

## PART 1 - GENERAL

<u>1.1 REFERENCES</u>	.1	Canadian Standards Association (CSA International) .1 CSA-C22.2 No. 214-02, Communications Cables (Bi-National standard with UL 444). .2 CSA-C22.2 No. 232-M1988(R2004), Optical Fiber Cables.
	.2	Telecommunications Industry Association (TIA)/Electronic Industries Alliance (EIA) .1 TIA/EIA-568-B.1-(2001), Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements. .2 TIA/EIA-568-B.2-(2001), Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components. .3 TIA/EIA-568-B.3-(2000), Optical Fiber Cabling Components Standard. .4 TIA/EIA-606-A-(2002), Administration Standard for the Commercial Telecommunications Infrastructure. .5 TIA TSB-140-2004, Telecommunications Systems Bulletin - Additional Guidelines for Field-Testing Length, Loss and Polarity of Optical Fiber Cabling Systems. .6 TIA-598-C-(2005), Optical Fiber Cable Color Coding.
<u>1.2 DEFINITIONS</u>	.1	Refer to TIA/EIA-598-C, Annex A for definitions of terms: optical-fiber interconnect, distribution, and breakout cables.
<u>1.3 SYSTEM DESCRIPTION</u>	.1	Structured telecommunications wiring system consist of unshielded-twisted-pair and optical fiber cables, terminations, connectors, cross-connection hardware and related equipment installed inside building for occupant's telecommunications systems, including voice (telephone), data, and image.
	.2	Installed in physical star configuration with separate horizontal and backbone sub-systems. .1 Horizontal cables link work areas to telecommunications rooms.

---

- 1.3 SYSTEM DESCRIPTION  
(Cont'd)
- .2 (Cont'd)
- .2 Telecommunications rooms linked to main terminal/equipment room (MT/ER) by backbone cables.
- .3 MT/ER also linked to Entrance Room by backbone cables.
- 1.4 SUBMITTALS
- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 As-built Records and Drawings:
- .1 Provide Microsoft Access database reflecting cable installation and cross-connections.
- .2 Provide electronic drawings in AutoCAD 2000 format depicting all construction.
- .3 Provide two (2) bound complete hard-copy sets of as-built records to the Departmental Representative.
- .1 Provide and place one hard copy of as-built records for each telecommunications room in plan holder in each telecommunications room.
- 1.5 QUALITY ASSURANCE
- .1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.
- 1.6 DELIVERY, STORAGE AND HANDLING
- .1 Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
-

## PART 2 - PRODUCTS

- 2.1 FOUR-PAIR 100 Ω .1  
BALANCED TWISTED  
PAIR CABLE Four-pair, 100 ohm balanced unshielded-twisted-pair (UTP) cable, flame test classification FT6 or MPP or CMP to: CSA-C22.2 No. 214, Category 6 (Cat 6) to: TIA/EIA-568-B.2.
- 2.2 WORK AREA UTP .1  
2-PAIR.3 MODULAR JACK Eight-position modular jack ("RJ-45"), type T568 Category 6 to: TIA/EIA-568- B.2:  
.1 In self-contained surface-mount box.  
.2 Mounted in compatible gang faceplate, flush entry.
- .2 Multi-user telecommunications outlet assembly (MUTOA), each port equipped with factory installed "RJ-45" jacks, type T568 Category 6 to: TIA/EIA-568-B.2.
- 2.4 TERMINATION AND .1  
CROSS-CONNECTION  
HARDWARE FOR UTP IDC Terminal strips, 25 pair, for terminating multi 4 pair 100 Ω balanced twisted pair cables and supporting cross-connections using compatible plug-ended patch cords: Category 6 to: TIA/EIA-568-B.2.
- .2 Mount or block for housing 10 IDC terminal strips.  
.1 Distribution rings or channels capable of externally mating with the above mount for managing cross-connection wires.
- .3 Patch panel, 48 ports:  
.1 Each port equipped with factory installed "RJ-45" jacks, type T568 Category 6 to: TIA/EIA-568-B.2.  
.2 Horizontal cable-management unit for every 48 ports.
- .4 Consolidation point, terminates 12 UTP horizontal cables from telecommunications room on IDC terminations. Cables extending to work areas terminate on RJ-45 jacks, type T568. Category 6 to: TIA/EIA-568-B.2.
-

2.5 UTP .1 Category 6, 4 pairs to: TIA/EIA-568-B.2.  
CROSS-CONNECT WIRE

2.6 UTP PATCH CORDS .1 3 metres long, with factory-installed male  
plug at one end to mate with "RJ-45" jack and  
with factory-installed male plug at other end  
to mate with "RJ-45" jack Category 6, 4 pairs  
to: TIA/EIA-568-B.2.

2.7 UTP EQUIPMENT .1 4 pair "pigtail", 3 metres long, with  
CABLE factory-installed male plug on one end to mate  
with "RJ-45" jack and other end equipped with  
factory-installed male plug to mate with  
"RJ-45" jack: Category 6 to: TIA/EIA-568-B.2.

2.8 UTP WORK AREA .1 3 metres long, each end equipped with "RJ-45"  
CORDS plug Category 6 to: TIA/EIA-568-B.2.

### PART 3 - EXECUTION

3.1 INSTALLATION OF .1 Install termination and cross-connect  
TERMINATION AND hardware as indicated and according to  
CROSS-CONNECT manufacturers' instructions. Identify and  
HARDWARE label as indicated to: TIA/EIA-606-A.  
.2 Install consolidation points, as indicated  
according to manufacturer's instructions.  
Identify and label as indicated to:  
TIA/EIA-606-A.

3.2 INSTALLATION OF .1 Install horizontal cables as indicated in  
HORIZONTAL conduits and in cable trays from  
DISTRIBUTION CABLES telecommunication rooms to individual  
work-area jacks. Identify and label as  
indicated to: TIA/EIA-606-A.  
.2 Terminate horizontal cables in  
telecommunications room and at individual  
work-area jacks.  
.1 Identify and label as indicated to:  
TIA/EIA-606-A.

---

- 3.2 INSTALLATION OF HORIZONTAL DISTRIBUTION CABLES (Cont'd) .3 Coil spare cables and store in ceiling space in zone.
- .4 Harness slack cable in cabinets, racks, and wall-mounted termination and cross-connection hardware.
- 3.3 INSTALLATION OF EQUIPMENT CABLES .1 Install equipment cables from equipment patch panel as indicated.
- .1 Identify and label as indicated to: TIA/EIA-606-A.
- 3.4 IMPLEMENT CROSS-CONNECTIONS .1 Implement cross-connections using patch cords as specified.
- 3.5 FIELD QUALITY CONTROL .1 Test horizontal UTP cables as specified below and correct deficiencies provide record of results as hard copy and electronic record on CD.
- .1 Perform tests for Permanent Link on installed cables, including spares:
- .1 Category 6 using certified level III tester to: TIA/EIA-568-B.2.
- .2 Perform tests for Channel on 20 % of cross-connected data horizontal cabling installed from each telecommunications room, including shortest and longest drops from each telecommunications room: should more than 5 % of tested cables fail, test remaining cross-connected data cables.
- .1 Category 6 using certified level III tester to: TIA/EIA-568-B.2.
- .2 Test backbone UTP cables as specified below and correct deficiencies: provide record of results as hard copy and electronic record on CD.
- .1 Perform tests for Permanent Link on 4-pair cables:
- .1 Category 6 using certified level III tester to: TIA/EIA-568-B.2.
- .2 Perform Wire Map tests on multi-pair UTP cables to: TIA/EIA-568-B.1.
- .3 Provide record of results as hard copy and electronic record on CD to: TIA/TSB-140.