

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

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Load bearing formed steel stud interior wall and other framing not for exterior walls or roof structures.
- B. Formed steel joist, purlins, slotted channel and miscellaneous framing and bridging

**1.2 REFERENCES**

- A. AISI - American Iron and Steel Institute - Cold-Formed Steel Design Manual.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A645/A645M - Standard Specification for Pressure Vessel Plates, Five Percent Nickel Alloy Steel, Heat Treated per specification.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- E. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra High Strength
- F. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs Runners (Track), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases
- G. AWS D1.1/D1.1M - Structural Welding Code
- H. ANSI/AWS D1.3 - Light Steel Welding Code
- I. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.
- J. FBC - Florida Building Code
- K. MFMA (Metal Framing Manufacturers Association) - Guidelines for the Use of Metal Framing
- L. ASCE 7 – Minimum Design Loads of Buildings and Other Structures

**1.3 SYSTEM DESCRIPTION**

- A. Design wall system to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
- B. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Shop Drawings:
  - 1. Indicate component details, framed openings, bearing, anchorage, loading, welds, type, and location of fasteners, and accessories or items required of related work.
  - 2. The same specialty engineer shall certify the erection and fabrication plan.
- C. Indicate stud, floor joist, ceiling joist, roof joist, roof rafter, roof truss, and layout.
- D. Describe method for securing studs to tracks and for bolted or welded, screwed framing connections.
- E. Provide calculations for loadings and stresses of specially fabricated framing and roof trusses under the Professional Structural Engineer's seal, licensed in Florida.
- F. Product Data: Provide data on standard framing members; describe materials and finish,

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product criteria and limitations.

- G. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

#### 1.5 REGULATORY REQUIREMENTS

- A. Design light gage metal framing in accordance with the FBC, and AISI "Specifications for the Design of Cold-Formed Steel Structural Members."
- B. Wind loads shall be in accordance with ASCE 7.
- C. Design interior partitions for a minimum of 5-PSF with no stress increase.

#### 1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum 5-years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum 3-years documented experience.
- C. Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Florida.

#### 1.7 MOCKUP

- A. Provide mockup of exterior framed wall including insulation, sheathing, window frame, doorframe, and interior and exterior finish specified in other sections, under provisions of Section 01 40 00.
- B. Mockup Size: 6' x 4' including corner condition
- C. Mockup may remain as part of the Work

#### 1.8 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

#### 1.9 COORDINATION

- A. Coordinate work under provisions of Section 01 31 00.
- B. Coordinate with the placement of components within the stud framing system.

### **PART 2 PRODUCTS**

#### 2.1 ACCESSORIES

- A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered
- B. Plates, Gussets, Clips: Formed sheet steel, thickness determined for conditions encountered
- C. Shop and Touch-up Primer: SSPC - Paint 15, Type Type-1, red oxide
- D. Touch-Up Primer for Galvanized Surfaces: SSPC - Paint 20 Type-I Inorganic

#### 2.2 FASTENERS

- A. Self-drilling, Self-tapping Screws, Bolts, Nuts, and Washers, use ASTM A123/A123M, hot dip galvanized to 1.25 oz/sq ft.
- B. Anchorage Devices: Power-actuated, drilled expansion bolts and screws with sleeves.
- C. Welding cold formed metal framing is not allowed.

#### 2.3 FABRICATION

- A. Fabricate assemblies of framed sections of sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.
- B. Fit and assemble in largest practical sections for delivery to site, ready for installation.

#### 2.4 FINISHES

- A. Studs: Galvanize to G90 coating class, prime paint.
- B. Tracks and Headers: Galvanize to G90 coating class, prime paint.

- C. Joists and Purlins: Galvanize to G90 coating class, prime paint.
- D. Bracing, Furring, Bridging: Same finish as framing members, prime paint.
- E. Plates, Gussets, Clips: Same finish as framing members, prime paint.
- F. Plates, Gussets, Clips: Same finish as framing members, prime paint.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify site conditions under provisions of Section 01 31 00.
- B. Verify that substrate surfaces and building framing components are ready to receive work.

#### **3.2 ERECTION OF STUDDING**

- A. Install components in accordance with manufacturer's instructions.
- B. Align floor and ceiling tracks; locate to partition layout. Secure in place with fasteners.
  - 1. Coordinate installation of sealant with floor and ceiling tracks.
- C. Place studs not more than 2" from abutting walls and at each side of openings.
  - 1. Connect studs to tracks using fasteners.
- D. Construct corners using minimum three studs.
  - 1. Double stud wall openings; door and window jambs.
- E. Erect load-bearing studs in one-piece full length do not splice the studs.
- F. Erect load-bearing studs, brace, and reinforce to develop full strength, to achieve design requirements.
- G. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.
- H. Install intermediate studs above and below openings to align with wall stud spacing.
- I. Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.
- J. Attach cross studs and furring channels to studs for attachment of fixtures anchored to walls.
- K. Install framing between studs for attachment of mechanical and electrical items, plus to prevent stud rotation.
- L. Touch-up damaged galvanized and primed surfaces with primer.

#### **3.3 ERECTION OF JOISTS PURLINS**

- A. Install framing components in accordance with manufacturer's instructions.
- B. Make provisions for erection stresses.
  - 1. Provide temporary alignment and bracing.
- C. Place joists and purlins not more than 2" from abutting walls.
  - 1. Connect joists to supports using fastener method.
- D. Set floor and ceiling joists parallel and level with lateral bracing and bridging.
- E. Locate joist end bearing directly over load bearing studs or provide load-distributing member to top of stud track.
- F. Provide web stiffeners at reaction points.
- G. Touch-up damaged galvanized and primed surfaces with primer.

END OF SECTION