

## SECTION 05 40 00

### COLD-FORMED METAL FRAMING

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Steel Framing Members.
- B. Screws.
- C. Bolts.
- D. Power-driven Fasteners.
- E. Expansion Bolts.

##### 1.02 RELATED SECTIONS

- A. Metal framing of 20, 22, and 25 gage metal studs and joists and metal ceiling suspension systems are specified in Section 09 22 00, Supports for Plaster and Gypsum Board.

##### 1.03 MEASUREMENT AND PAYMENT

- A. General: Cold-formed metal framing will not be measured separately for payment but will be paid for as part of the indicated Contract lump sum price for Architectural work.

##### 1.04 REFERENCES

- A. American Iron and Steel Institute (AISI):
  - 1. AISI S100 North American Specification for the Design of Cold-Formed Steel Structural Members
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low Alloy, High-Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
  - 2. ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with improved Formability, and Ultra-High Strength

- C. The Society for Protective Coatings (SSPC):
  - 1. SSPC-PA 1 Shop, Field, and Maintenance Painting of Steel

**1.05 SUBMITTALS**

- A. General: Refer to Section 01 33 00, Submittals Procedures, and Section 01 33 23, Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Shop Drawings: Submit detailed Shop Drawings of steel studs and joists, showing grade, size, and thickness of framing members, layout of framing, installation details, and methods of anchorage and attachment. Indicate strapping, bracing, splices, bridging, and accessories as required for proper installation.
- C. Product Data: Submit manufacturer's product data of the framing members, along with applicable accessories.

**1.06 DELIVERY AND STORAGE**

- A. Protect metal framing members from corrosion and damage. Deliver to site in manufacturer's unopened containers or bundles, fully identified by type, size, and grade. Store off the ground in a dry ventilated space.

**PART 2 – PRODUCTS**

**2.01 MATERIALS**

- A. Steel: Steel for light gage structural framing, studs, tracks, joists, bridging, sills and headers, shall conform with ASTM A1011/A1011M, minimum Grade 33, or ASTM A1008/A1008M, minimum Grade C, with a minimum yield point of 33,000 psi. Light gage structural framing shall conform with applicable requirements of AISI SG-673. Framing members and accessories shall be delivered to the job with manufacturer's standard oven-dried coat of corrosion-inhibitive metal primer.
- B. Framing Members:
  - 1. Studs: "C" studs or standard channel studs of sizes indicated. Studs shall be 16 gage steel. Short lengths may be 18 gage steel. Studs shall be unpunched where required to be bolted.
  - 2. Tracks: Unpunched channels, of same size, type, and, gage (metal thickness) as studs, for floor and ceiling tracks.
  - 3. Joists: Punched channel joists of sizes indicated. Joists shall be 16 gage steel as indicated. Short lengths may be 18 gage steel. Joists shall be unpunched where required to be bolted. Provide joists for floors, ceilings, and soffits as indicated.

4. Heavier Members: Where studs or joists are required to be heavier steel because of long lengths or heavy loads, provide 12 or 14 gage components as indicated or required.
- C. Screws: Self-drilling, self-tapping hardened steel screws manufactured specifically for the purpose and capable of penetrating 12 gage or heavier sheet steel of structural quality. Provide screws with corrosion-inhibitive coating.
  - D. Bolts: 1/4-inch diameter galvanized steel bolts with matching nuts. Provide galvanized washers for all bolt heads and nuts.
  - E. Powder-Driven Fasteners: 1/4-inch diameter fasteners with washers, may be used for attaching tracks in lieu of anchor bolts if first approved by the Engineer for the location. Use washers with all inserts. Powder-driven fasteners will not be permitted for use on concrete curbs or along the edge of concrete or a concrete joint.
  - F. Expansion Bolts: Galvanized expansion type anchors with matching galvanized steel bolts or studs, minimum 1/4-inch diameter, may be used for attaching tracks in lieu of anchor bolts if first approved by the Engineer for the location. Use washers under all bolt heads and nuts. Expansion bolts shall be located at least 4 inches from the edges or corners of concrete.

## **PART 3 – EXECUTION**

### **3.01 INSTALLATION**

- A. Install steel studs and joists as indicated and in accordance with the approved submittals and the manufacturer's installation instructions by skilled installers experienced in the type of work involved.
- B. Provide bridging for studs and joists in accordance with the framing manufacturer's instructions.
- C. Install backing plates and reinforcing of the various types indicated or required for the mounting of all items on or in partitions, framed walls, or shafts. Exact position of backing work shall be as designated by the trade whose work will be fastened thereto. The end result shall be that all items attached to or framed in gypsum wallboard surfaces shall be firmly and solidly mounted.
  1. Backing plates for grab bars, handrails, and cabinets shall be a minimum of 16 gage galvanized steel, 4 inches in height, and shall span at least two studs. Backing plates for toilet accessories and other items requiring backing shall be a minimum of 20 gage galvanized steel, 4 inches in height, and shall span at least one stud past point of connection.
- D. Provide miscellaneous steel sections and accessories as indicated or required to complete the work.
- E. Erection technique shall result in plumb and straight walls and level ceilings and soffits with no waves or buckles or unevenness at joints. Finished walls shall be a

flat plane to within plus or minus 1/8 inch in 8 feet when checked in any direction with an 8-foot straightedge and plumb to within plus or minus 1/8 inch, top to bottom. Finished ceilings shall be level and flat to within plus or minus 1/8 inch in 8 feet when checked with a carpenter's level or surveyor's level.

**3.02 FIELD PAINTING**

- A. After erection and installation, spot paint and touch up all field bolts, field welds, and abrasions to the shop coat in accordance with SSPC-PA 1, Shop, Field & Maintenance Painting of Steel. Clean surfaces for paint adherence and as required to prevent corrosion. Provide same paint as was used for shop painting.

**END OF SECTION 05 40 00**