SECTION 27 05 28 - CABLE TRAYS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of cable tray work is indicated by schedules and by the requirements of this section. Cable trays are defined to include, but are not necessarily limited to, straight sections, reducers, bends, tees, crosses, elbows, and accessories. The types of cable tray systems required for this project are solid trough cable trays with continuous corrugated bottoms and covers for cable outdoors and ladder type cable tray without covers indoors.

1.02 QUALITY ASSURANCE

A. Manufacturers: Provide products produced by a company, which has not less than ten (10) years successful manufacturing experience of the type of cable tray specified herein.

B. Installer: A firm with at least three years of successful installation experience on projects with cable tray system work similar to that required for project.

C. NEMA Compliance: Comply with NEMA Stds Pub. No. VE 1, “Cable Tray Systems.”

D. NEC Compliance: Comply with National Electrical Code (NFPA No. 70), as applicable to cable tray installation. See Article 318.

E. UL Compliance: Provide support and mounting products, which have been listed and labeled by Underwriter’s laboratories.

F. NECA Compliance: Comply with applicable portions of National Electrical Contractors Association’s “Standard of Installation.”

1.03 SUBMITTALS

A. Submit layout Drawings with complete Owner supplied materials list for installed cable tray system and accessories including clamps, brackets, hanger rods, and fittings, showing accurately scaled components and spatial relationships to adjacent equipment.

1.04 PRODUCT DELIVER, STORAGE AND HANDLING

A. Handle cable tray system and components carefully to avoid breakage, denting and scoring finishes. Do not install damaged equipment; return damaged units to Construction Manager for replacement. Store cable trays and accessories in original cartons and in clean dry space; protect from weather and construction traffic.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

A. CabloFil, Chatsworth, B-Line, or approved equal.

2.02 CABLE TRAYS

A. Cable tray will consist of continuous, rigid, welded steel wire mesh cable management system, to allow continuous ventilation of cables and maximum dissipation of heat, with UL Classified splices where tray acts as Equipment Grounding Conductor (EGC).

B. Mesh: 2 x 4 inches

C. Fittings: Wire mesh cable tray fittings are field-fabricated from straight tray sections, in accordance with manufacturer's instructions

D. Accessories: Each type cable tray shall be supplied withal hardware necessary for complete assembly of the cable tray including, but not limited to, splice plates, bolts, nuts, screws, etc.

E. Provide splices, supports, and other fittings necessary for a complete, continuously grounded system.

F. Fittings/Supports: Wire mesh cable tray fittings are field-fabricated from straight tray sections, in accordance with manufacturer's instructions. Supports will include screws, bolts, and additional tools are not required for cable tray mounting; installation time is reduced; and tray path can adapt to installation obstacles without the need for additional parts. Place supports so that support span does not exceed manufacturer recommendations.

PART 3 - EXECUTION

3.01 INSTALLER

A. Installer must examine areas and conditions under which electrical cable trays are to be installed, and notify Contractor in writing of those conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.02 INSTALLATION OF CABLE TRAYS

A. Install cable trays as indicated, in accordance with manufacturer's written instructions and with recognized industry practices to ensure that trays comply with requirements and serve intended purposes. Comply with requirements of NEMA Standard No. VE 1 and National Electrical Code pertaining to installation of electrical cable trays.

B. Coordinate with other electrical work as necessary to properly interface installation of cable trays with other work. Remove burrs and sharp edges of cable trays, wherever these could possibly be injurious to wiring insulation or jacketing. Electrically ground cable trays and ensure continuous electrical conductivity of cable tray system, with a maximum of 3.0 OHMS resistance to building ground connection. Complete cable tray installation before starting installation of cables or raceways. Provide sufficient space encompassing cable trays to permit access for installing and maintaining cables.

C. Install cable tray level and plumb according to manufacturer's written instructions, Coordination Drawings, original design, and referenced standards.

D. Wire mesh cable tray shall be secured to the structural ceiling, building truss system, wall or floor using manufacturer's recommended supports and appropriate hardware as defined by local code or the authority having jurisdiction (AHJ).

E. Use installation tools recommended by the manufacturer to field fabricate wire mesh cable tray intersections and changes in elevation. Use side-action bolt cutters with an offset head to cut wire mesh cable tray. Use a bending tool to form the ends of cut sections downward at 90° to allow easy drop-in installation with approved supports.

F. When the pathway is overhead, wire mesh cable tray shall be installed with a minimum clearance of 12" above the tray. Leave 12" in between the tray and ceiling/building truss structure. Multiple tiers of wire mesh cable tray shall be installed with a minimum clearance of 12" in between the trays. When located above an acoustical drop ceiling, wire mesh cable tray shall be installed a minimum of 3"

above the drop ceiling tiles.

G. Wire mesh cable tray shall be supported every 5' or less in accordance with ANSI/EIA/TIA-569-A. Supports may be located directly under splices or intersections if recommended by the manufacturer's installation instructions. If supports are not located under splices or intersections, wire mesh cable tray shall be supported within 2' on both sides of every splice or intersection. Support wire mesh cable tray on both sides of every change in elevation.

H. Wire mesh cable tray shall be bonded to the Telecommunications Grounding Busbar (TGB) using an approved ground lug on the wire basket tray and a minimum #6 grounding wire or as recommended by the AHJ. Verify bonds at splices and intersections between individual cable tray sections and supports. Cable pathway should be electrically continuous through bonding and attached to the TGB.

I. The quantity of cables within the tray will not exceed a whole number value equal to 50% of the interior area of the tray divided by the cross-sectional area of the cable. Cable fill will not exceed the depth of the cable tray's side rail. The combined weight of cables within the tray will not exceed stated load capacity in manufacturer's specifications.

J. Certified Installers: Cable tray installers must have successfully complete a certified installer program offered by the manufacturer of the cable tray to be installed.

3.03 TESTING

A. Test cable trays to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance.

3.04 WARNING SIGNS

A. After installation of cable trays is completed, install warning signs, either on or in proximity of cable trays, where easily seen by occupants of space, and indicating warning with following wording, "Warning! Not to be used as walkway." Provide 1- ½" high yellow lettering on black background, of style selected by Architect.

END OF SECTION