SECTION 16133

CABLE TRAYS FOR ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cable tray.

1.2 REFERENCES


B. ASTM A 525 – Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

C. NEMA FG 1 (National Electrical Manufacturers Association) - Fiberglass Cable Tray Systems.

D. NEMA VE 1 (National Electrical Manufacturers Association) - Metal Cable Tray Systems.

E. NEMA VE 2 (National Electrical Manufacturers Association) - Cable Tray Installation Guidelines.

1.3 SUBMITTALS

A. Section 01330 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate tray type, dimensions, support points, and finishes.

C. Product Data: Submit fittings and accessories.

D. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.4 CLOSEOUT SUBMITTALS

A. Section 01770 - Execution Requirements: Closeout procedures.

B. Project Record Documents: Record actual routing of cable tray and locations of supports.
1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE AND HANDLING

A. Materials: Materials shall be new and shall be delivered to the job site in the original packaging.

1.7 PRE-INSTALLATION MEETING

A. Section 01330 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

PART 2 -PRODUCTS

2.1 METAL LADDER-TYPE CABLE TRAY

A. Product Description: NEMA VE 1, Class 20C ladder type tray.

B. Material: Steel.

C. Finish: ASTM A 123, hot dipped galvanized after fabrication or ASTM A 525, mill-galvanized before fabrication if design requires paint epoxy on PVC coated.

D. Inside Width: As indicated.

E. Inside Depth: As indicated.

F. Straight Section Rung Spacing: As indicated.

G. Inside Radius of Fittings: As indicated.

H. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps.

I. Covers: Flanged, non-flanged, solid, ventilated, flush or raised cover as required by design.

2.2 METAL TROUGH-TYPE CABLE TRAY

A. Product Description: NEMA VE 1, Class 20C ventilated trough-type cable tray.

B. Material: Steel or Aluminum.

C. Finish: ASTM A 123, hot dipped galvanized after fabrication or ASTM A 525, mill-galvanized before fabrication if design requires paint epoxy on PVC coated.

D. Inside Width: As indicated.
E. Inside Depth: As indicated.

F. Inside Radius of Fittings: As indicated.

G. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps.

H. Covers: Flanged, non-flanged, solid ventilated flush or raised cover as required by design.

2.3 METAL SOLID-BOTTOM-TYPE CABLE TRAY

A. Product Description: NEMA VE 1, Class 20C solid-bottom cable tray.

B. Material: Steel.

C. Finish: ASTM A 123, hot dipped galvanized after fabrication or ASTM A 525, mill-galvanized before fabrication if design requires painted epoxy on PVC coated.

D. Inside Width: As indicated.

E. Inside Depth: As indicated.

F. Inside Radius of Fittings: As indicated.

G. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps.

H. Covers: Flanged, non-flanged, solid ventilated flush or raised cover as required by design.

2.4 METAL CHANNEL-TYPE CABLE TRAY

A. Product Description: NEMA VE 1, Class 20C, solid bottom or ventilated bottom channel-type cable tray.

B. Material: Steel.

C. Finish: ASTM A 123, hot dipped galvanized after fabrication or ASTM A 525, mill-galvanized before fabrication if design requires paint epoxy on PVC coated.

D. Inside Width: As indicated.

E. Outside Depth: As indicated.

F. Inside Radius of Fittings: As indicated.

G. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps.

H. Covers: Flanged, solid or ventilated cover as design requires.
2.5 FIBERGLASS LADDER-TYPE CABLE TRAY
A. Product Description: NEMA FG 1, ladder type tray.
B. Material: Fiberglass.
C. Inside Width: As indicated.
D. Inside Depth: As indicated.
E. Straight Section Rung Spacing: 6” on center.
F. Inside Radius of Fittings: As indicated.
G. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, and connectors.
H. Covers: Flanged, non-flanged, solid, ventilated, flush and/or raised cover as required by design.

2.6 FIBERGLASS TROUGH-TYPE CABLE TRAY
A. Product Description: NEMA FG 1, Class 20C ventilated trough-type tray.
B. Material: Fiberglass.
C. Inside Width: As indicated.
D. Inside Depth: As indicated.
E. Inside Radius of Fittings: As indicated.
F. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, and connectors.
G. Covers: Flanged, non-flanged, solid, ventilated flush and/or raised cover as required by design.

2.7 FIBERGLASS SOLID-BOTTOM-TYPE CABLE TRAY
A. Product Description: NEMA FG 1, Class 20C solid bottom cable tray.
B. Material: Fiberglass.
C. Inside Width: As indicated.
D. Inside Depth: As indicated.
E. Inside Radius of Fittings: As indicated.
F. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, and connectors.
2.8 FIBERGLASS CHANNEL-TYPE CABLE TRAY

A. Product Description: NEMA FG 1, Class 20C solid bottom or ventilated channel type cable tray.

B. Material: Fiberglass.

C. Inside Width: As indicated.

D. Outside Depth: As indicated.

E. Inside Radius of Fittings: As indicated.

F. Provide manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, and connectors.

G. Covers: Flanged, solid or ventilated cover as required by design.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install metal cable tray in accordance with NEMA VE 2.

B. Install fiberglass cable tray in accordance with NEMA FG 1.

C. Support trays and fasten to structure and finishes as specified elsewhere in Electrical specifications. Provide supports at each connection point, at the end of each run, and at other points to meet manufacturer’s installation requirements.

D. Use expansion connectors where required.

E. Provide firestopping under provisions of Section 07840 to sustain ratings when passing cable tray through fire-rated elements.

F. Ground and bond metal cable tray as specified elsewhere in Electrical specifications.

1. Ensure continuity between tray components.

2. Use anti-oxidant compound to prepare aluminum contact surfaces before assembly.

3. Connections to tray may be made using mechanical, compression or exothermic connectors.

3.2 WARNING SIGNS (WHERE APPLICABLE)

A. Engraved Nameplates: ½ inch black letters on yellow laminated plastic nameplate, or adhesive vinyl label with the following wording:
WARNING! DO NOT USE CABLE TRAY AS WALKWAY, LADDER, OR SUPPORT. USE ONLY AS MECHANICAL SUPPORT FOR CABLES AND TUBING!

B. Install warning signs at 20 foot centers along cable tray, located to be visible.

END OF SECTION