
1. GENERAL

1.1 SCOPE OF WORK

- .1 This section applies to new LAN cabling as needed to meet the relocation requirements of the renovation as indicated on the drawings.

1.2 COMPLIANCE

- .1 All workmanship, materials, and/or installation practices and activity shall be equal to, or exceed, the standards established by the following:
- .1 CAN/CSA-T527, Grounding and Bonding for Telecommunications in Commercial Buildings.
 - .2 CAN/CSA-T528, Design Guidelines for Administration of Telecommunications Infrastructure in Commercial Buildings.
 - .3 CAN/CSA-T529, Design Guidelines for Telecommunications Wiring Systems in Commercial Buildings.
 - .4 CAN/CSA-T530, Building Facilities Design Guidelines for Telecommunications.
 - .5 TIA/EIA TSB 67, Latest Version, Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling Systems.
 - .6 BICSI-TDM Standards (reference only).
 - .7 CSA C22.1 Canadian Electrical Code Part 1.
- .2 All cabling, termination hardware, and patch cords shall be of one manufacturer to ensure end-to-end Enhanced Category 6 requirements ratified by the TIA in November 1999.
- .3 All products must be manufactured in ISO 9001 certified manufacturing plants. Documentation must be submitted to the Consultant before the ordering of any products.

2. PRODUCTS

- .1 New LAN/Tel cabling CAT6-FT6 as indicated on the drawings.

2.2 TERMINAL CONNECTIONS

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- .1 The terminal connection system consists of the patch cable, plugs and adapters are to match the existing.

2.3 HORIZONTAL CABLING

- .1 The horizontal cabling shall be CAT-6 (to match existing).

2.4 PATCH PANELS (CROSS-CONNECT)

- .1 Existing patch panel spaces are to be used.

2.5 PATCH PANEL CORDS

- .1 All patching shall be performed via patch cords to maintain the highest system integrity and to match existing.

2.6 GROUNDING

- .1 Grounding and bonding is to be maintained as existing system.
- .2 Any additional conduit stubs and sleeves are to be bonded to the telecommunications grounding system using insulated grounding bushings.

2.7 BACKBONE GENERAL

- .1 The Contractor shall ensure that the appropriate fire stopping is provided and installed according to the National Building Code, ULC standards, and manufacturer's requirements. Acceptable product is Hilti Fire Stop Systems suitable for specific application encountered.

3. EXECUTION

3.1 HORIZONTAL CABLING INSTALLATION

- .1 Existing communication cabling system is existing, to be relocated as indicated on the drawings. New cables (if required) are to be Category 6, FT6, 4-pair AWG 24 solid core UTP as described on the drawings.
- .2 The maximum cable length for each run will be 90 m, to allow for 3 m extra at the workstation end, and 7 m extra for the patch cord/cross-connect end.
- .3 All cabling shall be continuous, without joins from the wall cover plates to the cross-connect devices.

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- .4 All wires and cables installed by the Contractor shall be contained in properly mounted pathways (existing). Where none of these distribution mediums exist, the individual plenum cables will be formed into cable harnesses, neatly run, properly dressed, supported, and secured with appropriate J-hooks or cable ties. If cable trays are used, the UTP cables shall be partitioned from the power cables and neatly laid into place.
- .5 Wires and cable shall be as short as practical, except that sufficient slack shall be provided to:
 - .1 Prevent undue stress on cable forms, wires and connections.
 - .2 Enable network components to be removed and replaced during servicing, without disconnecting other parts.
 - .3 Facilitate movement of equipment for maintenance purposes.
 - .4 Wires and cables shall be placed and protected to avoid contact with rough surfaces or sharp edges. Where wires or cables run through holes in metal, they shall be protected by suitable grommets or bushings.
 - .5 Horizontal conduit fill shall not exceed 30% of the nominal inside diameter of raceways.
 - .6 Complete labelling and documentation as required and as indicated herein.

3.2 CABLING CLEARANCES

- .1 Clearance between wires and cables and heat emitting devices shall be such as to avoid deterioration of these wires and cables due to heat dissipation from these devices. Maintain a minimum of 300 mm clearance from all domestic or hot water heating piping.
- .2 Minimum clearances between cables and power sources shall be:

<u>Condition</u>	<u>Minimum Separation (480 V Or Less)</u>		
	<u><2 kVA</u>	<u>2-5 kVA</u>	<u>>5 kVA</u>
Unshielded power near open or non-metallic pathway	127 mm	305 mm	610 mm
Unshielded power near	64 mm	152 mm	305 mm

grounded metal conduit

Power lines in grounded shielding or grounded metallic conduit	0 mm	76 mm	152 mm
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Transformers/electrical motors	305 mm	305 mm	305 mm
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Fluorescent lighting	305 mm	305 mm	305 mm
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3.3 TESTING AND WARRANTY

- .1 The vendor must be prepared, trained, and equipped to properly test any new cable, including patch panel to workstation outlet for the horizontal system. All new and relocated (Re-Terminated) horizontal data drops shall be tested individually from both directions.
- .2 Tests shall be performed to include the patch cords with the modular interface components (plug and jack connectors) in a mated state.
- .3 Testing procedures shall be end-to-end, and shall include all new cables and interface components. Testing shall include continuity, cross-talk, attenuation, structural return loss, and time reflectometer readings. All cables and interface components shall be tested as a system to exceed the Class II limits, as specified in the EIA/TIA TSB-67 standard for Category 6. Submit all test results in printed 8½" x 11" paper format, and on a CD. Insert into Administration Documentation manual indicated herein.

END OF SECTION