

## SECTION 05400 - COLD FORMED METAL FRAMING

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

#### 1.2 SECTION INCLUDES

- A. Formed steel stud exterior wall framing.
- B. Steel Stud exterior wall framing.

#### 1.3 RELATED REQUIREMENTS

- A. Section 05310 - Steel Deck.
- B. Section 09210 - Gypsum Plaster.

#### 1.4 REFERENCE STANDARDS

- A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)
- B. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.
- D. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007a.
- E. ASTM C 955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases; 2007.
- F. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2008.
- G. AWS D1.3 - Structural Welding Code - Sheet Steel; American Welding Society; 2007.

#### 1.5 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on standard framing members; describe materials and

finish, product criteria, limitations.

- C. Product Data: Provide manufacturer's data on factory-made framing connectors, showing compliance with requirements.
- D. Shop Drawings: Indicate component details, framed openings, bearing, anchorage, loading, welds, and type and location of fasteners, and accessories or items required of related work.
  - 1. Indicate stud layout.
  - 2. Describe method for securing studs to tracks and for welded framing connections.
  - 3. Provide design engineer's stamp on shop drawings.
  - 4. Provide calculations for loadings and stresses of specially fabricated framing, stamped by a Professional Structural Engineer.
- E. Manufacturer's Installation Instructions: Indicate special procedures, conditions requiring special attention.

## 1.6 QUALITY ASSURANCE

- A. Designer Qualifications: Design framing system under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in New Orleans, LA.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Metal Framing, Connectors, and Accessories:
  - 1. Dietrich Metal Framing: [www.dietrichindustries.com](http://www.dietrichindustries.com).
  - 2. The Steel Network, Inc: [www.SteelNetwork.com](http://www.SteelNetwork.com).
  - 3. Substitutions: See Section 01600 - Product Requirements.

### 2.2 FRAMING SYSTEM

- A. Provide primary and secondary framing members, bridging, bracing, plates, gussets, clips, fittings, reinforcement, and fastenings as required to provide a complete framing system.
- B. Design Criteria: Provide completed framing system having the following characteristics:
  - 1. Design: Calculate structural characteristics of cold-formed steel framing members according to AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
  - 2. Structural Performance: Design, engineer, fabricate, and erect to withstand specified design loads for project conditions within required limits.
  - 3. Design Loads: In accordance with applicable codes.
  - 4. Deflections:

- a. Exterior Walls: Maximum horizontal deflection under wind load:
  - 1) Brick - 1/600 of span.
  - 2) EIFS and Stucco - 1/360 of span.
  - 3) Wood or Metal Siding - 1/180 of span.
5. Able to tolerate 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.
6. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

### 2.3 FRAMING MATERIALS

- A. Studs and Track: ASTM C 955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height.
  1. Gage and depth: As required to meet specified performance levels.
  2. Galvanized in accordance with ASTM A 653/A 653M G90/Z275 coating.
  3. Provide components fabricated from ASTM A 1008/A 1008M, Designation SS steel.
- B. Framing Connectors: Factory-made formed steel sheet, ASTM A 653/A 653M SS Grade 50, with G60/Z180 hot dipped galvanized coating and factory punched holes.
  1. Structural Performance: Maintain load and movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold Formed Steel Structural Members; minimum 16 gage, 0.06 inch thickness.
  2. Movement Connections: Provide mechanical anchorage devices that accommodate movement using slotted holes, screws and anti-friction bushings, while maintaining structural performance of framing. Provide movement connections at the following locations:
    - a. Where continuous studs bypass elevated floor slab, connect stud to slab in manner allowing vertical and horizontal movement of slab without affecting studs; allow for minimum movement of 1/2 inch.
    - b. Where top of stud wall terminates below structural floor or roof, connect studs to structure in manner allowing vertical and horizontal movement of slab without affecting studs; allow for minimum movement of 1/2 inch.
    - c. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.
    - d. Acceptable Products: VertiClip(r) or DriftClip(tm) manufactured by The Steel Network Inc.
  3. Provide non-movement connections for tie-down to foundation, floor-to-floor tie-down, roof-to-wall tie-down, joist hangers, gusset plates, and stiffeners.

### 2.4 WALL SHEATHING

## 2.5 FASTENERS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A 153/A 153M.
- B. Anchorage Devices: Power actuated.
- C. Welding: In conformance with AWS D1.1.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

### 3.2 INSTALLATION OF STUDS

- A. Install components in accordance with manufacturers' instructions and ASTM C 1007 requirements.
- B. Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 24 inches on center. Coordinate installation of sealant with floor and ceiling tracks.
- C. Place studs at 16 inches minimum on center; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using clip and tie method.
- D. Construct corners using minimum of three studs. Install double studs at wall openings, door and window jambs.
- E. Install intermediate studs above and below openings to align with wall stud spacing.
- F. Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.
- G. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
- H. Touch-up field welds and damaged galvanized surfaces with primer.

### 3.3 WALL SHEATHING

- A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using self-tapping screws.

### 3.4 TOLERANCES

- A. Maximum Variation from True Position: 1/4 inch.
- B. Maximum Variation of any Member from Plane: 1/4 inch.

END OF SECTION