and SM fiber.
- .2 Fiber terminations are mounted in network equipment racks or cabinets.
- .3 Copper terminations are wall mounted MDF patch panels.

## **2.0. PRODUCTS**

### **3.1. CAT6A Voice Cables**

### **3.2. CAT6A Data Cables**

### **3.3. Fibre Optic Cables**

- .1 All connectors will be SC duplex on all panels.
- .2 All fibre optic components will be Corning.
- .3 Multi-Mode Fibre Backbone Cable: CORNING-C 024 KUC-T4130D20 62.5/125 LT DIRECT BURIAL 3.4/1.0B/KM 200/500MHZ\*KM ALTOS LITE ARMOURED.
- .4 Single-Mode Fibre Backbone Cable: CORNING-C 024EUC-T4101D20 8.3/125 LT DIRECT BURIAL 0.4/0.3 DB/KM ALTOS LITE ARMOURED.

### **3.4. Copper**

- .1 Twisted Backbone cabling will be 100 ohm UTP-24 o5 22 AWG.
- .2 Copper Backbone Cable: Superior C85-104-13 24 gauge exchange cable IPE-89 Smooth AL SOLID FILLED SEAL PETH.

### **3.0. EXECUTION**

- .1 Backbone fibre cabling system shall be fusion spliced to fibre optic termination assemblies with duplex SC connectors
- .2 The connectors shall be compatible with 10Gb Ethernet requirements for single wavelength operation.
- .3 The fibre optic patch cords shall be comprised of 3mm; two strand zipcord multimode and single mode cables terminated at both ends on 1.25 mm ceramic ferrulle SC connectors.
- .4 All materials and equipment to be installed in accordance with applicable standards and codes.
- .5 Contractors will adhere to manufacturers published specifications for installing all products.

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