

**SECTION 05 40 00  
COLD-FORMED METAL FRAMING**

**PART 1 - GENERAL**

**1.1 DESCRIPTION:**

- A. This section specifies materials and services required for installation of cold-formed steel, including tracks and required accessories as shown and specified. This Section includes the following:

1. Exterior load-bearing steel stud walls.

**1.2 RELATED WORK:**

- A. Structural steel framing: Section 05 12 00, STRUCTURAL STEEL FRAMING.

**1.3 DESIGN REQUIREMENTS:**

- A. Design steel in accordance with American Iron and Steel Institute Publication "Specification for the Design of Cold-Formed Steel Structural Members", except as otherwise shown or specified.
- B. Structural Performance: Engineer, fabricate and erect cold-formed metal framing with the minimum physical and structural properties indicated.

**1.4 SUBMITTALS:**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings: Shop and erection drawings showing steel unit layout, connections to supporting members, and information necessary to complete installation as shown and specified.
- C. Manufacturer's Literature and Data: Showing steel component sections and specifying structural characteristics.

**1.5 APPLICABLE PUBLICATIONS:**

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Iron and Steel Institute (AISI):  
Specification and Commentary for the Design of Cold-Formed Steel Structural Members (1996)

C. American Society of Testing and Materials (ASTM):

A36/A36M-08.....Standard Specifications for Carbon Structural Steel

A123/A123M-09.....Standard Specifications for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A153/A153M-09.....Standard Specifications for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A307-10.....Standard Specifications for Carbon Steel Bolts and Studs

A653/A653M-10.....Standard Specifications for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

C1107/C1107M-08.....Standard Specifications for Packaged Dry, Hydraulic-Cement Grout (Non-shrink)

E488-96(R2003).....Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements

E1190-95(R2007).....Standard Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members

D. American Welding Society (AWS):

D1.3/D1.3M-08.....Structural Welding Code-Sheet Steel

E. Military Specifications (Mil. Spec.):

MIL-P-21035B.....Paint, High Zinc Dust Content, Galvanizing Repair

**PART 2 - PRODUCTS**

**2.1 MATERIALS:**

A. Sheet Steel for joists, studs and accessories 16 gage and heavier: ASTM A653, structural steel, zinc coated G90, with a yield of 340 MPa (50 ksi) minimum.

C. Galvanizing Repair Paint: MIL-P-21035B.

**2.2 WALL FRAMING:**

A. Steel Studs: Manufacturer's standard C-shaped steel studs of web depth indicated, with lipped flanges, and complying with the following:

1. Design Uncoated-Steel Thickness:

1.52 mm (0.0598 inch

2. Flange Width:

1-5/8 inches punch-out shape, size and spacing.

3. Web: Unpunched

B. Steel Track: Manufacturer's standard U-shaped steel track, unpunched, of web depths indicated, with straight flanges, and complying with the following:

1. Design Uncoated-Steel Thickness: Matching steel studs.

2. Flange Width: Manufacturer's standard deep flange where indicated,

### **2.3 ANCHORS, CLIPS, AND FASTENERS:**

A. Steel Shapes and Clips: ASTM A36, zinc coated by the hot-dip process according to ASTM A123.

B. Mechanical Fasteners: Corrosion-resistant coated, self-drilling, self-threading steel drill screws. Low-profile head beneath sheathing, manufacturer's standard elsewhere.

### **2.6 REQUIREMENTS:**

A. Welding in accordance with AWS D1.3

B. Furnish members and accessories by one manufacturer only.

## **PART 3 - EXECUTION**

### **3.1 FABRICATION:**

A. Framing components may be preassembled into panels. Panels shall be square with components attached.

B. Cut framing components squarely or as required for attachment. Cut framing members by sawing or shearing; do not torch cut.

C. Hold members in place until fastened.

D. Fasten cold-formed metal framing members by welding or screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.

1. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

2. Locate mechanical fasteners and install according to cold-formed metal framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.

E. Where required, provide specified insulation in double header members and double jamb studs which will not be accessible after erection.

### **3.2 ERECTION:**

A. Handle and lift prefabricated panels in a manner as to not distort any member.

B. Securely anchor tracks to supports as shown.

C. At butt joints, securely anchor two pieces of track to same supporting member or butt-weld or splice together.

D. Plumb, align, and securely attach studs to flanges or webs of both upper and lower tracks.

E. All axially loaded members shall be aligned vertically to allow for full transfer of the loads down to the foundation. Vertical alignment shall be maintained at floor/wall intersections.

### **3.3 TOLERANCES:**

A. Vertical alignment (plumbness) of studs shall be within 1/960th of the span.

B. Horizontal alignment (levelness) of walls shall be within 1/960th of their respective lengths.

C. Spacing of studs shall not be more than 3 mm (1/8 inch) +/- from the designed spacing providing that the cumulative error does not exceed the requirements of the finishing materials.

D. Prefabricated panels shall be not more than 3 mm (1/8 inch) +/- out of square within the length of that panel.

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**3.4 FIELD REPAIR:**

Touch-up damaged galvanizing with galvanizing repair paint.

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