

**SECTION 054000
COLD-FORMED METAL FRAMING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Formed steel stud exterior wall framing.

1.02 REFERENCE STANDARDS

- A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).
- B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).
- C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- E. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2020.
- F. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- G. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020 (Reapproved 2024).
- H. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with work of other sections that is to be installed in or adjacent to metal framing systems, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on cold-formed steel structural members; include material descriptions and base steel thickness.
- C. Design Data:
 - 1. Design calculations sufficient to demonstrate compliance with design criteria; signed and sealed by a professional structural engineer.
- D. Manufacturer's Qualification statement.
- E. Testing Agency Qualification Statement.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Design framing system under direct supervision of a professional structural engineer experienced in designing this work and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Structural Framing:
 - 1. ClarkDietrich: www.clarkdietrich.com/#sle.
 - 2. Jaimes Industries: www.jaimesind.com/#sle.
 - 3. SCAFCO Corporation: www.scafco.com/#sle.

4. Steel Construction Systems: www.steelconsystems.com/#sle.
 5. Substitutions: See Section 016000 - Product Requirements.
- B. Connectors:
1. Same manufacturer as metal framing.

2.02 PERFORMANCE REQUIREMENTS

- A. Design Requirements: Design cold-formed framing systems, components and connectors to withstand specified design loads in compliance with ICC (IBC), ASCE 7, AISI S100, and AISI S240.
- B. Design Criteria: In accordance with applicable codes.
1. Live load deflection meeting the following, unless otherwise indicated:
 - a. Floors: Maximum vertical deflection under live load of 1/360 of span.
 - b. Roofs: Maximum vertical deflection under live load of 1/240 of span.
 - c. Exterior Walls: Maximum horizontal deflection under wind load of 1/360 of span.
 2. 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.
 3. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

2.03 MATERIALS

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

2.04 STRUCTURAL FRAMING COMPONENTS

- A. Wall Studs and Track Sections: AISI S240; c-shaped studs and u-shaped track sections in stud-matching nominal width and compatible height.
- B. Jamb Studs: AISI S240; manufactured, engineered, c-shaped with wide flanges, designed to replace conventional double-stud framing at openings.
- C. Headers: AISI S240; manufactured, engineered one-member or two-member assemblies, with wide flanges, designed to replace conventional box or nested header framing at openings.
1. Jamb Mounting Clips: Manufacturer's standard.

2.05 CONNECTIONS

- A. Performance Requirements: Provide connections in compliance with requirements of AISI S240.
- B. Structural Performance: Maintain load and movement capacity required by applicable building code and specified design criteria.
- C. Movement Connections: Provide mechanical anchorage devices that accommodate movement using slotted holes, shouldered screws or screws and anti-friction or stepped bushings, while maintaining structural performance of framing. Provide movement connections where indicated on drawings.
1. 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 (13 mm).
 2. 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 (13 mm).
 3. Products:
 - a. ClarkDietrich; Drift Rail and Clip (DRC): www.clarkdietrich.com/#sle.
 - b. ClarkDietrich; Drift FastClip Slide Clip D-FCSC: www.clarkdietrich.com/#sle.
 - c. ClarkDietrich; FastClip Slide Clip FCSC: www.clarkdietrich.com/#sle.
 - d. MarinoWARE; Slotted Track: www.marinoware.com/#sle.
 - e. MarinoWARE; WSC Slide Clips: www.marinoware.com/#sle.

- f. MBA Building Supplies; Slotted Track: www.mbastuds.com/#sle.
- g. Simpson Strong-Tie; SCB Side-Clip Connector: www.strongtie.com/#sle.
- D. Fixed Connections: Provide nonmovement devices for tie-down to foundation, floor-to-floor tie-down, roof-to-wall tie-down, joist hangers, gusset plates, and stiffeners.
- E. Bridging Connections: Provide mechanical load-transferring devices that accommodate wind load torsion and weak axis buckling induced by axial compression loads. Provide bridging connectors where indicated on the drawings.

2.06 MISCELLANEOUS CONNECTIONS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot-dip galvanized per ASTM A153/A153M.
- B. Anchorage Devices: Powder actuated.
- C. Welding: Comply with AWS D1.1/D1.1M.

2.07 ACCESSORIES

- A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.
- B. Galvanizing Repair: Touch up bare steel with zinc-rich paint in compliance with ASTM A780/A780M.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 INSTALLATION - GENERAL

- A. Install structural members and connections in compliance with ASTM C1007.

3.03 INSTALLATION OF STUDS

- A. Install wall studs plumb and level.
- B. Construct corners using minimum of three studs. Install double studs at wall openings, door and window jambs.
- C. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.
- D. Install intermediate studs above and below openings to align with wall stud spacing.
- E. Provide deflection allowance in stud track, directly below horizontal building framing at non-loadbearing framing.

3.04 INSTALLATION OF WALL SHEATHING

- A. Install wall sheathing with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using self-tapping screws.

3.05 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.

3.06 TOLERANCES

- A. Studs - Maximum Variation from True Position: 1/8 inch (3.2 mm) in accordance with ASTM C1007.

END OF SECTION