

## **PART 1        GENERAL**

### **1.1            REFERENCES**

- .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.

### **1.2            DEFINITIONS**

- .1 Refer to TIA/EIA-598-C, Annex A for definitions of terms: optical-fiber interconnect, distribution, and breakout cables.

### **1.3            SYSTEM DESCRIPTION**

- .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 located on same floor.
  - .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            ACTION AND INFORMATIONAL 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 consultant.
    - .1 Provide and place one hard copy of as-built records for each telecommunications room in plan holder in each telecommunications room.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Waste Management and Disposal: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **PART 2 PRODUCTS**

### **2.1 FOUR-PAIR 100 $\Omega$ BALANCED TWISTED PAIR CABLE**

- .1 Four-pair, 100 ohm balanced unshielded-twisted-pair (UTP) cable, flame test classification to: CSA-C22.2 No. 214, Category 6 (Cat 6).

### **2.2 WORK AREA UTP 4-PAIR MODULAR JACK**

- .1 Eight-position modular jack ("RJ-45"), type Category 6 to:
  - .1 In self-contained recess-mount box, 2 jacks per box.
- .2 Multi-user telecommunications outlet assembly (MUTOA), 4 ports, each port equipped with factory installed "RJ-45" jacks, type Category 6 to: TIA/EIA-568-B.2.

### **2.3 TERMINATION AND CROSS-CONNECTION HARDWARE FOR UTP**

- .1 IDC Terminal strips, 25 pair, for terminating multi pair 100  $\Omega$  balanced twisted pair cables and supporting cross-connections using jumper wires or compatible plug-ended patch cords: Category 6 to: TIA/EIA-568-[B.2].
- .2 Mount or block for housing 12 IDC terminal strips, mounted on wall.
  - .1 Distribution rings or channels capable of externally mating with the above mount for managing cross-connection wires.
- .3 Patch panel, sized as required for all shown connections plus 20%:
  - .1 Each port equipped with factory installed "RJ-45" jacks, type 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 Category 6 to: TIA/EIA-568-[B.2].

## **2.4 UTP CROSS-CONNECT WIRE**

- .1 Category 6, 4 pairs to: TIA/EIA-568-B.2.

## **2.5 UTP PATCH CORDS**

- .1 1 metre 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].

## **2.6 UTP EQUIPMENT CABLE**

- .1 4 pair "pigtail", with 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].

## **2.7 UTP WORK AREA CORDS**

- .1 3 metres long, each end equipped with "RJ-45" plug Category 6 to: TIA/EIA-568-[B.2].

# **PART 3 EXECUTION**

## **3.1 INSTALLATION OF TERMINATION AND CROSS-CONNECT HARDWARE**

- .1 Install termination and cross-connect hardware on wall as indicated and according to manufacturers' instructions. Identify and 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 HORIZONTAL DISTRIBUTION CABLES**

- .1 Install horizontal cables as indicated in conduits or "J" hooks (for plenum rated cable only) from telecommunication rooms to individual work-area jacks. Identify and label as indicated to: TIA/EIA-606-[A].
- .2 Support horizontal cables at intervals not exceeding 2 metres.
  - .1 Where raceways are used to distribute cables to each zone, provide supplementary "J" hooks to support cables at intervals not exceeding 2 metres.
- .3 Install horizontal cables from consolidation point to individual work-area jacks.
  - .1 Provide supplementary "J" hooks to support cables at intervals not exceeding 2 metres.
  - .2 Identify and label as indicated to: TIA/EIA-606-[A].
- .4 Terminate horizontal cables in telecommunications room and at individual work-area jacks.
  - .1 Identify and label as indicated to: TIA/EIA-606-[A].
- .5 Coil spare cables and store in ceiling space in zone.

- .6 Harness slack cable in cabinets, racks, and wall-mounted termination and cross-connection hardware.

### **3.3 INSTALLATION OF BACKBONE CABLES**

- .1 Install backbone cables from each telecommunications room to main terminal/equipment room (MT/ER) as indicated and according to manufacturers' instructions.
  - .1 Identify and label as indicated to: TIA/EIA-606-A.
- .2 Install backbone cables from MT/ER to carrier demarcation point in Entrance Room as indicated and according to manufacturer's instructions.
  - .1 Identify and label as indicated to: TIA/EIA-606-A.

### **3.4 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.

### **3.5 IMPLEMENT CROSS-CONNECTIONS**

- .1 Implement cross-connections using patch cords as specified.