1.0 GENERAL

1.1 DOCUMENTS

.1 This section of the Specification forms part of the Contract Documents and is to be read, interpreted, and coordinated with all other parts.

1.2 SUMMARY

.1 Section Includes:

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1.1 DOCUMENTS
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1.3 OVERVIEW
1.4 CATEGORY 6A HORIZONTAL CABLE INSTALLATION
1.5 GigaBIX DISTRIBUTION
1.6 REMOVAL AND REPLACEMENT OF EXISTING CEILINGS
1.7 ACCESSIBILITY
1.8 MISCELLANEOUS CABLES

1.3 OVERVIEW

.1 The horizontal configuration shall be a star structure with separate dedicated cables run 360 degrees from the servicing zone Local Communication Rooms to the outlets.

.2 The maximum length of horizontal cable shall not exceed 90 meters in any 360 degree direction.

.3 In a Communication Room, horizontal cables shall be bundled separately from Entrance and Interconnecting backbone cables.

.4 Where it is specifically noted that the horizontal cable is not to be terminated, a minimum of 600 mm cable slack shall be coiled inside the outlet box. A minimum of 5 meters slack shall be left in the Communication Room.

.5 Velcro straps shall be used to support the cables. The straps shall be loosely tightened in such a manner that it can slide around cable bundle.

.6 Minimum length of the cables between the Communication Room termination point and a consolidation point shall be 15 meters. The UBC Information Technology Representative must be consulted to approve all designs implementing consolidation points.

.7 Each cable shall be terminated at workstation outlets on eight-position modular jacks with pin/pair assignment wired to T568A.

.8 The Contractor shall leave manufacturer recommended amount of slack in the cable, at the outlet box following termination, as too much slack at the point of termination may result in testing failures and too little slack can compromise future maintenance.

.9 The Contractor shall neatly dress all cables within the Communications room to follow building lines. The objective being, to provide a reasonable amount of slack into each cable run, while at the same time provide neatness and promote order as the cables migrate from the point-of-entry to the termination point.

.10 The cable pair twist must be maintained as per the Manufacturer specifications at the point of termination.

.11 Refer to the following documents for guidelines on installation:

.1 Manufacturer Installation Guideline Documentation.

.2 Current TIA/EIA-568-C documents.

1.4 CATEGORY 6A HORIZONTAL CABLE INSTALLAITON

.1 Approved cable shall be CommScope Uniprise SLX Series Category 6A, UTP or STP, 23AWG, 100ohm solid copper, CMR-rated. CMP or LS0H rated cables shall be used if required by code.

.2 All UTP/STP cable system work completed by the Contractor must be approved by the UBC Information Technology Representative. The following basic requirements must be met to gain system acceptance:

.1 Receive, check, unload, handle, store and adequately protect equipment and materials to be installed as part of the Contract. Store in areas as directed by the UBC Information Technology Representative or General Contractor. Installation includes setting in place, fastening to walls, floors, ceilings or other structures where required, interconnecting wiring of system components, equipment alignment and adjustment and other related work whether or not expressly defined herein.

.2 Install materials and equipment in accordance with applicable standards, codes, requirements and recommendations of national, provincial and local authorities having jurisdiction and with manufacturer printed instructions.

.3 Adhere to manufacturer published specifications for pulling tension, minimum bend radii and sidewall pressure when installing cables.

.4 Install horizontal cabling from outlets to the nearest Communication Room or Closet in a continuous run and without a splice, unless otherwise noted.

.5 When installing, ensure cable is not subjected to stress due to contact with tray/conduit support mechanisms, bonding lugs or any metal burrs within the support structure. Particular care must be taken when working around corners and offsets. Pulling lubrication must be used at all times to ensure a stress-free installation.

.3 Most designs call for a cable tray/zone conduit, and conduit or J-hook support structure to facilitate cable system installation.

.4 Where J-hook systems are used to distribute horizontal cables the J-hooks shall be spaced at maximum intervals of 1200 mm following building lines. The Contractor shall install infrastructure to support all cables installed above removable ceilings.

.5 Cable forming and termination procedures shall confirm to the following requirements:

.1 All cable installation shall be done in a neat and tidy fashion. All cable forming within the MCRs and LCRs shall follow building lines.

.2 Cable shall be formed by full cable combing with no crossovers within the bundle. The UBC Information Technology Representative shall have final approval of cable forming quality and any workmanship issues. Bundles shall be formed using Velcro fasteners. Cables must not exhibit sheath deformation due to over-tightening. If cable forming is not performed to the satisfaction of the UBC Information Technology Representative, the Contractor shall be responsible to re-form the bundles at no cost to UBC.

.3 Termination practices must strictly comply with manufacturers' recommendations. Particular care must be taken to limit sheath removal length and pair un-twist at point of termination. The correct cable termination tool must be used for all Cat 6A terminations. Use of 110 Impact tools is not allowed.

.4 Cables shall be terminated in sequential order on patch panels and on GigaBIX termination hardware in Communications Rooms.

.5 At each communication outlet, follow the same termination practices as stipulated for the Communication Room. The Contractor shall leave the manufacturer recommended amount of slack within the outlet box following termination, as too much slack at the point of termination can result in testing failures and too little slack can compromise future maintenance.

.6 The UBC Information Technology Representative must give final approval to cable forming, and termination quality before the Contractor can deem the Communication room or outlet work complete.

.7 The Contractor shall attend a mandatory site visit during the Tender period to a previously completed Communication Room showing clearly the level of workmanship required to meet UBC expectations and acceptance.

.8 In Communication Rooms, horizontal cables shall be bundled and terminated on 24 port patch panels only.

.9 All wireless Access Point cables must be mixed with the regular horizontal cables and terminated "where they fall" in the patch panel field. Do not group the AP cables as this will create a disproportionate power load on one network switch.

.10 Cable shall be installed in accordance with the manufacturer recommendations and standard industry practices.

.11 Cable pathways shall not be filled greater than the maximum fill recommendation for the particular pathway type – typically 40%.

.12 At no point shall cables rest on acoustic ceiling grids, panels, mechanical equipment, or supports for other services.

.13 Horizontal distribution cables shall be bundled in no more than 40 cables. Cable bundles in excess of 40 cables may cause deformation of the bottom cables within the bundle. Cable distribution in a comm room will not exceed 24 cables per bundle.

.14 Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to UBC.

.15 UTP/STP 4 pair cable shall be installed so that there are no bends less than four times the cables outside diameter (4 x cable O.D.) at any point in the run. Pulling tension shall not exceed 25-foot/pounds for a single cable.

.16 All cables shall be terminated in Communication Rooms and at Communications outlets. Leave no cables un-terminated unless specified in IT drawings or as directed by the UBC Information Technology Representative.

.17 Before commencing with the installation and termination of a communication system, provide the UBC Information Technology Representative with termination details in the form of shop drawings if requested.

.18 As the layout and termination of Communications systems is a critical component of the contract work, compliance with materials specifications and execution methods are mandatory.

1.5 GigaBIX DISTRIBUTION

.1 Install GigaBIX distribution rings to support jumper wire.

.2 Only BIX punch tools shall be used when terminating cables on a GigaBIX connector.

.3 Multi-pair cable bundles entering GigaBIX mounts and the hinging of GigaBIX connectors shall be on the jumper side of the mount as per NORDX/CDT standards.

.4 Horizontal 4-pair UTP/STP voice cables are terminated with a maximum of six (6) cables per GigaBIX connector.

.5 Space for the entrance protectors shall be provided to the left of the GigaBIX connector mounts. (Refer to Standard Drawing ITSTD-06)

1.6 REMOVAL AND REPLACEMENT OF EXISTING CEILINGS

. 1 Due to current architectural trends and the installation of overly large ceiling tiles in new buildings, Contractors are to review with the UBC Information Technology representative if they are to attempt the removal of any larger than normal ceiling tiles.

.2 Carefully remove existing ceiling as required to perform the Work. Store removed tiles in an area designated by the Owner. Modify and augment existing suspension systems as necessary. Restore ceiling system to their original finish.

.3 Repair any damage to ceilings due to modifications, removal, and replacement of same. Replace damaged ceiling tiles, including tiles with holes or openings left as a result of demolition, with similar materials.

.3 The contractor will be held responsible for any damaged or missing tiles in the area of work at the conclusion of the job. The Contractor is advised to document the conditions of existing ceilings in the area of work, noting any missing or damaged tiles with date-stamped photographs delivered to the UBC Information Technology Representative prior to start of construction.

.4 The Contractor will be held responsible at the conclusion of the job for any damaged or missing tiles in the area of work that cannot be proven to be existing prior to his site possession. If at the conclusion of the work, holes remain in the spline ceilings for which

no replacement tiles can be found, or if in the opinion of the Architectural Consultant, the spline ceiling tiles have been damaged to the extent that they must be replaced, then the Contractor is required to replace these tiles from another room with similar tiles and in that room from where the replacement tiles come from, replace the entire ceiling with a T-Bar and 600 mm x 1200 mm acoustical tile system. The choice of this room is subject to the approval of the Architectural Consultant.

.5 As 600 mm x 600 mm spline ceiling tiles are no longer commercially available, the contractor is advised to take extreme care when removing and replacing these tiles since they are fragile and easily broken. The spline tiles to be removed and replaced with 600 mm x 1200 mm acoustic tiles must be carefully removed and stored. They may be used for patching other areas of spline tile ceiling. The remainder are to be turned over to the UBC Information Technology Representative.

.6 After removal of existing ceiling, the Contractor shall temporary support and protect all electrical and non-electrical devices that are not properly supported

1.7 ACCESSIBILITY

.1 Install all work in a manner that allows easy accessible for adjustment, operation and maintenance. Provide access panels where required to allow access to junction boxes and devices for maintenance purpose.

1.8 MISCELLANEOUS CABLES

.1 UBC Information Technology will not accept and does not employ hybrid or under-carpet cabling.

END OF SECTION 27 15 00