

RECOMMENDED BOLTED METAL FRAMING SPECIFICATION

Brackets [] indicate alternative specifications which may be substituted by the project engineer.

PART 1 - GENERAL

1.01 WORK INCLUDED

- A.** Continuous slot, bolted 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 A108 - Specification for Steel Bars, Carbon, Cold Finished, Structural Quality.
- B.** ASTM A123 - Specification for Zinc (hot-dip galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips.
- C.** ASTM A1011, 33,000 PSI min. yield - Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
- D.** ASTM B633 - Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
- E.** ASTM A653 33,000 PSI min. yield G90 - Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process.
- F.** ASTM A1018 - Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Carbon, Hot-Rolled, Structural Quality.
- G.** MFMA - Metal Framing Standards Publication, MFMA-1.

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.** A material heat code number shall be stamped on all strut and fittings. This is required to maintain traceability of the product to the material test reports to the ASTM standard.
- C.** For stainless steel items, the part number shall contain a material designator (EXAMPLE: B-Line B22SS₆ for type 316 or B22SS₄ for type 304), or a separate stamp shall be included to reference the type of material used.
- D.** MFMA Compliance: comply with the latest revision of MFMA Standard Publication Number MFMA-3, "Metal Framing".

E. NEC Compliance: Comply with the latest revision NFPA 70 - Article 352 "Surface Metal Raceways and Surface Nonmetallic Raceways".

F. UL Compliance: Comply with UL "Standard for Surface Metal Raceway and Fittings".

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, strut systems to be installed shall be as manufactured by Cooper B-Line Systems, Inc. [or engineer approved equal.]

2.02 STRUT CHANNELS AND COMPONENTS

- A.** General: Strut shall be 1⁵/₈" wide in varying heights and welded combinations as required to meet load capacities and designs indicated on the drawings.
- B.** Material and Finish: Material and finish specifications for each strut type are as follows:

- 1.** Aluminum: Strut shall be manufactured of extruded aluminum alloy 6063-T6. All fittings and hardware shall be zinc plated according to ASTM B633. For outdoor use, all fittings and hardware shall be stainless steel Type 316 [Type 304] or chromium zinc, ASTM F1136 Gr. 3.
- 2.** Epoxy Painted: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A1011 33,000 PSI min yield, 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 33,000 PSI min. yield. The fittings shall have the same epoxy finish as the strut. Threaded hardware shall be zinc plated in accordance with ASTM B633 Service Class 1 (SC1). Service Class 1 is not an acceptable coating for fittings or components other than threaded hardware.

3. Pre-Galvanized Steel: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A653 33,000 PSI min. yield, mill galvanized coating designation G90. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A1018 33,000 PSI min. yield and zinc plated in accordance with ASTM B633 service class 3 (SC3). Threaded hardware shall be zinc plated in accordance with ASTM B633 Service Class 1 (SC1). Service Class 1 is not an acceptable coating for fittings or components other than threaded hardware.

4. Hot-Dip Galvanized Steel: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A1011 33,000 PSI min. yield 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 33,000 PSI min. yield, and hot-dip galvanized after fabrication in accordance with ASTM A123. All hardware shall be stainless steel Type 316 [Type 304] 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.

5. Stainless Steel: All strut, fittings and hardware shall be made of AISI Type 316 [Type 304] stainless steel as indicated. Channels must be identified as required in previous section 1.03 Quality Assurance.

PART 3 - EXECUTION

3.01 INSTALLATION

- A.** Install strut as indicated; in accordance with equipment manufacturer's recommendations, and with recognized industry practices.
- B.** All nuts and bolts shall be tightened to the following values.

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