

## CABLE TRAYS

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### **1. GENERAL**

#### **1.1 Description**

- .1 Provide a complete system of cable trays as shown on the drawings c/w all supports and hangers and seismic bracing necessary for the installation.
- .2 Coordinate the location of the support channels so as not to interfere with other services.

#### **1.2 Shop Drawings and Product Data**

- .1 Submit Shop Drawings and product data in accordance with Section 01300 – Submittals.
- .2 Indicate various types of cabletroughs with terminology used in Part 2.
- .3 Prior to construction, submit design drawings and calculations indicating all tray loading and seismic support designs have been reviewed by and bear the stamp of a Professional Engineer registered in the Province of Manitoba.

### **2. PRODUCTS**

#### **2.1 Cabletray**

- .1 All power trays shall be rigid aluminum ladder type, Class E to CSA C22.2 No. 126 with 300 mm rung spacing, 150 mm side rails and width as indicated on Drawings.
- .2 All I&C trays to be rigid aluminum ventilated with 300 mm rung spacing, 150 mm side rails and width as indicated on Drawings.
- .3 Horizontal elbows, end plates, drop outs, vertical risers and drops, tees, wyes, expansion joints, reducers and other fittings where required. Field fabricate only those fittings not available from manufacturer.
- .4 Provide stainless steel rod hanger clamps, rod hangers, wall mounting support brackets and all necessary accessories for complete installation.
- .5 Barriers where different voltage systems or electrical systems are in the same cabletrough, or as indicated.
- .6 Approved manufacturers: Pilgrim, Unitray, B-Line, Comtray, Canstrut, ElectroTray.
- .7 Unless otherwise approved by the Contract Administrator, provide cable trays of the same manufacturer throughout the contract

#### **2.2 Supports**

- .1 Provide stainless steel rod hangers, rod hanger clamps and accessories as required.

## CABLE TRAYS

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- .2 Wall mounted support brackets: Provide aluminum channel strut supports mounted vertically in concrete wall c/w mounting brackets sized to suit cabletray width and loading.

### 3. EXECUTION

#### 3.1 Installation

- .1 Suspend cabletrays on rod hangers and hanger clamps or channels spaced as required by loading classification rating and not more than 3000 mm on centers. Fasten hangers to channels securely mounted to the structure and provide seismic restraint as required.
- .2 Install trays and raceways generally as indicated on Drawings. Coordinate this Work with the other trades to ensure adequate horizontal and vertical clearances.
- .3 Provide minimum vertical clearance above the trays as indicated on the Drawings.
- .4 Provide minimum 600 mm horizontal clearance on one side of cabletray throughout.
- .5 All trays are shown diagrammatically on the Drawings. Determine the exact location in the field. Install tray runs to prevent interference with process or service piping and ducting and to maintain clearance for tray access. Coordinate the exact location of tray supports and runs with the work of other Divisions.
- .6 Do not install tray routes and tray supports until the location of same has been reviewed by the Contract Administrator.
- .7 Install tray systems in such a manner as to conserve head-room and minimize the use of free space through which they pass. Maintain a minimum 2100 mm clear head-room wherever possible.
- .8 Run trays parallel to building lines unless otherwise shown on the drawings. A tray in tunnel areas to run parallel with the ceiling lines as the floor is graded for drainage. Where two or more trays run the same route, make parallel and ensure offsets and bends are uniform.
- .9 When the ends on Unistrut type shelf brackets are below 2100 mm AFF in a walking area, cut flush with tray. Permanently cap the end of Unistruts, etc. with plastic caps. Suitably protect sharp corners and edges of tray to prevent personal hazard.
- .10 Use beam clamps to fasten support systems to structural steel. Do not weld, drill or cut structural steel without approval by the Contract Administrator.
- .11 Where hanger rods are used, use stainless steel and not be smaller than 12 mm in diameter.
- .12 Extend a stranded #2/0 tin plated bare copper ground conductor the length of each power tray route, and solidly connect sections of tray runs to the ground bus of the electrical room. Connect ground conductor to tray every 15 m with approved grounding clamps. Provide a #6 tin plated copper ground conductor in the instrumentation trays, or where instrumentation

## **CABLE TRAYS**

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tray runs are parallel to power tray, bond instrumentation tray to power tray ground every 15 m.

- .13 Generally run cables of different voltage classes in separate trays. Where a common tray is shown on Drawings, separate the cables for different voltage classes from each other by metal barriers as supplied by the tray Manufacturer.
- .14 Check all trays for surface smoothness prior to installation and remove all burrs, ridges, etc. on tray surfaces facing cables.
- .15 Size cabletrays as indicated on Drawings. If any discrepancies are found or changes in tray size are required, advise the Contract Administrator before installing the tray.

### **3.2 Cables in Cabletray**

- .1 Install cables individually.
- .2 Lay cables into cabletray. Use rollers when necessary to pull cables.
- .3 Secure cables in cabletrough at 5 m centers, with nylon ties.
- .4 Identify cables with nameplates in accordance with Section 16010 – Electrical General Requirements.
- .5 Mark power and communication runs in accordance with colour coding outlined in Section 16010 - Electrical General Requirements.

**END OF SECTION**