

**SECTION 05430  
SLOTTED CHANNEL FRAMING  
(4DIMENSION™ STRUT SYSTEMS)**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Continuous slot, bolted metal framing channels and all associated fittings and hardware.
- B. Trapeze type supports for cable tray, conduit, pipe and other similar systems.
- C. Use of bolted metal framing as a surface metal raceway.

**1.02 REFERENCES**

- A. ASTM A123 - Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
- B. ASTM A653 - General Requirements for Steel Sheet, Zinc-Coated Galvanized by the Hot-Dip Process
- C. ASTM A1008 - Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
- D. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and General Applications
- E. ASTM F1136 – Standard Specification for Chromium/Zinc Corrosion Protective Coatings for Fasteners
- F. ASTM A1018- Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Carbon, Hot-Rolled, Structural Quality
- G. ASTM B633 - Specification for Electrodeposited Coatings of Zinc on Iron and Steel
- H. MFMA - Metal Framing Manufacturers Association

- I. ANSI/NFPA 70– National Fire Protection Association (National Electrical Code)
- J. AISI - American Iron and Steel Institute

### 1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in the manufacture of bolted metal framing of the types required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. MFMA Compliance: Comply with the latest revision of MFMA Standards Publication Number MFMA-3, "Metal Framing Standards Publication".
- C. NEC Compliance: Comply with the latest revision NFPA 70 - Article 352 "Surface Metal Raceways and Surface Nonmetallic Raceways".
- D. Bolted framing channels shall have the manufacturer's name, part number, and material heat code identification number stamped in the part itself for identification. Material certification sheets and test reports must be made available by the manufacturer upon request.

### 1.04 SUBMITTALS

- A. Submit drawings of strut and accessories including clamps, brackets, hanger rods, and fittings.
- B. Submit manufacturer's product data on strut channels including, but not limited to, types, materials, finishes, gauge thickness, and hole patterns. For each different strut cross-section, submit cross sectional properties including Section Modulus ( $S_x$ ) and Moment of Inertia ( $I_x$ ).

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver strut systems and components carefully to avoid breakage, denting, and scoring finishes. Do not install damaged equipment.
- B. Store strut systems and components 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, B-Line series strut systems to be installed shall be as manufactured by Eaton [or engineer approved equal].

### **2.02 STRUT CHANNELS AND COMPONENTS**

- A. General: Strut shall be 2.106" inches wide in available heights 2.106" & 1.053" and combinations as required to meet load capacities and designs indicated on the drawings.
  - 1. Strut that is 2.106" in height shall allow for attachment of strut straps and fittings via channel nuts on all 4 sides without the need for a welded channel combination.
  - 2. Strut that is 1.053" in height shall allow for attachment of strut straps and fittings via channel nuts on both top and bottom sides without the need for a welded channel combination.
- B. Materials and Finish: Material and finish specifications for each strut type are as follows:
  - 1. Pre-galvanized Steel: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A653 SS, Grade 50, and mill galvanized in accordance with coating designation G90. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A1018 SS, Grade 50. All fittings and hardware shall be zinc plated in accordance with ASTM B633 (SC3 for fittings, SC1 for threaded hardware).
  - 2. Epoxy Painted: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A1008 Grade 40, then painted with water born epoxy applied by a cathodic electro-deposition process. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A1018 SS, Grade 50. All fittings and hardware shall be zinc plated in accordance with ASTM B633 (SC3 for fittings, SC1 for threaded hardware).

3. Hot-dip Galvanized Steel: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A1008, Grade 50 and shall be hot-dip galvanized after fabrication in accordance with ASTM A123. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A1018 SS, Grade 33, and hot-dip galvanized after fabrication in accordance with ASTM A123. All hardware shall be stainless steel Type 304 [Type 316] or chromium zinc ASTM F1136 Gr. 3. All hot-dip galvanized after fabrication products must be returned to point of manufacture after coating for inspection and removal of all sharp burrs.
  
4. Yellow Zinc Dichromate: : Strut shall be made from steel meeting the minimum mechanical properties of ASTM A1008, Grade 50 and shall be yellow zinc dichromate electrodeposited after fabrication in accordance with ASTM B633 SC3. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A1018 SS, Grade 33. All fittings and hardware shall be yellow zinc plated in accordance with ASTM B633 (SC3 for fittings, SC1 for threaded hardware).

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install strut in accordance with MFMA-102 'Guidelines for the Use of Metal Framing'; in accordance with equipment manufacturer's recommendations, and with recognized industry practices.
  
- B. All nuts and bolts shall be tightened to the following values:

<u>Bolt Size</u>	<u>Torque (ft-lbs)</u>
1/4 - 20	6
5/16 - 18	11
3/8 - 16	19
1/2 - 13	50

**END OF SECTION**

(May also be cross-referenced from Sections 05450, 15060 & 16070)