SECTION 16114 - WIRE BASKET CABLE SUPPORT SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included in This Section: Materials, equipment, fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction for the following:
   1. Wire mesh cable tray support systems

B. Related Work in Other Sections:
   1. Conduit and wiring - BASIC MATERIALS AND METHODS Section.

1.02 INCORPORATED DOCUMENTS

A. Documents affecting work of this Section include, but are not limited to, Conditions of the Contract and Sections in Division 01 of these Specifications.

B. Professionally recognized published specifications, standards, tests or recommended methods of trade, industry or governmental organizations apply to work in this Section where cited below but not limited to:
   1. ANSI/NFPA 70 - National Electrical Code.
   2. ASTM B 633 - Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
   3. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process.
   4. ASTM A 123 - Specification for Zinc (Hot Galvanized) Coatings on Iron and Steel.
   5. ASTM A 510 - Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.
   6. NEMA VE 1-2002 - Metal Cable Tray Systems.
   7. NEMA VE 2-2002 - Cable Tray Installation Guidelines.
   8. ASTM A 641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
   9. ASTM A 580 - Standard Specification for Stainless Steel Wire
   10. ASTM D 769 - Standard Specification for Black Oxide Coatings

1.03 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. Supply all equipment and accessories new and free from defects.

C. Supply all equipment and accessories in compliance with the applicable standards listed in Article 1.02 of this Section and with all applicable national, state and local codes.

D. All items of a given type shall be the products of the same manufacturer.

E. NEC Compliance: Comply with NEC, as applicable to construction and installation of cable tray and cable channel systems (Article 318, NEC).

F. NFPA Compliance Comply with NFPA 70B, “Recommended Practice for Electrical Equipment Maintenance” pertaining to installation of cable tray systems.

1.04 SUBMITTALS

A. Submittals shall be complete, bound under cover and indicating project title, specification section and/or drawings references. Contractor shall review submittals for conformance with Contract Documents, make necessary revisions and submit to Architect, indicating the following:

1. Manufacturer's name, brand name and catalog sheet(s) reference of all equipment and materials specified under this Section.
2. Submit drawings of wire mesh cable tray and accessories including connector assemblies, clamp assemblies, brackets, splice plates, splice bars, grounding clamps and hold down plates showing accurately scaled components.
3. Submit manufacturer's data on wire mesh cable tray support system including, but not limited to, types, materials, finishes and inside depths.
4. The drawings, which constitute a part of these specifications, indicate the general route of the wire mesh cable tray 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.
5. 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.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ship equipment in its original packages to prevent damaging or entrance of foreign matter. All handling performed in accordance with manufacturer's recommendations. Provide protective coverings during construction.

B. Replace at no expense to Owner, equipment or material damaged during storage or installation as directed by the Architect.

C. Deliver wire mesh cable tray support systems and components carefully to avoid breakage, bending and scoring finishes. Do not install damaged equipment.

D. Store wire mesh cable tray and accessories in original cartons and in clean dry space; protect from weather and construction traffic.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with these specifications, wire mesh cable tray support systems to be installed shall be as manufactured by Cooper B-Line, Inc. [or engineer-approved equal].

2.02 WIRE MESH CABLE TRAY SECTIONS AND COMPONENTS

A. Provide wire mesh cable tray of types and sizes indicated; with connector assemblies, clamp assemblies, connector plates, splice plates and splice bars. Construct units with rounded edges and smooth surfaces; in compliance with applicable standards; and with the following additional construction features.

B. Materials and Finishes: Material and finish specifications for [Carbon Steel Wire] [Pre-Galvanized Steel Wire][Stainless Steel Wire] are as follows:

1. Electro-Plated Zinc Galvanizing: Straight sections shall be made from steel meeting the minimum mechanical properties of ASTM A 510, Grade 1008 and shall be electro-plated zinc in accordance with ASTM B633, Type III, SC-1.
2. 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.
3. Black Powder Coat: Straight sections shall be powder coated black with an average paint thickness of 1.2mils (30microns) to 3.0mils (75microns).
4. Pre-Galvanized Zinc: Straight section shall be made from pre-galvanized steel meeting the minimum mechanical properties of ASTM A 641.
5. 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.
6. Black Oxide: Certain support accessories and miscellaneous hardware shall be manufactured with a black oxide finish in accordance with ASTM D 769.

2.03 TYPE OF WIRE MESH CABLE TRAY SUPPORT SYSTEM

A. All straight section longitudinal wires shall be constructed with a continuous top wire safety edge. Safety edge must be kinked and T-welded on all tray sizes.

B. Wire mesh cable tray 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 mesh cable tray sizes shall conform to the following nominal criteria:

1. Straight sections shall be furnished in standard 118 inch lengths
2. Wire diameter shall be 0.196" (5mm) minimum on all mesh sections (minimum size of 4.5mm on stainless steel)
3. Wire mesh cable tray shall have a 1 inch usable loading depth by [4][6][8][12] inches wide.
4. Wire mesh cable tray shall have a 2 inch usable loading depth by [2][4][6][8][12][16][18][20][24][30][32] inches wide.
5. Wire mesh cable tray shall have a 4 inch usable loading depth by [4][6][8][12][16][18][20][24][30] inches wide.
6. Wire mesh cable tray shall have a 6 inch usable loading depth by [8][12][16][18][20][24] inches wide.

D. All fittings shall be field formed, from straight sections, in accordance with manufacturer's instructions.

E. In order for system to be approved as an Equipment Ground Conductor (EGC), all splicing assemblies shall be UL/CSA approved as an EGC. When using powder coated wire mesh cable tray as an EGC, the paint must be completely removed at all contact points of splice/ground bolt attachment.

F. Wire mesh cable tray supports shall be center support hangers, trapeze hangers or wall brackets as manufactured by Cooper B-Line, Inc. [or engineer approved equal].

G. Trapeze hangers or center support hangers shall be supported by 1/4 inch or 3/8 inch diameter rods.

H. Special accessories shall be furnished as required to protect, support and install a wire mesh cable tray support system.

PART 3 - EXECUTION

3.01 INSTALLATION OF WIRE MESH CABLE TRAY

A. Install wire mesh cable tray as indicated; in accordance with recognized industry practices (NEMA VE-2 2000), 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 mesh cable tray with other electrical work as necessary to properly interface installation of wire mesh cable tray runway with other work.

C. Provide sufficient space encompassing wire mesh cable tray to permit access for installing and maintaining cables.

END OF SECTION