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Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 00 10 – General Instructions.
- .2 Section 26 05 00 - Common Work Results for Electrical.

1.2 REFERENCES

- .1 Canadian Standards Association, (CSA International)
 - .1 CSA C22.2 No. 214-2008 (R2013), Communications Cables. (Bi-National Standard, with UL 444).
 - .2 CSA C22.2 No. 232-09 (R2014), Optical Fiber Cables.
 - .3 CSA T568.1-05(R2010), Commercial Building Telecommunications Cabling Standard - Part 1: General Requirements.
- .2 International Electrotechnical Commission (IEC)
 - .1 ISO/IEC 11801:2002, Information technology – Generic Cabling for Customer Premises.
 - .2 IEC 60793-1-32: 2002, Optical Fibres – Part 1-21: Measurement Methods and Test Procedures – Coating geometry.
 - .3 IEC 60793-2-10 Ed. 3.0 B:2009, Optical Fibres – Part 2-10: Product Specifications – Sectional Specification For Category A1 Multimode Fibres.
- .3 Telecommunications Industry Association (TIA)/Electronic Industries Alliance (EIA).
 - .1 TIA/EIA 455-204-2000, FOTP-204 Measurement of Bandwidth on Multimode Fiber.
 - .2 TIA/EIA 492-2000, Specifications for Optical Waveguide Fibers (Includes all current TIA-492 & TIA/EIA-492 Standards).
 - .3 TIA 568-C.1-2009, Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements.
 - .4 TIA 568-C.3-2008, Optical Fiber Cabling Components Standard.
 - .5 TIA TSB-140-2004, (Telecommunications Systems Bulletin) - Additional Guidelines for Field-Testing Length, Loss and Polarity of Optical Fiber Cabling Systems.
 - .6 TIA 598-2005, Optical Fiber Cable Color Coding.

1.3 DEFINITIONS

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

1.4 SYSTEM DESCRIPTION

- .1 Provide fibre optic cables for Fire Alarm Data and Voice Transmission through EMI shielded enclosures to Fire Alarm transponder cabinets. Refer to drawings for details and locations.

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1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 00 10 – General Instructions.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal all packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal and wiring materials from landfill to metal recycling facility as approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products**2.1 OPTICAL FIBRE CABLE (OFC)**

- .1 All fibre optic cable shall conform to the Fire Alarm System Manufacturer's requirements. Specified description is the minimum specification requirement.
- .2 Two (2) pair loose buffer tube 62.5/125 micrometre multi-mode graded index fibre: to CSA T568.

- .3 Design and Performance Specifications

Optical Fiber	62.5/125 µm
Durability	500 mating cycles, <0.20 dB change
Tensile Strength	>25 lbs with <0.20 dB change
Thermal Cycling	-40° to +80° C., <0.30 dB change
Operating Temperature	-40° to +80° C.
High Temperature	80° C. For 96 Hrs. <0.3 dB change
Humidity	60° C. @ 95% RH. 96 Hrs. <0.3 dB change
Vibration (Mated pair)	10-55 Hz, 1.5mm P to P < 0.3dB change
Intermatability	Compliant with TIA 604-2
Insertion Loss	Based on 62.5/125 µm fiber @850 nm

- .4 Fibre Specification

The fibre will be 62.5/125µm and meet the attributes outlined in the following detailed specifications:

- .1 TIA/EIA 492
- .2 IEC 60793-2-10 Ed. 3.0 Type A1B fibre
- .3 ISO/IEC 11801 Type OM1 fibre

The fibre must provide the following Effective Modal Bandwidth (EMB) at 850 um of larger than or equal to 385 MHz.km (EMB => 385 MHz.km). This shall be ensured by standardized laser bandwidth test procedures (Restricted Mode Launch Bandwidth (RML BW) measurement method described in TIA/EIA 455-204 and IEC 60793-1-21.) Each fibre shall be directly measure for laser performance without sampling.

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The fibre shall support the following link lengths for the data rates indicated, where performance is assured by the bandwidth measurements described above: 1 Gb/s over 500m at 850 nm.

The fibre shall be manufactured by the Outside Vapour Deposition (OVD) process.

Cable Construction must be FT-6 rated.

Part 3 Execution**3.1 INSTALLATION OF HORIZONTAL DISTRIBUTION CABLES**

- .1 Install cables in accordance with Manufacturer's recommendations.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Test optical fibre cables for:
 - .1 End-to-end loss at 850 nm, maximum or in accordance with Fire Alarm System Manufacturer requirements to address operation of the Fire Alarm System and associated components.

END OF SECTION