AISI STANDARD

Supplement 1 to the 2007 Edition
of the North American Standard
for Cold-Formed Steel Framing—
Wall Stud Design

2012

Endorsed by Steel Framing Alliance
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 cold-formed steel framing design and installation. The Committee acknowledges and is grateful for the contributions of the numerous researchers, engineers, and others who have contributed to the body of knowledge on the subject. Specific references are included in the Commentary.

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.

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 should be reviewed by a design professional. Indeed, in many jurisdictions, such review is required by law. Anyone making use of the information set forth herein does so at their own risk and assumes any and all liability arising therefrom.
PREFACE

The American Iron and Steel Institute Committee on Framing Standards has developed Supplement 1 to AISI S211, the *North American Standard for Cold-Formed Steel Framing – Wall Stud Design*, to update referenced documents and remove provisions related to nonstructural member design, which are covered by a newly published standard, AISI S220, *North American Standard for Cold-Formed Steel Framing - Nonstructural Members*. In addition, the erratum (published on August 10, 2010) is included as well.

The Committee acknowledges and is grateful for the contributions of the numerous engineers, researchers, producers and others who have contributed to the body of knowledge on the subjects.
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**DESIGN METHODS SUBCOMMITTEE**

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**NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING – WALL STUD DESIGN**

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A. GENERAL

(1) Replace Sections A1 and A4 as follows:

A1 Scope

The design and installation of cold-formed steel studs for structural walls in buildings shall be in accordance with AISI S100 [CSA S136] and AISI S200, except as modified by the provisions of this standard. Alternatively, cold-formed steel studs for structural walls in buildings shall be permitted to be designed solely in accordance with AISI S100 [CSA S136].

This standard shall not preclude the use of other materials, assemblies, structures, or designs not meeting the criteria herein, when the other materials, assemblies, structures or designs demonstrate equivalent performance for the intended use to those specified in this standard. Where there is a conflict between this standard and other reference documents, the requirements contained within this standard shall govern.

This standard shall include Sections A through C in their entirety.

A4 Referenced Documents

The following documents or portions thereof are referenced in this standard and shall be considered part of the requirements of this document.

1. AISI S100-12, North American Specification for the Design of Cold-Formed Steel Structural Members, American Iron and Steel Institute, Washington, DC.

2. AISI S200-12, North American Standard for Cold-Formed Steel Framing – General Provisions, American Iron and Steel Institute, Washington, DC.

3. ASCE 7-10 Including Supplement 1, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers, Reston, VA.

4. CAN/CSA S136-07-12, North American Specification for the Design of Cold-Formed Steel Structural Members, Canadian Standards Association, Mississauga, Ontario, Canada.


B3.1 Intermediate Brace Design

(2) In the first and third paragraphs of the section, change “Section D3.2.2 of AISI S100 [CSA S136]” to “Section D3.2.1 of AISI S100 [CSA S136].”
AISI STANDARD

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PREFACE

This Commentary is intended to facilitate the use and provide an understanding of the background of Supplement 1 to AISI S211, the *North American Standard for Cold-Formed Steel Framing – Wall Stud Design*. The Commentary illustrates the substance and limitations of the various provisions of the standard.

In the Commentary, sections, equations, figures, and tables are identified by the same notation as used in the standard. Words that are italicized are defined in AISI S200, *North American Standard for Cold-Formed Steel Framing–General Provisions*. Terms included in square brackets are specific to Limit States Design (LSD) terminology. The Committee also wishes to express its appreciation for the support of the Steel Framing Alliance.
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A. General

(1) Replace Sections A1 and A3 as follows:

A1 Scope

AISI S211 (AISI, 2012c) applies to the design and installation of cold-formed steel studs for structural walls in buildings and provides a supplement to AISI S100 [CSA S136], (AISI, 2012a; CSA, 2012).

Prior to 2012, AISI S211 included provisions for both structural and nonstructural walls. In 2012, provisions related to nonstructural member design are covered by AISI S220, North American Standard for Cold-Formed Steel Framing - Nonstructural Members.

A3 Loads and Load Combinations

Currently, ASCE 7 (ASCE, 2010) has no geographical-based information on Mexico. Therefore, users with projects in Mexico should work with the appropriate authority having jurisdiction to determine appropriate loads and load combinations that are consistent with the assumptions and rationale used by ASCE 7.

A3.1 Wind Loading Considerations in the United States and Mexico

(2) Replace the fifth paragraph as follows:

The Commentary to Appendix C of ASCE 7 (ASCE, 2010) provides some guidance on the selection of loads for checking the serviceability limit state of buildings and their components where Section B1.2 states in part:
**B. DESIGN**

**B1 Member Design**

(3) Replace the second paragraph as follow:

The standard stipulates that when sheathing braced design is used, the wall *stud* shall be evaluated without the sheathing *bracing* for the dead loads and loads that may occur during construction or in the event that the sheathing has been removed or has accidentally become ineffective. The LRFD load combination for the United States and Mexico is taken from *ASCE 7* (ASCE, 2010) for special event loading conditions.

**B1.2 Axial Load**

(4) Replace the first paragraph as follows:

Prior to 2004, the *North American Specification for the Design of Cold-Formed Steel Structural Members* contained requirements for sheathing braced design in its Section D4(b). In 2004, these provisions were removed. AISI S100 [CSA S136], (AISI, 2012a; CSA, 2012) now permits sheathing braced design in accordance with an appropriate theory, tests, or rational engineering analysis.

(5) Replace the third paragraph as follows:

The limit of *L/384* is based on the maximum bow of 1/32 inch/foot (2.6 mm/m) as prescribed by Table A5.1 of AISI S200 (AISI, 2012b). The tests indicated a failure of the sheathing, not the screw-to-stud attachment. Thus, the standard does not directly stipulate a design requirement to check the screw-to-stud capacity or the screw capacity in shear.

**B2 Connection Design**

**B2.1 Fastening Methods**

(6) Replace the first paragraph as follows:

Self-drilling screws are the primary fastener type used in cold-formed steel construction, although the standard does not preclude the use of other fastener types. Installation guidelines for self-drilling screws are provided by AISI S200 (AISI, 2012b).

**B3 Bracing**

(7) Replace all of Sections B3.1 and B4 as follows:

**B3.1 Intermediate Brace Design**

Brace forces are additive, thus the standard requires consideration of combined brace forces when designing braces for members that experience combined loading. Design guidance is provided in AISI D110-08, *Cold-Formed Steel Framing Design Guide* (AISI, 2007).
B4 Serviceability

The standard does not stipulate serviceability limit states. However, the *International Building Code* (ICC, 2012) sets forth deflection limits in Sections 1604.3 and 1405.9.1.1, and the *NFPA 5000* (NFPA, 2012) sets forth similar provisions in Section 37.1.2.8 for use in the United States and Mexico. Likewise, the *User’s Guide - NBC 2005 Structural Commentaries (Part 4, of Division B)* (NRC, 2005) sets forth deflection limits for use in Canada.
REFERENCES

(8) Replace the 3rd to 7th, 13th, 15th, 16th, and 17th references with the following, respectively:


