

PART 1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Submittal Procedures: Division 01
	.2	Closeout Submittals: Division 01
	.3	Electrical General Requirements: Section 26 05 01
<u>1.2 REFERENCES</u>	.1	Canadian Standards Association (CSA). .1 CSA C22.2 No. 214-08(R2013), Communications Cables. .2 CSA C22.2 No. 182.4-M90(R2010), Plugs, Receptacles and Connectors for Communication Systems. .3 TIA-569-C, Commerical Building Standard for Telecommunications Pathways and Spaces.
	.2	Electronic Industries Association (EIA). .1 EIA/TIA Bulletin TSB-36, Technical Systems Bulletin Additional Cable Specifications for Unshielded Twisted Pair Cables.
<u>1.3 SYSTEM DESCRIPTION</u>	.1	Structural system of telecommunications cables (copper) installed within buildings for distributing voice and data signals.
	.2	Installed in physical star configuration with separate horizontal and backbone sub-systems. Horizontal cables link work areas to telecommunications closet located on same floor. Telecommunications closets linked to central equipment room by backbone cables.
<u>1.4 SUBMITTALS</u>	.1	Shop drawings to include the following items as minimum. .1 Outlets. .2 Labels. .3 UTP Wire. .4 Patch Cords. .5 Line Cords.

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1.5 MAINTENANCE AND OPERATION .1 Provide maintenance and operation data for incorporation in manual specified in Division 01 requirements.

1.6 WARRANTY .1 Ensure each piece of equipment installed including wiring is warranted by the manufacturer to be free of defects in operation, material and workmanship for a period of 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DATA AND TELEPHONE SYSTEM WIRING .1 4-pair, #23 AWG unshielded twisted pair construction.
.2 Solid copper conductors.
.3 Low smoke, Polyvinyl Chloride (PVC) outer jacket, Complies with CSA FT4 plenum fire rating, type CMR.
.4 For use in 1000 BASE-T Ethernet, other LAN protocols operating up to 4.8 GBps transmission speeds and ATM at all speeds up to 4.8 GBps. Minimum 300 MHz bandwidth.
.5 Category 6.
.6 Guaranteed 4.8 GBps, 300 MHz.
.7 Blue outer covering for Data, White outer covering for telephone.
.8 Standard of Acceptance: Data: Belden 4800 Series, Telephone: Belden 4800 Series.

2.2 OUTLETS .1 Provide single outlets as indicated.
.2 Dual flush mounted outlet.
.1 Two (2) 8 position RJ45 jacks with T568A (ISDN) wiring.
.2 Two (2) blank inserts.
.3 Colour: blue.
.4 Acceptable product: Belden AX101071.

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- 2.2 OUTLETS
(Cont'd)
- .3 Single flush mounted data outlets.
 - .1 One (1) 8 position RJ45 jack with T586A (ISDN) wiring.
 - .2 Three (3) blank inserts.
 - .3 Colour: blue.
 - .4 Acceptable product: Belden AX101071.
 - .4 Acceptable manufacturers: Panduit, AMP, Lucent, Hubble, Ortronics.
- 2.3 COVER PLATES
- .1 Provide flush mount type to accept four (4) modular data outlets.
 - .2 Indicate outlet number of on cover plate. Provide labeling as indicated and to Engineer's requirements.
 - .3 Color: stainless steel.
 - .4 Construction: stainless steel.
 - .5 Weatherproof as indicated.
- 2.4 PATCH AND LINE CORDS
- .1 Provide patch and line cords for connection to individual room equipment and for connection of equipment in Electrical Room.
 - .2 Cords must be from same manufacturer as connectivity components.
 - .3 Quantity: one patch cord and one line cord per outlet plus two (2) spares.
- 2.5 LABELS
- .1 Provide indicating labels on UTP wiring and outlet assemblies.
 - .2 Labels to be:
 - .1 Outlet identification labels. Computers printable type: indicating telephone.
 - .2 Labeling on wire from outlet to termination board: heat shrink labels sized for cables indicating outlet # on respective ends.
 - .3 Co-ordinate labeling with Departmental Representative prior to fabrication.
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- 2.6 CONDUIT SYSTEMS .1 Install conduit systems and pull boxes for wiring to
Sectio 27 05 28 - Pathways for Communications
Systems.
.1 Vertical stubs in walls from outlets into
accessible ceiling space.
.2 Zone conduits for collection of UTP wiring in
ceiling spaces.
.3 Pull boxes.

PART 3 - EXECUTION

- 3.1 INSTALLATION OF .1 Install data and telephone cables as indicated in
TELEPHONE AND
DATA WIRING conduits from termination at the telecommunications
backboard to outlets.
.2 Ensure that manufacturer's bending radius
limitations are adhered to.
.3 Protect cables from damage during installation.
.4 Turn over UTP line cords to the Engineer.

- 3.2 FIELD QUALITY .1 Perform tests in accordance with Section 26 05 00 -
CONTROL Electrical General Requirements.
.2 Testing general:
.1 Cabling and connectors to be tested by an
experienced company employing trained technicians
with minimum 5 years experience in data cabling
industry. Experience to be acceptable to Engineer.
.2 Category 6 cable to meet ANSI standard X3T9.5
(capable of data transmission up to 4.8 G.bps).
.3 Perform system and channel tests after UTP
cable installation to ensure that installation meets
standard indicated above and values indicated in the
IBDN design guide issue 2 (IBDN-DG-9202). Tests to be
performed using a Level IV tester. Minimum tests to
be performed.
.1 Continuity.
.2 Attenuation.
.3 Near and Crosstalk.
.4 Resistance.
.5 Pair Assignment Test.
.6 Low Band Noise.
.7 High Band Noise.
.8 Mid Band Noise.
.9 Length of Cable.
.10 Return loss.

- 3.2 FIELD QUALITY .2 Testing general:(Cont'd)
CONTROL .3 (Cont'd)
(Cont'd)
- .11 ELFEXT.
 - .12 Propagation delay.
 - .13 Deby skew. Perform permanent link test to cover all equipment wiring including patch panels and line cords.
 - .4 Provide to Engineer written copy of testing sequence to be performed, testing equipment to be used and standards to which cable is being tested.
 - .5 Provide a written report to the Engineer indicating each cable tested and the results of the testing. Provide printout from the Level IV tester for each cable.
 - .6 Replace cable and/or connection equipment that fails tests.