

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 - Common Work Results - Electrical.
- .2 Section 26 05 20 - Wire and Box Connectors (0-1,000 V).
- .3 Section 26 05 34 - Conduits, conduit Fastenings and Conduit Fittings.

### **1.2 REFERENCES**

- .1 Canadian Standards Association (CSA International).
  - .1 CSA C22.2, No. 0.3, Test Methods for Electrical Wires and Cables.
  - .2 CAN/CSA-C22.2, No. 131, Type TECK 90 Cable.
- .2 Underwriters Laboratories of Canada (ULC).
  - .1 ULC-S139-00, Method of Fire Test for Evaluation of Integrity of Electrical Cables.

### **1.3 PRODUCT DATA**

- .1 Produce product data sheets.

### **1.4 DRAWINGS**

- .1 Conductors numbers and sizes are indicated on drawings. If not indicated, the Contractor must never take class lower than Construction Code of Quebec, Chapter V - Electricity requirements with a minimum acceptable size of 12 AWG for copper conductors.
- .2 Not all cabling is indicated on drawings. Indicated cabling is represented schematically and is used to identify circuit number to use. Provide and install all required cabling. The Contractor shall apply correction factors required by the Electrical Code.

## **PART 2 - PRODUCTS**

### **2.1 BUILDING WIRES**

- .1 Conductors twisted if they are size 10 AWG or more; minimum size: 12 AWG.
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- .2 Copper conductors: size as indicated, with 600 or 1,000 V insulation of cross-linked thermosetting polyethylene material rated RW90 or RWU90.
- .3 Each circuit must have a bonding wire (Green Wire). EMT conduit is not acceptable for bonding.
- .4 Each single phase circuit must have dedicated neutral conductor.

## **2.2 TECK CABLE**

- .1 Cables conform to CAN/CSA C22.2 No. 131.
- .2 Conductors:
  - .1 Grounding conductor: copper.
  - .2 Circuit conductors: copper, size as indicated in drawing.
- .3 Insulation:
  - .1 Cross-linked polyethylene RW XLPE, 1,000 V.
- .4 Inner Jacket: polyvinyl chloride (PVC) material.
- .5 Armor: galvanized steel.
- .6 Overall covering: PVC, compliant to FT-4 flammability standards.
- .7 Fastenings:
  - .1 One hole aluminum straps to secure surface cables 53 mm and smaller. Two holes galvanised steel straps for cables larger than 53 mm.
  - .2 Stands "U" for groups of two or more cables, placed at 1,000 mm centers
  - .3 Threaded rods: 6 mm diameter to support suspended "U" channels.
- .8 Connectors:
  - .1 Watertight, approved for TECK cable.

## **2.3 ARMoured CABLES**

- .1 Conductors: insulated, copper, size as indicated.
  - .2 Type: AC90.
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- .3 Armour: interlocking type fabricated from aluminum strip.
- .4 Connectors: anti-short connectors.

## **2.4 CONTROL CABLES**

- .1 Type: LVT: 2 or more soft annealed copper conductors, sized as indicated in drawing, as insulation: thermoplastic sheath: thermoplastic jacket, and armour of closely wound aluminum wire.
- .2 Type: low energy 300 V control cable: stranded annealed copper conductors sized as indicated in drawing, insulation: PVC, TW 40 degrees C, or polyethylene, overall covering: PVC jackets FT-4 or protected with armour steel strip.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION OF BUILDING WIRES**

- .1 Install wiring as follows:
  - .1 In conduit systems in accordance with Section 26 05 34 - Conduits, Conduit Fastenings, and Conduit Fittings.

### **3.2 INSTALLATION OF TECK CABLE (0 -1,000 V)**

- .1 Install cables:
  - .1 Where possible, group the cables on supports "U".
- .2 Finish the ends of cables in accordance with Section 26 05 20 - Connectors for cables and boxes (0-1,000 V).
- .3 Use TECK cable only when indicated on drawings.

### **3.3 INSTALLATION OF ARMOURED CABLES**

- .1 In general, all wiring is in conduit. However, the following options are allowed in the following special cases:
    - .1 Where the ceilings are open (removable tiles) the basic frame of the lighting circuits must be in conduit with junction boxes anchored to the building structure and spread evenly over the entire surface of the facility. From junction boxes distributed, it is possible to connect each fixture individually with armored cable AC-90. However, it
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should not be more than four fixtures individually connected to each junction box and the maximum allowable cable length is 3 m.

- .2 The armored cable AC-90 can also be used in the same manner and under the same conditions as for luminaries in paragraph 3.4.1.1 for vertical descents in the walls and/or walls covered with gypsum board to connect the wiring devices to a junction box in between ceiling. The maximum allowable cable length is 3 m.
- .3 The connection type garland ("Daisy Chain") is not allowed.
- .2 Group cables wherever possible.
- .3 Finish the ends of cables in accordance with Section 26 05 20 - Connectors for cables and boxes (0-1,000 V).
- .4 Unless otherwise indicated, all wiring is hidden in the architectural elements. Unless otherwise specified, no surface installation is permitted without prior approval of the Engineer.

### **3.4 INSTALLATION OF CONTROL CABLES**

- .1 Install control cables in conduit.
- .2 Ground control cable shield.

**END OF SECTION**

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