



AISI S202-15



**American
Iron and Steel
Institute**

AISI STANDARD

Code of Standard Practice for Cold-Formed Steel Structural Framing

2015 Edition



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Endorsed by

Association of the Wall and Ceiling Industry
Cold-Formed Steel Engineers Institute
Certified Steel Stud Association
Steel Framing Alliance
Steel Framing Industry Association
Steel Stud Manufacturers Association
Structural Building Components Association
Supreme Steel Framing System Association



DISCLAIMER

The material contained herein has been developed by the American Iron and Steel Institute (AISI) Committee on Framing Standards. The Committee has made a diligent effort to present accurate, reliable, and useful information on trade practices for fabrication and installation of cold-formed steel structural framing. The Committee acknowledges and is grateful for the contributions of the numerous engineers, manufacturers, contractors and others who have contributed to the body of knowledge on the subject. Specific references are included in the *Code of Standard Practice* document.

With anticipated improvements in understanding of the behavior of cold-formed steel framing and the continuing development of new technology, this material will become dated. It is anticipated that AISI will publish updates of this material as new information becomes available, but this cannot be guaranteed.

No conflict between this *Code of Standard Practice* and any legal building regulation is intended. This *Code of Standard Practice* is intended only to supplement and amplify such legal building regulations and laws.

The materials set forth herein are for general purposes only. They are not a substitute for competent professional advice. Application of this information to a specific project, particularly if included as part of a contract, should be reviewed by competent legal counsel. Anyone making use of the information set forth herein does so at their own risk and assumes any and all liability arising therefrom.

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PREFACE

The American Iron and Steel Institute Committee on Framing Standards has developed this *Code of Standard Practice for Cold-Formed Steel Structural Framing* (*Code of Standard Practice*) to address trade practices for design, fabrication and installation of *cold-formed steel structural framing* products.

This *Code of Standard Practice* is intended to serve as a state-of-the-art guide as well as a voluntary model for establishing contractual relationships between various parties in a construction project where *cold-formed steel* structural materials, components, or assemblies are used. It is not intended to take precedence over the *contract*, *construction documents* or the use of good judgment for specific construction projects and conditions. However, these provisions are considered suitable for reference or inclusion in *contracts* or *construction documents* and serve as a model for that purpose.

This *Code of Standard Practice* is not applicable to *nonstructural members*, including but not limited to interior drywall framing, which is addressed by AISI S220, ASTM C645 and ASTM C754, or *structural steel*, structural steel joists, steel deck, *metal building systems* or rack structures, which are addressed by AISI, SJI, SDI, MBMA and RMI, respectively.

The purpose of the Commentary is to provide a record of the reasoning behind and the justification for the various provisions of this *Code of Standard Practice*. The Commentary is included as non-mandatory background to provide a series of explanations, illustrations, and interpretations for the *owner's representatives*, *registered design professionals*, *contractors*, *suppliers*, *manufacturers*, *installers* and others.

The readers who wish to have more complete information, or who may have questions which are not answered by the abbreviated presentation of the Commentary, should refer to the Referenced Documents listed in Section A3.

The Committee acknowledges and is grateful for the numerous engineers, manufacturers, contractors and others who have contributed to the body of knowledge on the subject.

The first edition of this *Code of Standard Practice* was published in 2005. The 2006 Edition included new provisions on *revisions*, the *RFI* process, contract price adjustment and scheduling. The 2011 Edition incorporated the truss responsibilities that were published in *Supplement 2 to the North American Standard for Cold-Formed Steel Framing – Truss Design*, 2007 Edition. This 2015 Edition has included a new Section I2, Wall Panel Responsibilities; and a new Chapter J, Practices Specific to Coordination of CFS Structural Framing with Other Trades and Materials. This 2015 Edition also references the provisions of AISI S220, *North American Standard for Cold-Formed Steel Framing – Nonstructural Members*; and AISI S240, the new *North American Standard for Cold-Formed Steel Structural Framing*. In 2015, the provisions of AISI S200, *North American Standard for Cold-Formed Steel Framing – General Provisions* and AISI S214, *North American Standard for Cold-Formed Steel Framing – Truss Design* were consolidated into AISI S240. Users of this *Code of Standard Practice* should refer to the *applicable building code* and verify currently enforced documents.

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TABLE OF CONTENTS

CODE OF STANDARD PRACTICE

FOR COLD-FORMED STEEL STRUCTURAL FRAMING

Disclaimer	ii
Preface.....	iii
AISI Committee on Framing Standards.....	iv
Standard Practices Subcommittee	v
A. GENERAL	1
A1 Scope.....	1
A2 Definitions	1
A3 Referenced Documents	5
A4 Responsibility for Design	6
B. CLASSIFICATION OF MATERIALS	8
B1 Definition of Cold-Formed Steel Structural Framing.....	8
B2 Other Items	8
C. CONSTRUCTION DOCUMENTS	10
C1 Responsibilities	10
C2 Limit of Responsibility	11
C3 Jurisdiction	11
C4 Discrepancies or Omissions	11
C5 Revisions	11
D. INSTALLATION DRAWINGS	13
D1 Owner Responsibility	13
D2 Component Manufacturer and Installer Responsibility	13
D3 Review Process.....	13
D4 General Responsibility	14
E. MATERIALS.....	15
E1 Structural Members.....	15
E2 Fasteners and Connection Hardware	15
E3 Preparation of Material.....	15
E4 Member Identification	15
E5 Special Marking	15
E6 Camber	15
F. INSTALLATION	16
F1 Scope.....	16
F2 Site Conditions	16
F3 Delivery, Handling and Storage of Materials.....	16
F4 Field Modifications and Repairs.....	17
F5 Installation Tolerances	17
F6 Temporary Bracing.....	17
G. QUALITY CONTROL	19
G1 General	19
G2 Material Inspection.....	19
H. CONTRACTUAL RELATIONS	20
H1 Construction Documents and Contracts	20
H2 Presentation of Proposals	20
H3 Acceptance of Proposals	20

H4	Terms of Payment.....	20
H5	The RFI Process.....	20
H6	Revisions to the Construction Documents and Contract.....	21
H7	Change Orders	21
H8	Contract Price Adjustment.....	21
H9	Scheduling.....	21
I.	PRACTICES SPECIFIC TO CFS COMPONENT ASSEMBLIES	23
I1	Truss Responsibilities	23
I1.1	Design of Trusses	23
I1.2	Responsibilities of Truss Design Engineer/Truss Designer	23
I1.3	Responsibilities of Truss Manufacturer	24
I1.4	Responsibilities of Building Designer	25
I1.5	Responsibilities of Contractor	27
I1.6	Design of Permanent Individual Truss Member Restraint/Bracing	28
I2	Wall Panel Responsibilities	28
I2.1	Responsibilities of Wall Panel Detailer	28
I2.2	Responsibilities of Wall Panel Manufacturer	29
I2.3	Responsibilities of Wall Panel Installer	29
I2.4	Responsibilities of Contractor	30
J.	PRACTICES SPECIFIC TO COORDINATION OF CFS STRUCTURAL FRAMING WITH OTHER TRADES AND MATERIALS.....	32
J1	Steel Floor and Roof Deck	32
J1.1	Responsibility of Building Designer.....	32
J1.2	Responsibility of Steel Deck Support Framing Designers.....	33
J1.3	Responsibility of Steel Deck Supplier.....	33
J1.4	Responsibility of Contractor	33

CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING

A. GENERAL

A1 Scope

The practices in this *Code of Standard Practice* are a model to address the design, fabrication and installation of *cold-formed steel (CFS) structural framing*.

When adopted wholly or in part by a *contract* or *construction documents*, the trade practices that are defined in this *Code of Standard Practice* shall govern the design, fabrication and installation of *CFS structural framing*.

In addition to the requirements in Chapters A through H, Chapter I of this standard shall apply to *CFS component assemblies*.

Commentary:

The practices defined in this *Code of Standard Practice* are the commonly accepted standards of custom and usage for the fabrication and installation of *CFS structural framing*, which generally represent the most efficient approach. This *Code of Standard Practice* is not intended to define a professional standard of care for the *owner's representatives* and *building designer* or change the duties and responsibilities of the *owner*, *contractor*, *registered design professional* (e.g., architect or structural engineer-of-record) from those set forth in the *contract* or *construction documents*. Nor does it assign to the *owner* or *registered design professionals* any duty or authority to undertake responsibility inconsistent with the provisions of the *contract* or *construction documents*.

Commentary:

This *Code of Standard Practice* is not applicable to *nonstructural members*, including but not limited to interior drywall framing, which is addressed by AISI S220, ASTM C645 and ASTM C754, or *structural steel*, structural steel joists, steel deck, *metal building systems* or rack structures, which are addressed by AISI, SJI, SDI, MBMA and RMI, respectively. An extended list of non-applicable items is given in Section B2.

A2 Definitions

Where terms appear in this standard in italics, such terms shall have meaning as defined in AISI S240 unless as defined herein. Terms included in square brackets are specific to *LSD* terminology. Terms not italicized shall have ordinary accepted meaning in the context for which they are intended.

AISC. American Institute of Steel Construction.

AISI. American Iron and Steel Institute.

Approved. Acceptable to the code official or authority having jurisdiction.

Bracing. Structural elements that are installed to provide restraint or support or both to other framing members so that the complete assemblies form a stable structure.

Building Designer. *Owner* of the building or the person that *contracts* with the *owner* for the design of the framing structural system or who is responsible for the preparation of the *construction documents*. When mandated by the legal requirements, the *building designer* shall be a *registered design professional* (e.g., architect or structural engineer-of-record). Also referred to as *owner's representative for design*, but hereinafter will be referred to as *building designer*.

CASE. Council of American Structural Engineers.

CFS. Cold-formed steel.

CFS Component Assembly. A fabricated assemblage which consists primarily of *CFS structural members* that is manufactured by the *CFS component manufacturer*.

CFS Component Design Drawing. The written, graphic and pictorial definition of an individual *CFS component assembly*, which may include engineering design data. Also referred to as *truss design drawing* for *truss* construction.

CFS Component Designer. The individual or organization responsible for the engineering design of *CFS component assemblies*. Also referred to as *truss design engineer* on projects involving *trusses*, but hereinafter will be referred to as *CFS Component Designer*.

CFS Component Manufacturer. The individual or organization responsible for the manufacturing of *CFS component assemblies* for the project. Also referred to as *truss manufacturer* on projects involving *trusses* and *wall panel manufacturer* on projects involving *wall panels*, but hereinafter will be referred to as *CFS Component Manufacturer*.

CFS Component Placement Diagram. The illustration supplied by the *CFS component manufacturer* identifying the location assumed for each of the *CFS component assemblies* which references each individually designated *CFS component design drawing*.

CFS Structural Framing. The elements of the structural frame, as given in Section B1 of this *Code of Standard Practice*.

Clarification. An interpretation of the *construction documents* that have been *released for construction*, providing an explanation that neither revises the information that has been *released for construction* nor alters the cost or schedule of performance of the work.

Construction Documents. Written, graphic and pictorial documents prepared or assembled for describing the design (including the framing structural system), location and physical characteristics of the elements of a building necessary to obtain a building permit and construct a building.

Commentary:

The term “framing structural system” is commonly understood to mean a completed combination of structural elements, trusses, connections and other systems which serve to support the self-weight of the building and the specified loads. The definition for *Building Designer* in this standard is in line with other industry standards.

Contract. The legally recognized agreement between two parties which defines, among other items, the responsibilities of the parties involved in bidding, purchasing, designing, supplying, and installing *CFS structural framing*.

Contractor. Owner of the building, or the person that *contracts* with the *owner*, who constructs or manages the construction of the building in accordance with the *construction documents*. Also referred to as owner’s representative for construction, but hereinafter will be referred to as *contractor*.

Discrepancy. Any conflicts within the *construction documents*, or conflicts between the *construction documents* and *applicable building codes*.

Drawings. See *Plans* and *Installation Drawings*.

Embedded Anchor. A structural anchor or device (bolt, strap, plate, etc.) intended for fastening *CFS structural framing* to masonry or concrete that is installed prior to hardening of the grout or concrete.

Framing Contractor. See *Installer*.

Framing Material. Steel products, including but not limited to *structural members* and *CFS component assemblies*, ordered expressly for the requirements of the project.

General Contractor. See *Contractor*.

Installation Drawings. Drawings that show the location and installation of the *CFS structural framing*. Also referred to as *truss placement diagram* for *truss* construction and *wall panel placement diagram* for panelized wall construction.

Installer. Party responsible for the installation of *CFS* products.

Commentary:

While this *Code of Standard Practice* was patterned after a similar document by the *AISC*, care was taken to use terminology to avoid confusion between material suppliers, fabricators and trades. Therefore, the term *installer* is used in reference to *CFS structural framing* versus the term *erector* typically used in reference to *structural steel*.

Lateral Force-Resisting System. The *structural* elements and connections required to resist racking and overturning due to wind forces or seismic forces, or both, imposed upon the structure in accordance with the *applicable building code*.

Material Supplier. An individual or entity responsible for furnishing *framing materials* for the project.

Commentary:

See definition of *Steel Deck Supplier* for furnishing of *steel deck*.

MBMA. Metal Building Manufacturers Association.

Metal Building System. A complete integrated set of mutually dependent components and assemblies that form a building. As defined by the *MBMA*, a *metal building system* includes the primary and secondary framing, covering, and accessories, all of which are manufactured to permit inspection on site prior to assembly or installation.

Overframing. *Truss* or rafter framing components used to frame the shape of dormers, intersecting roof planes, or other items required to complete the exterior profile of the roof.

Owner. The individual or entity organizing and financing the design and construction of the project.

Owner's Representative. The *owner* or individual designated contractually to act for the *owner*. Referred to as *building designer* when referencing owner's representative for design. Referred to as *contractor* when referencing owner's representative for construction.

Plans. Also referred to as construction drawings. Drawings prepared by the *building designer* for the *owner* of the project. These drawings include but are not limited to floor plans, framing plans, elevations, sections, details and schedules as necessary to define the desired construction.

Post-Installed Anchor. A structural anchor or device (bolt, clip, angle, bracket, etc.) intended for fastening *CFS structural framing* to hardened masonry or concrete. For anchorage to concrete, these anchors are installed after the concrete has achieved sufficient stiffness to be sawn or drilled.

Receiving Entity. The individual or entity responsible to the *contractor* for accepting or rejecting furnished *framing material* and proper storage of received *framing materials* on the job site.

Registered Design Professional. Architect or engineer who is licensed to practice their respective design profession as defined by the legal requirements of the jurisdiction in which the building is to be constructed.

Release for Construction. The release by the *owner's representative* permitting the *CFS component manufacturer* or *installer* to commence work under the *contract*, including ordering *framing material* and preparing *installation drawings*.

Revision. An instruction or directive providing information that differs from information that has been *released for construction*. A *revision* may, but does not always, impact the cost or schedule of performance of the work.

RFI. Request for Information. A written request for information or *clarification* generated during the bidding, design or construction phases of the project.

RMI. Rack Manufacturers Institute.

SDI. Steel Deck Institute.

Shop Drawings. Drawings for the production of individual *CFS component assemblies* for the project.

Specialty Designer. The *registered design professional*, individual or organization having responsibility for the design of the specialty items. This responsibility shall be in accordance with the state's, province's or territory's statutes and regulations governing the professional registration and certification of architects or engineers. Also referred to as *CFS component designer*, specialty engineer, delegated engineer, design engineer, registered engineer, and engineer, but hereinafter will be referred to as *Specialty Designer*. The requirement for a *Specialty Designer* is typically called out in the *specifications* or structural general notes. The *Specialty Designer* is typically not the *building designer*.

Specifications. Written instructions, which, with the *plans*, define the materials, standards, design of the products, and workmanship expected on a construction project.

SJI. Steel Joist Institute.

SSMA. Steel Stud Manufacturers Association.

Standard Cold-Formed Steel Structural Shapes. *CFS structural members* that meet the requirements of AISI S201, *North American Standard for Cold-Formed Steel Framing – Product Data*.

Steel Deck. Profiled steel panels installed on support framing.

Commentary:

Steel deck is typically covered by a weather-resistant membrane, or by structural or insulating concrete.

Steel Deck Submittal Package. Package consisting of, but not limited to, *steel deck* profiles with section properties, bill of materials, layout/placement drawings over support framing, and *steel deck* attachment patterns derived from information provided by the *building designer*.

Steel Deck Supplier. The entity responsible for furnishing *steel deck* for the project.

Commentary:

The *steel deck supplier* in most instances is also the manufacturer, but may be another entity, such as a broker.

Structural Steel. The elements of the structural frame defined as *structural steel* by AISC in the *Code of Standard Practice for Steel Buildings and Bridges*.

Sub-Contractor. The individual or organization with whom a *contractor* has contracted to furnish or install all or a portion of the project.

Submittals. Items required by the *construction documents* or *contract* to be submitted by the *contractor* or *sub-contractor*. These include but are not limited to *CFS component design drawings*.

Truss Design Drawing. Written, graphic and pictorial depiction of an individual *truss*.

Truss Design Engineer. Person who is licensed to practice engineering as defined by the legal requirements of the jurisdiction in which the building is to be constructed and who supervises the preparation of the *truss design drawings*.

Truss Designer. Person responsible for preparation of the *truss design drawings*.

Truss Member. A *chord member* or *web member* of a *truss*.

Truss Placement Diagram. Illustration identifying the assumed location of each *truss*.

Truss Submittal Package. Package consisting of each individual *truss design drawing*, and, as applicable, the *truss placement diagram*, the cover/*truss index sheet*, permanent individual *truss member* restraint/bracing details designed in accordance with generally accepted engineering practice, applicable permanent individual *truss member* restraint/bracing details, and any other structural details germane to the *trusses*.

Wall Panel. A fabricated assemblage of individual *CFS structural members* into a *CFS component assembly* primarily for vertical framing applications.

Wall Panel Detailer. Person responsible for preparation of the *wall panel fabrication drawings*.

Wall Panel Fabrication Drawing. Written, graphic and pictorial depiction of an individual *wall panel*.

Wall Panel Installer. Party responsible for the installation of *wall panels*.

Wall Panel Manufacturer. The individual or organization responsible for the manufacturing of *CFS wall panels* for the project.

Wall Panel Member. An individual *CFS structural member* in a *wall panel assembly*.

Wall Panel Placement Diagram. Illustration identifying the location of each *wall panel*.

Wall Panel Submittal Package. Documents consisting of each individual *wall panel fabrication drawing*, and, as applicable, the *wall panel placement diagram*, and the cover or *wall panel index sheet*.

A3 Referenced Documents

The following documents or portions thereof are referenced within this *Code of Standard Practice* and shall be considered part of the requirements of this document.

1. AIA 201-2007, *General Conditions of the Contract for Construction*, American Institute of Architects, Washington, DC.
2. AISI S201-12, *North American Standard for Cold-Formed Steel Framing – Product Data*, American Iron and Steel Institute, Washington, DC.
3. AISI S220-15, *North American Standard for Cold-Formed Steel Framing – Nonstructural Members*, American Iron and Steel Institute, Washington, DC.
4. AISI S240-15, *North American Standard for Cold-Formed Steel Structural Framing*, American Iron and Steel Institute, Washington, DC.
5. ASTM A780/A780M-09, *Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings*, ASTM International, West Conshohocken, PA.
6. ASTM A1003/A1003M-15, *Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members*, ASTM International, West Conshohocken, PA.