

SECTION 16

WIRE BASKET SUPPORT SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, tests and services to install complete wire basket cable tray systems and cable tray support systems as shown on the drawings.
- B. Wire basket cable tray systems and support systems are defined to include, but are not limited to straight sections of continuous wire mesh, factory prefabricated horizontal turns, four way intersections, tees, drop outs, supports and accessories.

1.02 REFERENCES

- A. ANSI/NFPA 70 – 2008 National Electrical Code.
- B. ASTM B 633 – Specification for Electrodeposited Coatings of Zinc on Iron and Steel
- C. ASTM A 653 – Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process
- D. ASTM A 123 – Specification for Zinc (Hot Galvanized) Coatings on Iron and Steel
- E. ASTM A 510 – Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel
- F. NEMA VE 1-2002 – Metal Cable Tray Systems
- G. NEMA VE 2-2002 – Cable Tray Installation Guidelines
- H. ASTM A 641 – Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
- I. ASTM A 580 – Standard Specification for Stainless Steel Wire

1.03 DRAWINGS

- A. The drawings, which constitute a part of these specifications, indicate the general route of the wire basket support systems. Data presented on these drawings is as accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification of all dimensions, routing, etc., is required.
- B. Specifications and drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Contractor is

directed to make field surveys as part of his work prior to submitting system layout drawings.

1.04 SUBMITTALS

- A. Submittal Drawings: Submit drawings of wire basket and accessories including straight and prefabricated junctions.
- B. Product Data: Submit manufacturer's data on wire basket support system including, but not limited to, types, materials, finishes and inside depths.

1.05 QUALITY ASSURANCE

- A. NEC Compliance: Comply with NEC, as applicable to construction and installation of cable tray and cable channel systems (Article 392, NEC).
- B. NFPA Compliance: Comply with NFPA 70B, "Recommended Practice for Electrical Equipment Maintenance" pertaining to installation of cable tray systems.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver wire basket support systems and components carefully to avoid breakage, bending and scoring finishes. Do not install damaged equipment.
- B. Store wire basket and accessories in original cartons and in clean dry space; protect from weather and construction traffic.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with these specifications, only manufacturers of complete prefabricated cable tray system shall be acceptable. No field modification of factory prefabricated parts shall be allowed except as expressly approved beforehand in writing by the owner or owner's representative. All cable tray and fittings shall be UL Classified and said Classification shall not be compromised by field modification.
- B. Acceptable manufacturers:
 - a. Wiremaid Products Division, 11711 W Sample Road, Coral Springs, Florida 33065. Phone (954) 545-9000 Facsimile (954) 545-9011. Website: www.wiremaidcabletray.com Email: info@cablemgr.com
 - b. Or approved equal

2.02 WIRE BASKET SECTIONS AND COMPONENTS

- A. General: Provide wire basket of types and sizes indicated; with bonding and splice loops built into the tray system as a UL Classified method of providing an Equipment

- Ground Conductor. All fittings, junctions, and transitions must be factory prefabricated parts with matching bonding and splice mechanism built into them with bolts fastening one section securely to the next. No field modifications, no cutting and bending of tray, will be permitted.
- B. Due to the well recognized hazards presented to microelectronics by “Zinc Whiskers”, all cable tray shall be either epoxy powder coated or stainless steel. Except for that required for bonding, no unfinished zinc shall be permitted in any indoor area and especially not in any TR, Equipment Room, or Data Center.
- C. Materials and Finishes: Material and finish specifications for [**Carbon Steel Wire**] [**Stainless Steel Wire**] are as follows:
1. Stainless Steel: Straight sections and accessories shall be made from AISI Type [**304L**][**316L**] Stainless Steel meeting the minimum mechanical properties of ASTM A 580.
 2. Black Powder Coat (preferred method for all but outdoor and/or areas requiring stainless steel): Straight sections shall be epoxy powder coated (INSERT COLOR) with an average paint thickness of 1.2mils (30microns) to 3.0mils (75microns).
 3. Hot Dipped Galvanizing: Straight sections shall be made from steel meeting the minimum mechanical properties of ASTM A 510, Grade 1008 and shall be hot dipped galvanized after fabrication in accordance with ASTM A 123.

2.03 TYPE OF WIRE BASKET SUPPORT SYSTEM

- A. All straight section longitudinal wires shall be constructed with a straight top wire. In no case shall the top wire be bent either before or after installation.
- B. Wire basket shall be made of high strength steel wires and formed into a standard 2 inch by 4 inch wire mesh pattern with intersecting wires welded together. All mesh sections must have at least one bottom longitudinal wire along entire length of straight section.
- C. Wire basket sizes shall conform to the following nominal criteria:
1. Straight sections shall be furnished in standard 120 inch lengths.
 2. Factory prefabricated junctions 12 inches or less shall have nominal length of 24 inches and junctions 12 inches wide or greater shall have a nominal length of 36 inches.
 4. Wire basket shall have a 2 inch usable loading depth by [**6**][**8**][**12**][**18**][**24**][**36**] inches wide.
 5. Wire basket shall have a 4 inch usable loading depth by [**6**][**8**][**12**][**18**][**24**][**36**] inches wide.

6. Wire basket shall have a 6 inch usable loading depth by [6][8][12][18] [24][36] inches wide.
- D. All fittings shall be factory prefabricated in standard sizes with smooth radiused edges per NFPA 70 (392.5B – “cable trays shall not have sharp edges, burrs, or projections that could damage the insulation or jackets of the wiring”).
- E. The only acceptable splicing method shall be UL/CSA approved as an Equipment Ground Conductor (EGC). This splicing method shall consist of a factory installed and prefabricated bonding and splicing loops welded to the cable tray at each end. These loops shall be secured to the next tray section by interlocking means and fastened with bolts torqued to 35 foot pounds.
- F. Wire basket supports shall be center support hangers, trapeze hangers or wall brackets as manufactured by manufacturer of the cable tray per NFPA 70 (392.6A – “Cable trays shall be installed as a complete system”). Such supports shall be in all cases epoxy powder coated (or stainless steel) to match the cable tray construction.
- G. Trapeze hangers or center support hangers shall be supported by 1/4 inch or 3/8 inch diameter threaded rods or cable suspension systems UL Listed for load capacity of suspended tray and cables.
- H. Special accessories shall be furnished as required to protect, support and install a wire basket support system.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install wire basket as indicated; in accordance with recognized industry practices (NEMA VE-2 2002), to ensure that the cable tray equipment complies with requirements of NEC, and applicable portions of NFPA 70B and NECA’s “Standards of Installation” pertaining to general electrical installation practices.
- B. Coordinate wire basket with other electrical work as necessary to properly interface installation of wire basket runway with other work.
- C. Provide sufficient space encompassing wire basket to permit access for installing and maintaining cables.

3.02 TESTING

- A. Test wire basket support systems to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance. See NFPA 70B, Chapter 18, for testing and test methods.

END OF SECTION