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AISI STANDARD

Summary of Changes in the 2007 Edition Standards for Cold-Formed Steel Framing

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SUMMARY OF CHANGES IN THE 2007 EDITION STANDARDS FOR COLD-FORMED STEEL FRAMING

The 2007 editions of the AISI standards for cold-formed steel framing are in the process of being approved and will soon be available. This work by the AISI Committee on Framing Standards is expected to include the revision of six current standards and the issuing of three new standards, as follows:

Revised Standards:

- North American Standard for Cold-Formed Steel Framing - General Provisions
- North American Standard for Cold-Formed Steel Framing - Header Design
- North American Standard for Cold-Formed Steel Framing - Lateral Design
- North American Standard for Cold-Formed Steel Framing - Truss Design
- North American Standard for Cold-Formed Steel Framing - Wall Stud Design
- Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings

New Standards:

- North American Standard for Cold-Formed Steel Framing - Floor and Roof System Design
- North American Standard for Cold-Formed Steel Framing - Product Data
- Standard for Cold-Formed Steel Framing - Load and Span Tables

This document presents a brief summary of major changes made in the revision of the General Provisions, Header Standard, Truss Standard and Wall Stud Standard, and an overview of the new Floor and Roof System Design Standard and Product Standard.

It is anticipated that a future edition of this document will be expanded and also present a brief summary of major changes made in the revision of the Lateral Standard and Prescriptive Method, and an overview of the new Load and Span Tables.

It should be noted that the words "North American" are now in the titles of many of these standards. This was done to emphasize that these documents are intended for adoption and use not just in the United States but also throughout North America. The support of the Canadian Sheet Steel Building Institute is acknowledged in the prefaces to these documents.

North American General Provisions (Revised Standard):

A2 Definitions: Definitions for terms in all the various AISI standards for cold-formed steel framing were centralized in the General Provisions to assure consistency and better facilitate maintenance of the standards. Definitions for the terms diaphragm, shear wall and yield strength were revised for consistency with the Standard Definitions for Use in the Design of Steel Structures (AISI, 2004). The term base metal thickness was revised to base steel thickness. Definitions for the terms non-structural stud and structural stud were replaced with non-structural member and structural member. The definition for the term ridge was revised for consistency and use in all the cold-formed steel framing standards. Definitions for the terms factored resistance and nominal resistance were added for use in Canada. Definitions for the terms chord splice and pitch break were added for use in the Truss Standard.

A4 Corrosion Protection: Language was added to clarify that a dissimilar metal may be used in direct contact with steel framing members if approved for that application. Commentary language was added to provide guidance on when such applications might not be a problem, along with a reference regarding the use of stainless steel brick ties (CSA, 2004).

A5 Products: In Section A5.1, the minimum base metal thickness table was removed. The thickness requirements now defer to an approved design or recognized product standard, such as the new Product Standard. In Section A5.2, a statement was added to clarify that the standard designator is intended to be the same when using either U.S. Customary or SI Metric units. A requirement was added that when specifying material for use in structural applications, the material used in design is identified on the contract documents and when ordering the material. In Section A5.4, product identification requirements were modified to allow 96-inch spacing of identification in accordance with the new Product Standard or ASTM A1003 rather than the former 48-inch spacing in accordance with ASTM C645, C955 or A1003.

A6 Referenced Documents: The referenced document listing was updated to include the 2007 editions of the Specification, as published by both AISI (AISI, 2007) and CSA (CSA, 2007), and the new Product Standard. ASTM references were updated. ASTM C954 (ASTM, 2004a) and C1002 (ASTM, 2004b) were added to the listing.

B1 Members: Language was added to clarify that the AISI (AISI, 2007) and CSA (CSA, 2007) published versions of the Specification are equally applicable.

C1 In-Line Framing: Commentary language was added to provide guidance on the use of load bearing top track assemblies, based on testing programs at the NAHB Research Center (NAHB, 2003) and the University of New Brunswick (Dawe, 2005).

C3 Installation Tolerances: Commentary language was added to provide guidance on the wall stud gap tolerance, based on a testing program at the University of Missouri-Rolla (Findlay, 2005).

D1 Screw Connections: In Section D1.6, requirements were added to reference the applicable ASTM standards for screw fasteners for gypsum board attachment.

North American Header Standard (Revised Standard):

A1 Scope: For consistency with the other AISI standards for cold-formed steel framing, the requirements of former Section A1.1 were moved to the appropriate portions of Sections B and C. Commentary language was added to emphasize the limited scope of this standard and to provide guidance on the broader subject of opening design, including a reference to the Cold-Formed Steel Framing Design Guide (AISI, 2002).

A2 Definitions: This new section was added to clarify that definitions for terms used in this standard are listed in the General Provisions.

A3 Loads and Load Combinations: A reference to the National Building Code of Canada (NBCC 2005) was added, as it is the appropriate code for use in Canada.

A4 Referenced Documents: The referenced document listing was updated to include the 2007 editions of the Specification, as published by AISI (AISI, 2007a) and CSA (CSA, 2007), and the revised General Provisions. The ASCE 7 reference was updated. The National Building Code of Canada (NBCC 2005) was added to the listing.

B1 Back-to-Back Headers: In Sections B1.2 and B1.4, requirements for evaluating shear in accordance with the Specification were added.

B2 Box Headers: In Sections B2.2 and B2.4, requirements for evaluating shear in accordance with the Specification were added. In Sections B2.3 and B2.5, LSD resistance factors for evaluating web crippling were added.

B3 Double L-Headers: Limitations, from former Section A1.1, were added. In Section B3.1.3, LSD resistance factors for evaluating moment were added.

B4 Single L-Headers: Limitations, from former Section A1.1, were added. In Section B4.1.3, an LSD resistance factor for evaluating moment was added.

B5 Inverted L-Header Assemblies: This new section was added to provide provisions for designing inverted L-header assemblies, based on rational engineering judgment, as a means to provide improved capacity for double and single L-headers.

C1 Back-to-Back and Box Headers: Installation requirements for back-to-back and box headers, from former Section A1.1, were included in this new section.

C2 Double and Single L-Headers: Installation requirements for double and single L-headers, from former Section A1.1, were included in this new section.

C3 Inverted L-Header Assemblies: This new section was added to provide provisions for installing inverted L-header assemblies.

North American Truss Standard (Revised Standard):

A2 Definitions: Definitions for terms used in this standard have been removed from this section and centralized in the General Provisions.

A4 Referenced Documents: The referenced document listing was updated to include the 2007 editions of the Specification, as published by AISI (AISI, 2007) and CSA (CSA, 2007), and the revised General Provisions. The ASCE 7 reference was updated. The National Building Code of Canada (NBCC 2005) was added to the listing.

C Loading: A reference to the National Building Code of Canada (NBCC 2005) was added, as it is the appropriate code for use in Canada.

D4 Member Design: Sections D4.2, D4.3, D4.4 and D4.5 were revised to clarify when members are to be evaluated for axial load alone, bending alone, and combined axial load and bending using the provisions of the Specification. In Section D4.2, an LSD resistance factor for evaluation of compression chords was added. Section D4.4 was revised and Commentary language was added to clarify the requirements for trusses with C-shaped chord and web members.

D5 Gusset Plate Design: This new section was added to provide provisions for designing gusset plates, based on based on a testing program at the University of Missouri-Rolla (Lutz, 2 004).

G3 Full-Scale Structural Performance Load Test: In Section G3.2, the required minimum number of test specimens was changed from two to three. In Section G3.7, the special Beta-factors for trusses were deleted and the user is deferred instead to Chapter F1 of the Specification.

North American Wall Stud Standard (Revised Standard):

A1 Scope: A sentence was added to clarify that designing solely in accordance with the Specification is an alternative to this standard.

A2 Definitions: Definitions for terms used in this standard have been removed from this section and centralized in the General Provisions.

A3 Loads and Load Combinations: For consistency with the other AISI standards for cold-formed steel framing, the requirements of former Section B on Loading were moved to this new section. Former Sections C and D were renamed Sections B and C, accordingly. A reference to the National Building Code of Canada (NBCC 2005) was added, as it is the appropriate code for use in Canada. Wind loading considerations were separated into Subsection A3.1 for clarity, since these provisions are not intended for use in Canada.

A4 Referenced Documents: The referenced document listing was updated to include the 2007 editions of the Specification, as published by AISI (AISI, 2007) and CSA (CSA, 2007), and the revised General Provisions. The ASCE 7 reference was updated. The National Building Code of Canada (NBCC 2005) was added to the listing.

B Design: Former requirements for materials and corrosion protection, which merely referred the user to the General Provisions, were deemed unnecessary and were deleted. A statement was added to emphasize that unless modified or supplemented in this standard, strength determinations are to be made in accordance with the Specification.

B1 Member Design: A statement was added regarding the application of sheathing braced design in Canada.

B2 Connection Design: In Section B2.2, an LSD resistance factor was added for evaluating the stud-to-track connection. Section B2.3 was revised to clarify that web crippling the stud must be evaluated in accordance with the Specification and requirements on bearing length were

added. In Section B2.3, an LSD resistance factor for evaluating the deflection track was added, as were additional limitations on the methodology that are consistent with the original testing.

North American Floor and Roof System Design Standard (New Standard):

A. General: This standard is intended for the design and installation of cold-formed steel framing for floor and roof systems in buildings. The standard defers to the Specification, except when modified by the standard. Designing solely in accordance with the Specification is cited as an alternative to the standard.

B. Design: This standard provides requirements for floor joists, ceiling joists and roof rafters are provided for both a discretely braced design; i.e., neglecting the structural bracing and/or composite-action contribution of attached sheathing or deck, or a continuously braced design. Provisions are provided for clip angle bearing stiffeners, based on recent testing programs at the University of Waterloo (Fox, 2006); and for bracing, based on available research, field experience and Specification requirements.

C. Installation: This standard has no specific installation requirements beyond those of the General Provisions.

North American Product Standard (New Standard):

A General: This standard is intended to establish and encourage the production and use of standardized products in the United States, Canada and Mexico. It provides criteria, including material and product requirements for cold-formed steel C-shape studs, joists, track, U-channels, furring channels and angles intended to be utilized in structural and non-structural framing applications.

B. Materials: This standard defines standard material grades and specifications, minimum base steel and design thickness, and coatings for corrosion protection.

C. Products: This standard defines standard product designator, shapes, inside bend radius, lip length, punchouts, marking and manufacturing tolerances.

D. Quality Assurance: This standard requires a properly documented quality control program and the proper application of quality assurance procedures.

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