

Note: The legislative blue text indicates the needed editorial modifications in the Supplement to the 2023 Building Code, Chapter 22.

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**SECTION 2211.2206
COLD-FORMED STEEL
LIGHT-FRAME CONSTRUCTION**

2211.1.2206.1 Structural framing systems. For cold-formed steel light-frame construction, the design and installation of the following structural framing systems, including their members and connections, shall be in accordance with AISI S240 and Sections 2211.1.12206.1.1 through 2211.1.32206.1.2, as applicable:

1. Floor and roof systems,
2. Structural walls,
3. Shear walls, strap braced walls and diaphragms to resist in-plane lateral loads, and
4. Trusses.

2211.1.1 Seismic requirements for cold formed steel structural systems. Reserved.

2211.1.2206.1.1 Prescriptive framing. Detached one- and two-family *dwellings* and *townhouses*, less than or equal to three *stories above grade plane*, shall be permitted to be constructed in accordance with AISI S230 subject to the limitations therein.

2211.1.32206.1.2 Truss design. Cold-formed steel trusses shall comply with the provisions of Sections 2211.1.3.42206.1.2.1 through 2211.1.3.32206.1.2.2.

2211.1.3.42206.1.2.1 Truss design drawings. The truss design drawings shall conform to the requirements of Section 11 of AISI S202 and shall be provided with the shipment of trusses delivered to the job site. The truss design drawings shall include the details of permanent individual truss member restraint/bracing in accordance with Section 11.6 of AISI S202 where these methods are utilized to provide restraint/bracing.

2211.1.3.2206.1.2.2 Trusses spanning 60 feet or greater. The owner or the owner's authorized agent shall contract with a *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing for trusses with clear spans 60 feet (18 288 mm) or greater.

2211.1.3.3 Truss quality assurance. Reserved.

2211.2206.2 Nonstructural members. For cold-formed steel light-frame construction, the design and installation of nonstructural members and connections shall be in accordance with AISI S220.

2210.3 2206.3 Cutting and notching. The cutting and notching of holes in cold-formed steel framing members shall be in accordance with AISI S240 for structural members and AISI S220 for nonstructural members.

2210.42206.4 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section 1711.

(Step 2 – S12161 AM/A1 – Original plus A1 2nd comment period)

(S11246 / S196-22 AM) (P11086/ S196-22 AM)

2210.4 Industrial Boltless Steel Shelving. The design, testing and utilization of industrial boltless steel shelving shall be in accordance with ANSI/MH 28.2.

Commented [BM1]: Editorial modification that eliminates duplicative language. See Section 2212.

(S11242 / S191-22 AM)

2210.5 Industrial steel work platforms. The design, testing and utilization of industrial steel work platforms shall be in accordance with ANSI/MH 28.3.

Commented [BM2]: Editorial modification that eliminates duplicative language. See Section 2213.

(S11244 / S193-22)

2210.6 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline shall comply with Section 1711.

Commented [BM3]: Editorial modification that eliminates duplicative language. See Section 2206.4 above.

(Step 2 – S12161 AM/A1 – Original plus A1 2nd comment period)

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SECTION 2207 **STEEL JOISTS**

2207.1 General. The design, manufacture and use of open-web steel joists and joist girders shall be in accordance with either SJI 200 100 or SJI 400 200, as applicable.

2207.2 Design. The *registered design professional* shall indicate on the *construction documents* the steel joist and steel joist girder designations from the specifications listed in Section 2207.1 SJI 100 or SJI 200; and shall indicate the requirements for joist and joist girder design, layout, end supports, anchorage, bridging design that differs from the SJI specifications listed in Section 2207.1 SJI 100 or SJI 200, bridging termination connections and bearing connection design to resist uplift and lateral loads. These documents shall indicate special requirements as follows:

1. Special loads including:
 - 1.1. Concentrated loads.
 - 1.2. Nonuniform loads.
 - 1.3. Net uplift loads.
 - 1.4. Axial loads.
 - 1.5. End moments.
 - 1.6. Connection forces.
2. Special considerations including:
 - 2.1. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1 SJI 100 or SJI 200.
 - 2.2. Oversized or other nonstandard web openings.
 - 2.3. Extended ends.
3. **Live and total load deflection** Deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1 SJI 100 or SJI 200.

2207.3 Calculations. The steel joist and joist girder manufacturer shall design the steel joists and steel joist girders in accordance with the SJI specifications listed in Section 2207.1SJI 100 or SJI 200 to support the load requirements of Section 2207.2. The registered design professional shall be permitted to require submission of the steel joist and joist girder calculations as prepared by a registered design professional responsible for the product design. Where requested by the registered design professional, the steel joist manufacturer shall submit design calculations with a cover letter bearing the seal and signature of the joist manufacturer's registered design professional. In addition to the design calculations submitted under seal and signature, the following shall be included:

1. Bridging design that differs from the SJI specifications listed in Section 2207.1SJI 100 or SJI 200, such as cantilevered conditions and net uplift.
2. Connection design for:
 - 2.1. Connections that differ from the SJI specifications listed in Section 2207.4SJI 100 or SJI 200, such as flush-framed or framed connections.
 - 2.2. Field splices.
 - 2.3. Joist headers.

2207.4 Steel joist drawings. Steel joist placement plans shall be provided to show the steel joist products as specified on the approved construction documents and are to be utilized for field installation in accordance with specific project requirements as stated in Section 2207.2. Steel joist placement plans shall include, at a minimum, the following:

1. Listing of applicable loads as stated in Section 2207.2 and used in the design of the steel joists and joist girders as specified in the approved construction documents.
2. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.4SJI 100 or SJI 200.
3. Connection requirements for:
 - 3.1. Joist supports.
 - 3.2. Joist girder supports.
 - 3.3. Field splices.
 - 3.4. Bridging attachments.
4. Live and total load deflection Deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in Section 2207.1SJI 100 or SJI 200.
5. Size, location and connections for bridging.
6. Joist headers.

Steel joist placement plans do not require the seal and signature of the joist manufacturer's registered design professional.

2207.5 Certification. At completion of manufacture, the steel joist manufacturer shall submit a *certificate of compliance* to the owner or the owner's authorized agent for submittal to the *building official* as specified in Section 1704.5 stating that work was performed in accordance with *approved construction documents* and with SJI specifications listed in Section 2207.1SJI 100 or SJI 200, as applicable.

(S11241 / S189-22 AS)

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SECTION 22132210 **METAL BUILDING SYSTEMS**

Reserved.

2210.1 General. The design, fabrication and erection of a metal building system shall be in accordance with the provisions of this section.

Commented [BM4]: Editorial modification to reflect the approved as submitted Proposal S189-22.

2210.1.1 Design. The design of metal building systems shall be in accordance with Sections 2210.1.1.1 through 2210.1.1.4, as applicable.

2210.1.1.1 Structural Steel. The design, fabrication and erection of structural steel shall be in accordance with Section 2202².

2210.1.1.2 Cold-Formed Steel. The design of cold-formed carbon and low-alloy steel structural members shall be in accordance with Section 2204.

2210.1.1.3 Steel Joists. The design of steel joists shall be in accordance with Section 2207.

2210.1.1.4 Steel Cable. The design, fabrication and erection including related connections of steel cables shall be in accordance with Section 2214.

(S11247 / S197-22 AM)

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SECTION 2213

STAIRS, LADDERS AND GUARDING FOR STEEL STORAGE RACKS AND INDUSTRIAL STEEL WORK PLATFORMS

2213.2.1 General. The design and installation of stairs, ladders and guarding serving steel storage racks and industrial steel work platforms used in material handling structures shall be in accordance with ANSI/MH 32.1.

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SECTION 2214.2.16 HIGH-VELOCITY HURRICANE ZONES— GENERAL—STEEL CONSTRUCTION

2214.2.16.1 Design. Steel and iron members shall be designed by methods admitting of rational analysis according to established principles or methods.

2214.2.16.2 The design, fabrication and erection of iron and steel for buildings and other structures shall be as set forth in this chapter. The additional requirements set forth in Sections 2215.2.17 through 2221 herein, inclusive, apply to structural steel for buildings and other structures located in high-velocity hurricane zones. The additional requirements set forth in Sections 2222 and 2223 herein, inclusive, apply to cold-formed members of sheet or strip steel and cold-formed steel light frame construction located in high-velocity hurricane zones.

2214.3.2.16.3 The following standards, as set forth in Chapter 35 of this code, are hereby adopted.

1. American Institute of Steel Construction, AISC.
 - a. AISC 360, Specification for Structural Steel Buildings DG03, Serviceability Design Considerations for Steel Buildings, AISC.
 - b. AISC 370, Specification for Structural Stainless Steel Buildings DG09, Torsional Analysis of Structural Steel Members, AISC.
 - c. DG15, Rehabilitation and Retrofit, AISC.
 - d. AISC Steel Construction Manual, AISC.
2. AISI Standards by Steel Deck Institute American Iron and Steel Institute, AISI.
 - a. AISI S100, North American Specification for the Design of Cold-Formed Steel Structural Members.
 - b. ASCE 7-16, Minimum Design Loads for Buildings and Other Structures, ASCE.
3. AISI Standards by Steel Framing Industry Association

- a. AISI S230, Standard for Cold-Formed Steel Framing—Prescriptive Method for One and Two Family Dwellings
 - eb. AISI S240, North American Standard for Cold-Formed Steel Structural Framing.
- 34. American Society of Civil Engineers, ASCE.
 - a. ASCE 8, Specification for the Design of Cold-Formed Stainless Steel Structural Members.
- 45. American National Standards Institute/American Welding Society, ANSI/AWS.
 - a. Specification for Welding Procedure and Performance Qualification, AWS B2.1.
 - b. Structural Welding Code—Steel, ANSI/AWS D1.1—D1.1M.
 - c. Structural Welding Code—Sheet Metal, ANSI/AWS D1.3—D1.3M.
 - d. Structural Welding Code—Reinforcing Steel, ANSI/AWS D1.4.
 - e. Sheet Metal Welding Code, AWS D9.1—D9.1M.
- 56. ASTM International.
 - a. Standard Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use, ASTM A6.
 - b. Standard Specification for Sheet Steel, Carbon, Metallic, and Nonmetallic Coated for Cold-formed Steel Framing Members, ASTM A1003-A1003M.
 - c. Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions, ASTM F3125-F3125M.
- 67. National Association of Architectural Metal Manufacturers, NAAMM.
 - a. NAAMM MBG 531, Metal Grating Manual.
- 78. Research Council on Structural Connections, RCSC.
 - a. Specification for Structural Joints Using High-Strength Bolts, RCSC.
- 89. Steel Deck Institute, Inc., SDI.
 - a. Diaphragm Design Manual, SDI SDI Standard for Steel Deck.
 - b. SDI C Standard for Composite Steel Floor Deck Slabs.
 - c. SDI RD Standard for Steel Roof Deck.
 - d. SDI NC Standard for Non-Composite Steel Floor Deck.
- 910. Steel Joist Institute, SJI.
 - a. SJI 100, Standard Specification for K-Series, LH-Series, DLH-Series Open Web Steel Joists and for Joist Girders 45th Edition Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders, SJI.
 - b. SJI 200, Standard Specification for CJ-Series Composite Steel Joists “Structural Design of Steel Joist Roofs to Resist Pending Loads,” *Technical Digest No. 3*, SJI.
 - c. “Vibration of Steel Joist Concrete Floors,” *Technical Digest No. 5*, SJI.
 - d. “Design of Steel Joist Roofs to Resist Uplift Loads,” *Technical Digest No. 6*, SJI.
 - e. “Welding of Open Web Steel Joist and Joist Girders,” *Technical Digest No. 8*, SJI.
 - f. “Handling and Erection of Steel Joists and Joist Girders,” *Technical Digest No. 9*, SJI.
 - g. “90 Years of Open Web Steel Joist Construction, SJI.”
 - h. “Design of Lateral Load Resisting Frames Using Steel Joists and Joist Girders,” *Technical Digest No. 11*, SJI

1011. Steel Tube Institute, STI.

- a. HSS Design Manual, Volume 1: Section Properties & Design Information.
- b. HSS Design Manual, Volume 2A: Member Design 2016.
- c. HSS Design Manual, Volume 2B: Member Design 2016.
- d. HSS Design Manual, Volume 3: Connections at HSS Members 2016.
- e. HSS Design Manual, Volume 4: Truss & Bracing Connections 2016.

(Step 2 – S11917 A4 AM)

2214.4 Workmanship. Reserved.

2214.5 Statements of the structural responsibilities of architects and professional engineers on the design of structural steel systems. Reserved.

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