

SECTION 05 40 00

COLD FORMED METAL FRAMING

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**** NOTE TO SPECIFIER ** Steeler Inc.; products.**

This section is based on the products of Steeler Inc., which is located at:
10023 Martin Luther King Jr. Way S.

Seattle, WA 98178

Toll Free Tel: 800-275-2279

Tel: 206-725-2500

Fax: 206-725-1700

Email: [request info \(sales@steeler.com\)](mailto:request info (sales@steeler.com))

Web: www.steeler.com

[[Click Here](#)] for additional information.

Created in 1974 by Founder and President Matt Surowiecki in Seattle, Washington. Steeler is the only continuously operated Steel Stud manufacturer that has been in business in the U.S.A. since 1974 without being sold or declaring bankruptcy. Steeler steel framing products are engineered from prime-grade steel to meet the maximum seismic ratings and to comply with the International Building Code and the related ASTM code requirements for each product.

Steeler, Inc., products are engineered to meet the AISI publication "Specifications for the Design of Cold Formed Steel Structural Members".

Exclusive manufacturer of Steeler-Designed, high-quality construction screws. Steeler screws meet or exceed all the specifications as stated in ASTM C1002 and ASTM C954.

Manufacturer of steel studs, track, joists, custom brake shapes (up to 32 ft.), Steeler Engineered Slide Clips, ShaftWall Studs, CRC/DWC, Resilient Channel, Black Track, Slip Track, Deflection Track, Corner Bead and Hanger Wire.

Distributor of drywall products including gypsum wallboard, drywall mud, cornerbeads, finishing products and many other accessories. Steeler also carries the highest quality tools and replacement parts in the industry. Uniquely organized to provide 12 product lines to the Drywall Industry. Customer-Focused Service has expanded Steeler to multiple locations in the Western United States and Canada. Capable of producing ten million pounds of custom steel framing monthly.

PART 1 GENERAL

1.1 SECTION INCLUDES

**** NOTE TO SPECIFIER ** Delete items below not required for project.**

- D. Floor joist framing.
- E. Roof rafter framing.
- F. Ceiling joist framing.
- G. Shear wall framing.

1.2 RELATED SECTIONS

**** NOTE TO SPECIFIER ** Delete any sections below not relevant to this project; add others as required.**

- A. Section 05 31 13 - Steel Floor Decking.
- B. Section 05 31 00 - Steel Decking.
- C. Section 05 50 00 - Metal Fabrications.
- D. Section 06 11 00 - Wood Framing.
- E. Section 06 11 00 - Wood Framing.
- F. Section 07 21 26 - Blown Insulation.
- G. Section 07 26 00 - Vapor Retarders
- H. Section 07 27 26 - Fluid-Applied Membrane Air Barriers .
- I. Section 07 84 53 - Building Perimeter Firestopping .
- J. Section 09 22 16.13 - Non-Structural Metal Stud Framing.
- K. Section 09 22 16.13 - Non-Structural Metal Stud Framing.
- L. Section 09 21 16.23 - Gypsum Board Shaft Wall Assemblies.

1.3 REFERENCES

**** NOTE TO SPECIFIER ** Delete references from the list below that are not actually required by the text of the edited section.**

- A. AISI, North American Specification for the Design of Cold-Formed Steel Structural Members.
 1. AISI S200 - AISI North American Standard for Cold-Formed Steel Framing - General Provisions
 2. AISI S201 - AISI North American Standard for Cold-Formed Steel Framing - Product Data
 3. AISI S210 - AISI North American Standard for Cold-Formed Steel Framing -

2. AISI S201 - AISI North American Standard for Cold-Formed Steel Framing - Product Data.
3. AISI S210 - AISI North American Standard for Cold-Formed Steel Framing - Floor and Roof System Design.
4. AISI S211 w/S1-12 - AISI North American Standard for Cold-Formed Steel Framing - Wall Stud Design, with Supplement 1.
5. AISI S212 - AISI North American Standard for Cold-Formed Steel Framing - Header Design.
6. AISI S213 w/S1-09 - AISI North American Standard for Cold-Formed Steel Framing - Lateral Design.
7. AISI S214 - AISI North American Standard for Cold-Formed Steel Framing - Truss Design.
8. AISI S230 w/S3-12 - AISI North American Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings.

B. Structural Performance: Engineer, fabricate, and erect cold-formed metal framing to withstand design loads within limits and under conditions as follows:

**** NOTE TO SPECIFIER ** Delete the following paragraphs if not required for the project. Show design loads of the Drawings or insert below.**

- c. Vertical deflection of $L/360$ of the span.
- D. Design framing system to accommodate deflection of primary building structure and

- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product and finish.
- F. Evaluation Reports: Submit evaluation reports certified under an independent third party inspection program administered by an agency accredited by International Accreditation Service (IAS). ICC-ESESR-2054 is applicable.
- G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
- C. Design structural elements under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

**** NOTE TO SPECIFIER ** Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.**

- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
- E. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- F. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
- G. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction.
- H. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's unopened packaging.
- B. Protect and store products in manufacturer's unopened packaging until ready for installation per requirements of AISI's "Code of Standard Practice".
- C. Store framing off the ground and at a slight angle with a ventilated, waterproof covering.

1.8 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Steeler Inc., which is located at: 10023 Martin Luther King Jr. Way S. ; Seattle, WA 98178; Toll Free Tel: 800-275-2279; Tel: 206-725-2500; Fax: 206-725-1700; Email: [request info \(sales@steeler.com\)](mailto:sales@steeler.com); Web: www.steeler.com

**** NOTE TO SPECIFIER ** Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.**

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MATERIALS

- A. Load bearing (structural) cold-formed steel members shall be manufactured from structural quality steel having minimum yield strength of 33 ksi, having a minimum protective coating equal to G-60 galvanized finish, and conforming to the following standards: ASTM A 653, ASTM A 1003, and ASTM C 955.
- B. Non-load bearing (non-structural) cold-formed steel members shall have a minimum protective coating equal to G-40 galvanized finish and shall conform to ASTM A 653, ASTM A 1003, and ASTM C 645.
- C. Corrosion Protection: Products shall have protective coatings as follows:
 1. Material thicknesses from 16 to 30 mils provided with minimum G-40 galvanized coating.
 2. Material thicknesses from 33 mils to 118 mils provided with minimum G-60 galvanized coating.

**** NOTE TO SPECIFIER ** Select from the following optional paragraph as required for the**

and other related accessories.

1. Steel Studs: Steeler Structural Studs, S-Members are standard C-shaped steel studs of web depth indicated, with lipped flanges, and complying with the following:

- a. Minimum Uncoated Base-Metal Thickness:

****NOTE TO SPECIFIER** Delete thickness not required.**

- 1) As indicated on Drawings.
- 2) 0.0329 inches (0.84 mm).
- 3) 0.0428 inches (1.09 mm).
- 4) 0.0538 inches (1.37 mm).
- 5) 0.0677 inches (1.72 mm).
- 6) 0.0966 inches (2.45 mm).
- 7) 0.1180 inches (2.99 mm).

- b. Web Depth:

***NOTE TO SPECIFIER** Delete depths not required.**

- 1) As indicated on Drawings.
- 2) 1-5/8 inches (41 mm).
- 3) 2-1/2 inches (63.5 mm).
- 4) 3-1/2 inches (88.9 mm).
- 5) 3-5/8 inches (92.1 mm).
- 6) 4 inches (101.6 mm).
- 7) 5-1/2 inches (139.7 mm).
- 8) 6 inches (152.4 mm).
- 9) 8 inches (203.2 mm).
- 10) 10 inches (254 mm).
- 11) 12 inches (304.8 mm).
- 12) 14 inches (355.6 mm).
- 13) 16 inches (406.4 mm).

- c. Flange Length:

***NOTE TO SPECIFIER** Delete lengths not required.**

- 1) As indicated on Drawings.
- 2) 1-1/4 inches (31.75 mm).
- 3) 1-3/8 inches (34.9 mm).
- 4) 1-7/16 inches (36.5 mm).
- 5) 1-5/8 inches (41.3 mm).
- 6) 2 inches (50.8 mm).

- d. Web:

**** NOTE TO SPECIFIER ** Select one the following paragraphs and delete the ones not required.**

- 1) Punched
- 2) Unpunched

2. Steel Track: Steeler Cold-formed steel T-Members are standard U-shaped steel track, unpunched, of web depths indicated, with straight flanges, and complying with the following:

- a. Minimum Uncoated Base-Metal Thickness: Matching steel studs.

- b. Flange Length: Manufacturer's standard deep flange where indicated, standard flange elsewhere.

3. Steel Track: Steeler J Track Members are standard J-shaped steel track, unpunched, of web depths indicated, with straight flanges, and complying with the following:

- a. Minimum Uncoated Base-Metal Thickness: Matching steel studs.

- b. Flange Length: Manufacturer's standard deep flange where indicated, standard flange elsewhere.

**** NOTE TO SPECIFIER ** STEELER Slotted Stud™ and Track - Provides a positive attachment for overall strength and allows for vertical movement caused by normal head-**

of-wall and floor extension or compression. Select the designation and criteria information based upon the shape and size component required for the project. If more than one, identify the application or location where used or verify the designation and size is indicated on the Drawings. For firewall applications conform to the STEELER UL Head of Wall System for the Classification and Rating required.

4. Slotted Deflection Studs:

- 1) As indicated on the Drawings.
- 2) 2-1/2 inches (64 mm).
- 3) 3-1/2 inches (89 mm).
- 4) 3-5/8 inches (92 mm).
- 5) 4 inches (102 mm).
- 6) 5-1/2 inches (140 mm).
- 7) 6 inches (152 mm).

c. Minimum Uncoated Base-Metal Thickness:

****NOTE TO SPECIFIER** Delete thickness not required.**

- 1) As indicated on Drawings.
- 2) 0.0429 inches (1.09 mm).
- 3) 0.0538 inches (1.37 mm).
- 4) 0.0635 inches (1.62 mm).
- 5) 0.0984 inches (2.50 mm).
- 6) 0.1180 inches (2.99 mm).

**** NOTE TO SPECIFIER ** Delete paragraph not required.**

- d. Minimum yield strength: As indicated on Drawings.
- e. Minimum yield strength of 33 ksi.

B. Floor Framing: Steeler load bearing (structural) cold formed floor components. Provide floor framing materials, including joists, tracks, web stiffeners, bracing, clip angles, straps, rim tracks, and other related accessories.

1. Steeler Floor Joists: Manufactur

4. Gusset plates.
5. Deflection track and vertical slide clips.
6. Stud kickers and girts.
7. Joist hangers and end closures.
8. Reinforcement plates.

2.5 ANCHORS, CLIPS, AND FASTENERS:

- A. Steel Shapes and Clips: ASTM A 36, zinc coated by the hot-dip process according to ASTM A 123.
- B. Cast-in-Place Anchor Bolts and Studs: ASTM A 307, Grade A, zinc coated by the hot-dip process according to ASTM A 153.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times the design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times the design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- E. Mechanical Fasteners: Corrosion-resistant coated, self-drilling, self-threading steel drill screws. Low-profile head beneath sheathing, manufacturer's standard elsewhere.

2.6 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.
- F. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
- B.

13.

3.

Identify products by name on the Drawings or use this paragraph to define the location of each type of material to be used. The following are some examples of schedule references. Edit as required to suit project or delete and identify products on the Drawings.

A. :

B. :

END OF SECTION