



UNIVERSITY OF MISSOURI-ROLLA

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AISI Committee on Specifications Meets

The Committee on Specifications for the North American Specification for the Design of Cold-Formed Steel Structural Members and its subcommittees met for their semi-annual meetings on February 21st, 22nd, and 23rd in Las Vegas, NV. The meetings consisted of updates on ongoing research as well as discussion on proposed changes to the Specification.

Research reports were presented on several AISI sponsored research projects. Dr. Reini Schuster reported on the University of Waterloo study of the strength of stud track bottom connection. Dr. Ben Schafer provided an overview of the recently initiated project at Johns Hopkins University focused on the application of the Direct Strength Method for Members with Holes. Dr. Sam Easterling reported on the Virginia Tech study regarding the insulation impact on shear strength of screw connections and shear strength of diaphragms.

Special presentations were provided by Dr. Cheng Yu of the University of North Texas on distortional buckling of flexural members conducted at Johns Hopkins University and Dr. Greg Deierlein updated the Committee regarding the background for direct analysis provisions for frame stability in the 2005 AISC specification.

Dr. Ben Schafer provided an update on the development of a design guide for the Direct Strength Method. The Committee also reviewed the progress of the second edition of the AISI Cold-Formed Steel Framing Design Guide which is under development by Tom Trestain.

With the recent completion of the 2004 Supplement to the North American Specification for the Design of Cold-Formed Steel Structural Members, several possible enhancements to and/or additions to the Specification were discussed at the meetings. The 2004 Supplement is now available in both electronic and printed format and can be ordered from the AISI website www.steel.org. The major changes included in the Supplement are summarized in the current edition of the Center's Technical Bulletin.

The Committee's next meeting is scheduled for July 25th, 26th, and 27th, 2005.

Short Course on Cold-Formed Steel Design

The Wei-Wen Yu Center for Cold-Formed Steel Structures is planning for its 19th Short Course on Cold-Formed Steel Structures. The three-day short course will be held October 18th, 19th, and 20th, 2005 in St. Louis, MO

The short course will discuss the behavior of cold-formed steel members and connections. The short course is structured to provide an introduction to behavior and design for engineers unfamiliar with cold-formed steel. For engineers experienced with cold-formed steel design, the short course will strengthen their under-

standing of the fundamental behavior of both members and connections, as well as provide a better understanding of the AISI design specification and the AISI framing standards. A preview of future specification changes will also be provided. Both commercial and residential applications of cold-formed steel will be discussed.

Lectures will be based on information contained in the AISI North American Specification for the Design of Cold-Formed Steel Structural Members, 2001 edition with the 2004 Supplement and its Commentary and

the AISI Standards for Cold-Formed Steel Framing, 2004 editions. The text Cold-Formed Steel Design, 3rd edition, by W. W. Yu will also serve as a course reference.

Included in the course registration is a tour of a local panelizing facility. Gateway Panel is a manufacturer of pre-fabricated cold-formed steel wall panels and truss systems using state-of-the-art automated equipment in their assembly plant located in St. Charles, Missouri. The pre-fabricated metal

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Metal Construction Association Announces Larry Swaney Award and Presidents Award Winners

Glenview, IL - The Metal Construction Association (MCA) recently presented the 2004 Larry Swaney Award to Bill Croucher, Director of Engineering for Fabral (Lancaster, PA). The ceremony was held at the MCA Annual Meeting in La Jolla, CA February 1. In making the announcement, MCA President Paul "Kit" Emert recognized Croucher's achievements for MCA and the metal construction industry, including his service as a director, council chair, tireless speaker, and overall contributor to the technical agenda to advance the use of metal in construction. The Swaney award, named after MCA founder and its first President, Larry Swaney, recognizes the recipient's contribution and reflects the spirit of Larry Swaney, who was committed to promoting communication, cooperation, sharing, and unity, as well as fostering growth for a better metal construction industry.

Also presented during the Annual Meeting were the 2004 Presidents Awards. The Awards process began when Metal Architecture magazine held their Annual Design Awards contest, in which architects and manufacturers were invited to submit their best construction projects using metal.

Awards were given in five categories for the MCA Presidents Awards, each recognizing the outstanding design of metal buildings and roofs. The purpose of the Presidents Awards is to demonstrate the exciting design possibilities of using metal in construction.

The 2004 MCA Presidents Award winners are as follows: In the Residential category, ATAS International (Allentown, PA), Inc. won for the Red House project in Berkeley, CA. In the Commercial/Industrial category, Benchmark Architectural Systems, Inc. (Columbus, OH) won for the Manchester Industries Office/Warehouse in Richmond, VA. In the Institutional/Municipal category, Alcan Composites USA, Inc. (St. Louis) won for the Vanderbilt Biological Sciences/Medical Research Bldg. III in Nashville, TN. In the Metal Roofing category, CENTRIA (Moon Township, PA) won for the Wood County Library in Bowling Green, OH. Finally, in the Overall Excellence category, Alcan Composites USA Inc. and CENTRIA won for the David L. Lawrence Convention Center in Pittsburgh.

For more information on the award-winning projects please visit MCA at www.metalconstruction.org

The complete SSRC proceedings are now available on Compendex at:

<http://www.engineeringvillage2.org/>

**To search, hit the above link and type :
"structural stability research council."**

You can also add your name to the search fields to view past papers. Many University of Missouri-Rolla (cold-formed steel) conference proceedings are also available.

Reinhold Schuster receives CSSBI Award of Recognition



The Canadian Sheet Steel Building Institute (CSSBI) annually recognizes significant contributions made by an individual or company who by their effort has furthered the goals of the CSSBI, expanded the scope of sheet steel in construction, and improved the quality of the construction industry in Canada. The recognized individual or company must have accomplished the above criteria without regard to personal or corporate gains but with the good of the industry and the Institute as a focus.

A presentation was made during the semi-annual CSSBI banquet on November 18, 2004 in Mississauga, Ontario to Professor Reinhold M. Schuster. Dr. Schuster is a Professor of Civil Engineering and Director of the Canadian Cold-Formed Steel Research Group at the University of Waterloo. Reini is well known within the CSSBI and the cold-formed steel community in North America. He has been for many years one of the strongest advocates for the use of cold formed steel products worldwide. The photo shows Reini (center), his wife Colette, and the President of the CSSBI, Mr. Glen White of Steelway Building Systems.

SDI Grant Awarded to Eric Bahr

The Steel Deck Institute (SDI) has established a Graduate Fellowship Grant to be awarded to a graduate student currently enrolled at an accredited university. This grant will be awarded on an annual basis coinciding with the school year of September-August.

The purpose of this grant is to help fund research projects involving the engineering, design, manufacture or field usage of steel roof, non-composite or composite floor decks. Other research projects may focus on resolving specific issues regarding steel deck applications. The SDI Technical Committees will work with any interested university to develop appropriate research projects for qualified graduate students.

Eric Bahr, a graduate student in the Department of Civil, Architectural & Environmental Engineering at the University of Missouri-Rolla, has been awarded the SDI Graduate Fellowship Grant for the 2004-2005 academic year. Eric is studying the behavior of steel deck with plywood overlay floor systems subjected to a concentrated load. Eric received his Bachelors in Civil Engineering from UMR, graduating magna cum laude. He currently lives in Rolla with his wife, Bridget.

The SDI is a non-profit trade association consisting of 13 member companies that manufacture steel deck products and 12 associate member companies that manufacture related products used in the production or erection of steel decks. The SDI is concerned with cold-formed steel products, with various configurations, used to support finished roof-

ing materials or to serve as a permanent form and/or provide positive reinforcement for concrete floor slabs.

For more information on the SDI, visit their website at www.sdi.org. For inquiries on the 2005/2006 grant, email steve@sdi.org.

17th International Specialty Conference on Cold-Formed Steel Structures

Recent research discoveries, as well as new industry applications and developments, were the topic of discussion at the 17th International Specialty Conference on Cold-Formed Steel Structures. The Conference was held in Orlando, Florida on November 4th and 5th, 2004.

Based on the Planning Committee's paper review, 49 technical papers were accepted for publication and presentation at the two-day conference. A total of 95 participants from 14 countries attended the conference. The participants included the following:

- 21 researchers and educators
- 42 engineers from steel companies and cold-formed steel product manufacturers
- 16 consulting engineers
- 16 graduate students.

Geographically, 62 participants were from 27 states and the District of Columbia in the United States. Thirty-three participants represented 13 other countries.

Based on responses obtained from the post-conference evaluation form, the participants valued the interaction with industry representatives and researchers from all over the world and may best be summarized by the following:

"The UMR Specialty Conference is the biannual reunion of the cold-formed steel structures international family. I know of no other event that provides the same opportunity for learning about the state-of-the-art and accessing the experts in the field."

For further information regarding the conference or to purchase a copy of the proceedings, contact the Wei-Wen Yu Center for Cold-Formed Steel Structures, University of Missouri-Rolla, Rolla, MO 65409-0030, USA (Telephone: 573-341-4475, e-mail: ccfss@umr.edu).

Wei-Wen Yu Textbook

The Third Edition of *Cold-Formed Steel Design* by Wei-Wen Yu is available at a discounted publishers price of \$100. The order form for this book can be accessed from the Center's website <http://www.umn.edu/~CCFSS>.

The **CCFSS News** and **CCFSS Technical Bulletin** are published bi-annually to the Center's website. Current and past volumes of each publication may be viewed in .pdf format on the Center's website www.umn.edu/~ccfss.

To receive the **CCFSS News** and **CCFSS Technical Bulletin** by email, as well as brochures and other announcements by regular mail, please contact the Center at ccfss@umr.edu and provide us with both your email and physical mailing addresses.

New Seismic Design Guide Available

Makes plan checking easier

The International Code Council and the Metal Building Manufacturers Association have published the Seismic Design Guide for Metal Building Systems to help engineers, building officials and plan checkers ensure metal building designs are compliant with the seismic provisions of the 2000 International Building Code (IBC). Using realistic design examples, this new resource illustrates acceptable approaches for dealing with the seismic design issues commonly encountered in metal building systems, including:

- determination of seismic design forces
- design of frames, columns, bracing and other elements of the lateral force resisting system
- determination and distribution of seismic design forces for a metal building with a concrete deck mezzanine (rigid diaphragm)
- determination of seismic design forces and detailing for a metal building with hardwalls

The design recommendations are based on the 2000 IBC, the American Institute of Steel Construction (AISC) Seismic Provisions for Steel Buildings and standard industry practices. Primarily focused on Allowable Stress Design (ASD), the guide also addresses Load and Resistance Factor Design (LRFD) when appropriate. In addition, the guide provides the technical background of recent code changes that impact seismic design.

Robert E. Bachman, S.E.; Richard M. Drake, S.E.; Martin W. Johnson, S.E.; and Thomas M. Murray, Ph.D., P.E., authored this comprehensive resource. Bachman, a structural engineer and Principal of R.E. Bachman Consulting, provided expertise on IBC seismic requirements and served as the lead author on the project. Drake, senior project engineer at J.S. Dyer & Associates, worked on the AISC seismic provisions and acted as publication consultant. Johnson, project manager at ABS Consulting, handled the seismic design issues associated with metal buildings. Murray, Montague Betts Professor of Structural Steel Design at Virginia Polytechnic Institute and State University, was responsible for the seismic design of beam-to-column moment connections.

To purchase a copy of the Seismic Design Guide for Metal Building Systems, visit the ICC Store at www.iccsafe.org, or call 1-800-786-4452. Price: \$62 (ICC members), \$69 (nonmembers).

Metal Construction Association Announces 2005 Leadership and New Directors



Glenview, IL - During the Metal Construction Association (MCA) Annual Meeting in La Jolla, California February 1st the association announced the new leadership team for 2005. Theodorus "Dick" Bus, President of ATAS International (Allentown, PA) was named MCA President; Jeff Irwin, President of

Theodorus "Dick" Bus Benchmark Architectural Systems (Columbus, OH), Vice President; Randy Ridenour, Administrative Vice President of Atlas Bolt & Screw Company (Ashland, OH), Secretary; and, Bill Hippard, Vice President Sales of Precoat Metals (St. Louis, MO), Treasurer. Paul "Kit" Emert will remain on the Board as Past President.

MCA welcomes three new members joining the Board of Directors, including Sid Peterson, Vice President of Sales for Alcoa Architectural Products (Lisle, IL); Dave Hunt of Revere Copper Products (Rome, NY); and Toy Henson, General Manager of Marketing for MBCI (Houston, TX). Returning for another term on the Board are Patrick Bush of U.S. Steel Corporation, Pete Croft of Metro Roof Products, and John Peters of Metecno.

In accepting the role as President of MCA, Bus made clear the agenda for 2005. "The Metal Initiative will be our primary focus as we fuel market growth for metal-in-construction," he stated. "Launching and sustaining the major marketing effort will consume our energy and agenda for this year while we aim our focus on increasing our share of the construction business."

ASCE-SEI Committee on Cold-Formed Steel Meets in Las Vegas

by Ben Schafer February 28, 2005

A special report on bracing of cold-formed steel structures, planning for three sessions on cold-formed steel at the 2006 Structures Congress in St. Louis, and work on a special issue of the Journal of Structural Engineering related to cold-formed steel were the major topics of discussion at the recent ASCE-SEI Cold-Formed Steel Members committee meeting, held in conjunction with the February AISI meeting in Las Vegas. Committee member Thomas Sputo received special project funding from ASCE to develop a design guide on bracing cold-formed steel structures. The final draft of the guide is complete and is currently working its way towards distribution as an ASCE special publication - so look for this guide to be on the streets in a few months. The committee is interested in reaching out to practicing engineers and increasing the presence of cold-formed steel at the annual ASCE Structures Congress, therefore three sessions will be proposed for the next Congress: (1) Behavior and Design of Load Bearing Cold-Formed Steel, (2) Bracing Cold-Formed Steel Members and Structures, and (3) Cold-Formed Steel 101. Look for these sessions when you go to St. Louis in 2006. The committee is working on a special cold-formed steel issue of the Journal of Structural Engineering. The papers are based on the best of the recent CCFSS specialty conference, and committee member Ben Schafer is serving as the Guest Editor for the Journal. The committee has other efforts underway including a paper on frequently asked questions for cold-formed steel. Members of ASCE-SEI who are interested in adding their expertise to the committee should email the Chair Ben Schafer at schafer@jhu.edu. The committee maintains a web site with complete information at www.ce.jhu.edu/bschafer/asce-sei-cfs/asce-sec-cfs.htm

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Metal Construction Association Diaphragm Design Manual Now Available

This manual continues and compliments the industry research and diaphragm design method published by the Steel Deck Institute (SDI). This MCA manual provides the supporting theory, load tables, relevant problems, and illustrations regarding connection details for roof or wall diaphragm assemblies. The scope of the work includes a variety of material connections: elevated side flat fastening, top flat fastening, bottom flat fastening, fastening to wood, aluminum, and steel as well as structural members and fastening of exposed cladding.

Since stability of structures often depends on the diaphragm capacity of the cladding system this manual provides an extremely valuable design tool and addresses problem not previously considered.

This manual has been written by John A. Mattingly, P.E. and Dr. Lawrence A. Luttrell, P.E. based on studies at the University of West Virginia. Co-funding of this project was provided by the American Iron and Steel Institute (AISI) along with in-kind contributions from several MCA member companies.

The Diaphragm Design Manual is now available through the Metal Construction Association web site, <http://www.metalconstruction.org>.

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stud wall panels have welded connections. Finish systems such as Exterior Insulation Finish Systems (EFIS), siding or brick veneer are applied in a controlled environment. Additional information regarding the course may be obtained by contacting Ms. Christina Stratman, Wei-Wen Yu Center for Cold-Formed Steel Structures, Tel: (573) 341-4471, Fax: (573) 341-4476, e-mail ccfss@umr.edu or Dr. Roger LaBoube, Tel: (573) 341-4481, Fax: (573) 341-4476 or e-mail: laboube@umr.edu.

Seminars to Educate on Cold-Formed Steel

The Steel Framing Alliance and the Wei-Wen Yu Center for Cold-Formed Steel Structures have scheduled several day-long seminars about the use of cold-formed steel in cities around the country.

The seminars, titled Design of Wall Systems Using Cold-Formed Steel Framing, are geared toward architects, structural engineers, designers, or those involved with design of structures that include cold-formed steel wall elements.

Conducted by Don Allen P.E., director of engineering development for the Steel Framing Alliance, and Roger LaBoube Ph.D., P.E., director at the Wei-Wen Yu Center for Cold-Formed Steel Structures at the University of Missouri-Rolla, the programs begin with the basics of cold-formed steel wall framing and take attendees through multiple systems, installations and examples, including:

- Curtain wall bracing
- Load-bearing wall designs
- Stud bracing
- Slip and drift connections
- Header design

All examples are centered on the design of steel wall studs in typical commercial and residential loading conditions, including high-wind and high-seismic.

The programs will also highlight:

- Background of standards and standards development
- Latest design advances based on current and soon-to-be-released documents
- Advantages and disadvantages of using steel with different cladding types and different building systems
- State-of-the-art design software
- The future of steel framing in wall system design

In addition, a number of new software tools and options will be introduced and analyzed, and design using the North American Specification for the Design of Cold-Formed Steel Structural Members and the AISI Wall Stud Standard will be discussed.

Design of Wall Systems Using Cold-Formed Steel Framing offers seven hours (learning units) of continuing education credits.

"This course is being conducted by two of the most esteemed experts in cold-formed steel design today, who offer the latest technologies and information on the material and its uses," said Maribeth Rizzuto, director of training and education for the Steel Framing Alliance. "Both the expert and novice alike will find extensive value in this program."

Cities and dates are:

- Los Angeles, May 23
- Seattle, May 25
- Chicago, Oct. 3
- Tampa, Dec. 12
- Orlando, Dec. 13
- Atlanta, Dec. 14

Registration forms and a full program, including the schedule, educational offerings and speakers' bios, are available at www.steel framingalliance.com.

Calendar

May 10-13, 2005

Mid-Atlantic Steel Framing Conference
Annapolis, MD
www.masfa.com/news/conference.htm

May 23, 2005

Design of Wall Systems Using Cold-Formed Steel Framing Seminar
Los Angeles, CA
www.steel framingalliance.com

May 25, 2005

Design of Wall Systems Using Cold-Formed Steel Framing Seminar
Seattle, WA
www.steel framingalliance.com

June 8-10, 2005

Eurosteel Conference on Steel and Composite Structures
Massricht, The Netherlands
www.eurosteel2005.info/

June 13-16, 2005

4th International Conference on Advances in Steel Structures (ICASS '05)
Shanghai, China
Email:
ICASS-05@mail.tongji.edu.cn

October 3, 2005

METALCON
Chicago, IL
www.metalcon.com

October 18, 19, & 20, 2005

Short Course on Cold-Formed Steel Design
St. Louis, MO
www.umn.edu/~ccfss

December 12, 2005

Design of Wall Systems Using Cold-Formed Steel Framing Seminar
Tampa, FL
www.steel framingalliance.com

December 13, 2005

Design of Wall Systems Using Cold-Formed Steel Framing Seminar
Orlando, FL
www.steel framingalliance.com

December 14, 2005

Design of Wall Systems Using Cold-Formed Steel Framing Seminar
Atlanta, GA
www.steel framingalliance.com