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Wei-Wen Yu Center for Cold-Formed Steel Structures

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AISI Test Procedures for Cold-Formed Steel

Updated for 2007

Introduction

Chapter F of the North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100) permits the use of test results to determine the strength and stiffness of cold-formed steel members and connections when their composition or configuration is such that calculation of strength and/or stiffness cannot be made using the provisions of the Specification. The AISI test procedures provide means for determining design data in these situations. Standardizing test procedures also establish a common ground for researchers and manufacturers to share test results and ensure test quality.

In the 2002 edition of the AISI Cold-Formed Steel Design Manual an identifying numbering system was established as "AISI TS" followed by a sequence number and the year when the test procedure was published or updated. For all of the published test procedures prior to 2002, the year "2002" was assigned.

Because AISI has adopted a new designation system for its standards documents, the test procedures will also have a new designation in the 2008 Cold-Formed Steel Design Manual.

Also, all test standards have been rewritten to comply with a consistent format based on a standard template.

A list of the current and new AISI test procedures, along with the corresponding identifying numbers, is summarized herein.

Interpretation of Test Results

Paramount to using the AISI standard test procedures is proper evaluation and interpretation of the test results. In September, 2007, the Cold-Formed Steel Engineers Institute (CFSEI, formerly the LGSEA), released their "Technical Note G100-07: Using Chapter F of the North American Specification for the Design of Cold-Formed Steel Structural Members." Written primarily for the audience of structural engineers and testing laboratories interested in products related to framing, the note applies equally to cold-formed steel structural members used in other applications. Chapter F of the specification is entitled "Tests for Special Cases," and allows researchers and manufacturers to base their design on test data if the respective member or connection can not be designed using the equations contained in Chapters A through G. The note, written by CCFSS director Dr. Roger LaBoube, gives a background and overview on Chapter F, and a design example showing a test program set up to develop the design capacity of a pin connection between two steel sheets. The Technical Note also includes, as an appendix, section F1 from the Specification, which is "Tests for Determining Structural Performance."

The heart of the technical note is the design example. In the example, the user is shown how to use adjustment factors based on variations in sheet steel thickness and yield strength, how to calculate omega and phi factors, how the number of tests can affect results, and some of the limitations on the equations.

The note is available from the CFSEI at www.cfsei.org. Members of the CFSEI can download the note for free in the "members only" section; the note is available in paper format and to non-members for $5. For additional information on this note or other CFSEI publications, contact CFSEI Manager Brian Berger at bberger@cfsei.org. If you have comments on this note or suggested topics for other CFSEI publications, contact Mr. Berger at the same address. The CFSEI has recently become a sponsor of the CCFSS, and will have this and other publications and Technical Notes on display at the CCFSS Specialty Conference this October.

Current Designation	Test Procedures	New Designation
AISI TS-1-02	Rotational-Lateral Stiffness Test Method for Beam-to-Panel Assemblies	AISI S901-07
AISI TS-2-02	Stub-Column Test Method for Effective Area of Cold-Formed Steel Column	AISI S902-07
AISI TS-3-02	Standard Method for Determination of Uniform and Local Ductility	AISI S903-07
AISI TS-4-02	Standard Test Methods for Determining the Tensile and Shear Strength of Screws	AISI S904-07
AISI TS-5-02	Test Methods for Mechanically Fastened Cold-Formed Steel Connections	AISI S905-07
AISI TS-6-02	Standard Procedures for Panel and Anchor Structural Tests	AISI S906-07
AISI TS-7-02	Cantilever Method for Cold-Formed Steel Diaphragm	AISI S907-07
AISI TS-8-04	Base Test Method for Purlins Supporting a Standing Seam Roof System	AISI S908-07
AISI TS-9-05	Standard Test Method for Determining the Web Crippling Strength of Cold-Formed Steel Beams	AISI S909-07
AISI TS-10-05	Test Method for Distortional Buckling of Cold-Formed Steel Hat Shaped Columns	AISI S910-07
AISI TS-11-05	Method for Flexural Testing Cold-Formed Steel Hat Shaped Beams	AISI S911-07
AISI TS-12-05	Test Procedure for Determining a Strength Value for a Roof Panel-To-Purlin-To-Anchorage Device Connection	AISI S912-07
New	Test Standard for Joist Connectors Attached to Cold-Formed Structural Framing	AISI S913-07
New	Test Standard for Hold-Downs Attached to Cold-Formed Structural Framing	AISI S914-07