SECTION 27 05 36

CABLE TRAYS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This section shall govern the products and installation of all necessary parts, pieces and accessories of a cable tray system for communications and other low-voltage cabling.

1.2 RELATED DOCUMENTS

A. The latest versions of the following codes, standards, and guidelines shall be followed. Bring to ITS' immediate attention where construction documents or conditions differ from requirements in codes, standards, guidelines and specifications.

B. The following codes, as required by law:

1. National Electric Code (NEC)

C. The following standards:

1. ASTM A 510 - Specifications for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel
2. ASTM B 633 - Specifications for Electrodepositing Coatings of Zinc on Iron and Steel, Sections SC2 and SC3.
3. ASTM A653 - Specifications for Steel Sheet, Zinc-Coated (Galvanized) by Hot Dip Process
4. ASTM A123 -Specifications for Zinc (Hot Galvanized) Coatings on Iron and Steel.
5. ASTM A276-06 - Standard Specification for Stainless Steel Bars and Shapes
6. ASTM A580/A580M-06 Standard Specification for Stainless Steel Wire
7. NECA/BICSI-568-2006, Standard for Installing Commercial Building Telecommunications Cabling
8. TIA-569-B Commercial Building Standard for Telecommunications Pathways and Spaces
9. ANSI/TIA--607-B - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises

D. The following guidelines:

1. BICSI, Telecommunications Distribution Methods Manual (TDMM)
2. BICSI, Information Transport Systems Installation Methods Manual (ITSIMM)
3. NEMA-VE2, Metal Cable Tray Installation Guidelines
4. NFPA 70B, Recommended Practice for Electrical Equipment Maintenance

1.3 QUALITY ASSURANCE:

A. All cable trays, including all parts, pieces and connections, shall be certified from a NRTL for the intended purpose.

1.4 SUBMITTALS

A. The following submittals are due at the Pre-Construction Phase, in accordance with submittal requirements in Section 27 00 00 Communications:

1. Product Information

a) Provide manufacturer's product information cutsheet or specifications sheet with the specific product number identified or filled out.

b) Include documentation from manufacturer that the cable tray system has been UL-tested to be continuously grounded.

c) Where the desired distance between cable tray supports is greater than 5', provide calculations indicating maximum distance given the worst-case load factor (for the area with the greatest density of cables).

2. Shop Drawings

a) In conjunction with horizontal and backbone cable routing, provide scaled drawings (not less than 1/8" = 1'-0") indicating routing of cable and means of support (where supported by cable tray vs. j-hooks). *These locations are to be fully coordinated with all other trades.*

b) Where submitted locations of cable trays differ from those in the contract documents, note the shop drawings with the reason for the relocation.

B. The following submittals are due Post-Construction, in accordance with the submittal requirements in Section 27 00 00 Communications:

1. Record Drawings

a) In conjunction with horizontal and backbone cable routing, provide scaled drawings (not less than 1/8" = 1'-0") indicating routing of cable and means of support. Design drawings or shop drawings modified in the field will not be accepted.

2. Manufacturer and Maintenance Manuals for all installed equipment.

a) Provide manufacturer's product information cutsheet or specifications sheet with the specific product number identified or filled out.

b) List of bill of materials, including all parts, pieces and connectors required for installation of the cable tray system.

PART 2 – PRODUCTS

2.1 GENERAL

A. The cable tray system shall be Listed for its location and intended purpose.

B. The cable tray system shall be Listed to allow for continuous grounding. Refer to execution section for additional grounding requirements.

2.2 CABLE TRAY (WIRE MESH)

A. Shall be an approximately 2" x 4" grid construction welded wire linear mesh.

B. Finish shall be: Electro-Zinc or Hot Dipped Galvanized (UON)

C. Manufacturer shall be:

1. Cablofil, CF Series

2. Chatsworth OnTrac Series

3. Snake Tray, Mega Snake
4. Or approved equivalent

2.3 RIGID CABLE TRAY

A. To be utilized only where specifically called out on the drawings.

1. For excessively high structures, rigid cable tray may be utilized to minimize the number of ceiling supports. Submit question during bid-window or as a construction RFI requesting use of rigid cable tray. Rigid cable tray may not be utilized without express written permission from the Owner.

B. Material shall be aluminum or steel.

C. All bends, intersections, and changes in direction shall be modular (pre-manufactured). Field modifications are not acceptable.

D. Manufacturer shall be:

1. Cablofil, PW
2. Or submit equivalent

2.4 CABLE TRAY (SPECIAL APPLICATION)

A. G-shaped Cable Tray

1. For areas where specifically identified on the drawings. For other areas, submit question during bid-window or as a construction RFI requesting use of G-shaped cable tray.
2. Manufacturer shall be:
   a) Cablofil, CFG and G-MINI Series
   b) Snake Tray, Series 201
   c) Or approved equivalent

PART 3 - EXECUTION

3.1 GENERAL

A. Minimum clearances for cable tray:

1. Maintain as much separation from EMI sources as practical. At a minimum, cable tray shall be installed at least:
   a) 6” away from fluorescent light fixtures
   b) 6” away from power lines (circuits) enclosed in a grounded metal conduit
   c) 48” away from electrical motors and transformers
2. Install a minimum of 3” above accessible ceiling T-bars and 6” if the space exists.
3. Install with 12” headroom above cable tray (where space exists).
   a) Coordination with other trades is imperative. It is the telecommunications sub-contractor and the general contractor’s responsibility to ensure all ductwork, piping, etc. of other trades is installed to allow successful installation of cable tray. The final location

of cable tray shall allow future cables to be easily installed; cables shall not have to be pulled through cable tray due to the top being inaccessible.

b) Where overhead space is restricted, consider relocation of cable tray or the use of G-shaped Cable Tray. Where G-shaped cable tray is desired, submit an RFI identifying the desired change/location and the reason.

4. Where this clearance is not possible, project must reroute cable tray at no cost to the owner.

a) Cable tray may be relocated at the telecommunications sub-contractor discretion, provided that it is within the footprint of the same room(s) as indicated on the construction drawings, and the sub-contractor notes the new routing on the Record Drawings.

b) Where cable tray needs to be relocated above different room(s) than indicated on the construction drawings, Telecommunications Subcontractor is to submit an RFI with proposed new location.

B. For planning cable tray pathways, the maximum pathway fill shall be 25% by calculation, which appears to be approximately 50% full. Where installed cable quantities are expected to exceed this ratio, submit question during bid-window or as a construction RFI requesting possible up-size of the cable tray.

C. Follow all manufacturers' instructions.

D. Coordinate with all other trades prior to installation.

E. Telecommunications cables shall not be supported by any other trades, and shall be fully-supported by independent methods (e.g., 3/8" threaded rod).

F. Grounding and Bonding

1. Each cable tray section shall be properly bonded together with Listed splices or connections.

2. Bond the cable tray to the telecommunications bonding and grounding system every 50'-60'.

3. Refer to section 27 05 26 for additional grounding and bonding requirements in regards to cable tray.

3.2 CABLE TRAYS

A. Support cable trays every 5' (or less, where specifically required by manufacturer instructions). The length between cable tray supports may exceed 5'; provide calculations along with product submittal indicating maximum distance given the worst-case load factor (for the area with the greatest density of cables). This support distance or less shall be maintained throughout the project.

END OF SECTION