



01 Feb 2008

## CCFSS News Spring 2008

Wei-Wen Yu Center for Cold-Formed Steel Structures

Follow this and additional works at: <https://scholarsmine.mst.edu/ccfss-news>



Part of the [Structural Engineering Commons](#)

---

### Recommended Citation

Wei-Wen Yu Center for Cold-Formed Steel Structures, "CCFSS News Spring 2008" (2008). *CCFSS News*. 18.

<https://scholarsmine.mst.edu/ccfss-news/18>

This Newsletter is brought to you for free and open access by Scholars' Mine. It has been accepted for inclusion in CCFSS News by an authorized administrator of Scholars' Mine. This work is protected by U. S. Copyright Law. Unauthorized use including reproduction for redistribution requires the permission of the copyright holder. For more information, please contact [scholarsmine@mst.edu](mailto:scholarsmine@mst.edu).



MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY

DIRECTOR: ROGER A. LABOUBE, PH.D., P.E.  
FOUNDING DIRECTOR: WEI-WEN YU, PH.D., P.E.

VOLUME 18, NUMBER 2  
SPRING 2008

## 19th International Specialty Conference Scheduled

The 19th International Specialty Conference on Cold-Formed Steel Structures has been scheduled for October 14 & 15, 2008 in St. Louis, Missouri.

Since 1971, 18 international specialty conferences have been conducted in Rolla, Missouri, St. Louis, Missouri, and Orlando, Florida. As in past conferences, leading researchers, engineers, manufacturers, and educators who have engaged in research, design, manufacture, and the use of cold-formed steel members will present detailed discussion of their recent findings. Approximately 45 papers will be presented at the two-day conference.

This year's conference will take place at the Hilton St. Louis at the Ballpark. The hotel is conveniently located near some of St. Louis' biggest attractions such as the world-famous Gateway

Arch, the Old Courthouse National Historic Site, Anheuser-Busch brewery, and Laclede's Landing, which transports visitors back to St. Louis' river city past. The St. Louis Cardinals'



*The conference will be held in  
"The Gateway City"  
St. Louis, Missouri*

beautiful new Busch Stadium is located next door to the hotel and the Edward Jones Dome (St. Louis Rams Football) and Scottrade Center (St.

Louis Blues Hockey) are close by.

For more information on St. Louis, please visit the St. Louis Convention and Visitors Center website at [www.explorestlouis.com](http://www.explorestlouis.com). And don't forget to check out nearby St. Charles, which was the starting point for the Lewis and Clark expedition. Set on the river, this picturesque area features cobblestone streets, unique shops and a tour of Missouri's First Capitol (1821-1826). The St. Charles Convention Center website is [www.historic-stcharles.com](http://www.historic-stcharles.com).

Conference brochures, complete with full program, will be available in May or June. If you are not already on our mailing list please contact us at [ccfss@mst.edu](mailto:ccfss@mst.edu). We will also post program information on the Continuing Education page of the CCFSS website <http://ccfssonline.org>.

## New Contact and Web Info for CCFSS

The University of Missouri-Rolla, home of the Wei-Wen Yu Center for Cold-Formed Steel Structures, officially changed its name to Missouri University of Science and Technology (Missouri S&T) on January 1, 2008. The name change was implemented in an effort to better describe the university's mission as a technological research university. This name change, as well as other issues, has necessitated a change in the Center's contact information. Revised contact information is:

Wei-Wen Yu Center for Cold-Formed Steel Structures  
Missouri University of Science & Technology (or Missouri S&T)  
1401 N. Pine Street  
301 Butler-Carlton Hall  
Rolla, MO 65409-0030  
Phone: 573-341-4471  
Fax: 573-341-4476  
Web: <http://ccfssonline.org>  
Email: [ccfss@mst.edu](mailto:ccfss@mst.edu)  
Email for Dr. Roger LaBoube: [laboube@mst.edu](mailto:laboube@mst.edu)

# AISI Announces Promotions

The American Iron and Steel Institute (AISI) has recently announced two promotions that bring significant leadership changes to their Construction Market program.



Robert J. Wills

**Robert J. Wills, P.E.**, has been promoted to Vice President of Construction Market Development. He replaces Delbert F. Boring, P.E., who retired in December 2007 after 31 years of service with AISI. Wills is responsible for overseeing AISI's Construction Market programs in commercial buildings, residential construction and the transportation/infrastructure markets as well as the AISI Construction Codes and Standards program.

Robert Wills has over 18 years of service with AISI. As Director of Construction Codes and Standards, he managed steel industry activity related to the development processes for numerous national, state, and local building code organizations, ensuring that the resulting regulations reflected current practice, were technically sound, and did not inhibit the safe use of steel products. His primary areas of expertise include fire safety engineering, structural fire testing and performance, wind engineering, and geotechnical and foundation engineering.

He has been active in the standards development field as a member of ASTM International, the American Society of Civil Engineers (ASCE), The National Fire Protection Association (NFPA), International Codes Council (ICC), and the Society of Fire Protection Engineers (SFPE). Wills, who is a registered professional engineer in the state of Alabama, graduated from Mississippi State University, where he received a Bachelor of Science degree in civil engineering, with special emphasis on structural and foundation engineering.

**Jay Larson, P.E., F.ASCE** has been promoted to Managing Director, Construction Technical. In this new position, Larson will manage the planning, continuous improvement and implementation of the AISI Construction Standards Development Program. He will also serve as liaison to a new group, the Construction Technical Committee, which will coordinate guidance for the construction technical program with member company and customer association members.



Jay W. Larson

Larson was previously the Institute's Director of Construction Standards Development, a position held since 2003. In this capacity, he provided leadership and technical support as secretary of the AISI Committee on Framing Standards, was a leader on the Steel Framing Alliance Team, and was secretary of the Cold-Formed Steel Engineers Association Technology Development Committee. His work resulted in a series of successful industry-sponsored research projects and the development of a suite of ANSI-approved and code-adopted design and installation standards for cold-formed steel framing.

Prior to joining AISI, Larson had 24 years of steel industry experience in the technical marketing of construction products, facilities engineering and product development. He has two patents; "Structural Shape for Use in Frame Construction," 1999, and "Connection for Lightweight Steel Frame System," 2001. He was the recipient of two of Bethlehem Steel Corporation's Team Excellence Awards - for Construction Marketing in 1991 and Residential Framing in 1998. Larson is a registered Professional Engineer in the state of Pennsylvania. He graduated from Lehigh University with both a Bachelor of Science degree and a Master of Science degree in civil engineering.

## **About AISI's Construction Market Program**

AISI's Construction Market program is supported through the investment of the following AISI member companies: AK Steel Corporation, ArcelorMittal, ArcelorMittal Dofasco Inc., IPSCO Inc., Nucor Corporation, Severstal North America Inc., Steel scape, Inc., United States Steel Corporation, and USS-POSCO Industries.

AISI serves as the voice of the North American steel industry in the public policy arena and advances the case for steel in the marketplace as the preferred material of choice. AISI also plays a lead role in the development and application of new steels and steelmaking technology. AISI is comprised of 31 members companies, including integrated and electric furnace steel makers, and 130 associate and affiliate members who are suppliers to our customers of the steel industry. AISI's member companies represent approximately 75 percent of both U.S. and North American steel capacity. For more information visit AISI's website at [www.steel.org](http://www.steel.org)

## Sputo Named SDI Technical Director

The Steel Deck Institute Board of Directors is pleased to announce that Thomas Sputo, PhD., P.E., SECB has been appointed the new SDI Technical Director. In this capacity, Dr. Sputo will represent the SDI with various organizations such as AISI, ANSI and ICC, supervise and monitor SDI research and test programs, work with the SDI Technical Committees, assist with any SDI educational programs and other activities involving the engineering of steel decks. Dr. Sputo is a principal in the firm of Sputo and Lammert Engineering, LLC, Gainesville, Florida with extensive experience in the design community. He is a registered professional engineer in eight states, along with certification as a special inspector in Florida. The SDI is also pleased to announce the appointment of Ms. Kimberly Lammert as the new SDI Assistant Technical Director. Ms. Lammert is also a principal in the firm of Sputo and Lammert Engineering. She is a registered professional engineer and will assist Dr. Sputo in the coordination of specific activities involving SDI. Both appointments will be effective as of March 1, 2008. The Steel Deck Institute is a trade association that provides uniform industry standards for the engineering, design, manufacturing and field usage of steel decks.

## 2008 CFSEI Annual Meeting Scheduled for April 1st in Orlando

The 2008 Cold-Formed Steel Engineers Institute (CFSEI) Annual Meeting will take place in Orlando, FL on April 1st. CFSEI encourages all CFSEI members to attend the daylong event where educational programming, guest speakers, industry committee meetings and networking events will provide substantial information for professionals who utilize cold-formed steel.

The current schedule includes face-to-face meetings of the CFSEI Technical Document Committee, the CFSEI Fire & Acoustic Task Group, and the newly formed CFSEI Lateral Task Group. Current Committee members and anyone interested in learning more about these committees are encouraged to attend and they are open to all CFSEI members.

The General Membership Meeting portion of the program schedule will update attendees on the significant initiatives being undertaken by CFSEI in the past year and what these activities will mean for the industry. Since implementing an ambitious and forward-looking Operating Plan in late 2006, CFSEI has been focused on delivering the resources and programs of greatest value to members. The General Membership Meeting is an opportunity for members to discover what deliverables they can expect in 2008 and to voice opinions on how the Institute can better meet their needs.

Prior to the Annual Meeting, the CFSEI Board of Directors will meet the evening of March 31st, and new Board Members elected this Spring will be installed on April 1st.

This year marks the second time the CFSEI Annual Meeting has been held in conjunction with a CFSEI local chapter. This year, the Florida Chapter of CFSEI is the selected locale. The Hawaii Chapter hosted the 2007 Annual Meeting last April.

Guest speakers during lunch and dinner will address important topics with CEUs offered. More information will be provided soon and visit [www.CFSEI.org](http://www.CFSEI.org) for updates and program details. For additional information, contact Brian Berger, CFSEI Manager, at [bberger@cfsei.org](mailto:bberger@cfsei.org).

## Entries Being Accepted for CFSEI Award for Innovative Design

Entries are currently being accepted for the inaugural installment of the CFSEI Award for Innovative Design. The Award recognizing technical innovation in the design of cold-formed steel structures will be presented at an Awards Ceremony in October at METALCON International 2008 in Baltimore, Md.

Runner-up finalists will also be announced at the Awards Ceremony and will be recognized throughout the year as outstanding contributions of cold-formed steel design and application. These pro-

fessionals and their projects will be widely showcased and recognized for their achievements. All building types will be considered, but the project must have been completed or initiated between January 1, 2002 and April 30, 2008.

Award criteria, Entry Forms and submission guidelines are now available on the CFSEI Web site, and entrants may submit multiple entries for consideration. Entries will be accepted until June 1, 2008. The judging panel will be announced in early 2008.

Winning projects, including runner-up finalists, will be actively recognized, publicized and showcased by CFSEI. Where feasible, participating manufacturers, distributors, building owners, contractors and builders will be credited for their role in the project.

For more information about the Awards Program, or to find out how your organization can become a Founding Sponsor, contact Brian Berger, CFSEI Manager, at [bberger@cfsei.org](mailto:bberger@cfsei.org).

# AISI Committee on Framing Standards Update

Jay W. Larson, P.E., F. ASCE  
American Iron and Steel Institute

The AISI Committee on Framing Standards (COFS) met twice in 2007 and continued its work towards development of a full suite of new and updated standards.

As reported in the Spring 2007 edition of CCFSS News, the COFS gained ANSI approval in early 2007 of a new North American Standard for Cold-Formed Steel Framing - Product Data, and updated North American editions of its standards on General Provisions, Header Design and Truss Design. By August 2007, the COFS completed development efforts and gained ANSI approval of a new North American Standard for Cold-Formed Steel Framing - Floor and Roof System Design, updated North American editions of its standards on Lateral Design and Wall Stud Design, and an updated edition of its Prescriptive Method for One and Two Family Dwellings.



A noteworthy change is that this is the first time that there are COFS standards specifically for North America, intended for adoption and use in the United States, as well as Canada and Mexico. In addition, a new numeric designation system has been introduced to better reference the documents in codes and specifications.

AISI S200-07 is the new designation for the revised North American Standard for Cold-Formed Steel Framing - General Provisions. Definitions for terms and commentary language have been centralized to provide guidance and assure consistency on standards. The minimum base metal thickness table was removed and users are deferred to an approved design or recognized product standard. Referenced document and product identification requirements were updated.

AISI S201-07 is the designation for the new North American Standard for Cold-Formed Steel Framing - Product Data. Intended to establish and encourage the production and use of standardized products, provide criteria for cold-formed steel utilized in structural and non-structural framing applications, defines standard material grades and specifications, minimum base steel and design thickness, and coatings for corrosion protection.

AISI S210-07 is the designation for the new North American Standard for Cold-Formed Steel Framing - Floor and Roof System Design. This standard is intended for the design and installation of cold-formed steel framing for floor and roof systems in buildings. The standard provides a methodology for continuously braced design; i.e., considering the structural bracing and/or composite-action contribution of attached sheathing or deck. The standard also includes provisions for clip angle bearing stiffeners, based on a recent testing program at the University of Waterloo.

AISI S211-07 is the new designation for the revised North American Standard for Cold-Formed Steel Framing - Wall Stud Design. The referenced document listing was updated, and the standard and commentary were revised for consistency with other standards and research findings, as well as clarity for the users of the document. There were no substantive changes to U.S. provisions.

*Continued on page 5 - see "AISI"*

## Insulated Panels Exceed Environmental Requirements

Insulated Metal Panels (IMP) lead in energy conservation, recyclables, and sustainability. The Metal Construction Association (MCA), expanding the use of metal in construction through marketing, technology, and education, has recently taken steps to make architects, architectural students, universities, and building owners more aware of the environmental benefits of these types of insulated metal panels.

Sustainability continues to gain importance in the building industry and focuses on the smart use of natural resources and energy efficiency as related to insulation values, fuel usage, job-site waste, and recycling.

According to Scott Kriner, Technical Director for the Metal Construction Association, "Today's architects and building designers continue to look for ways to reduce the Carbon Footprint of new commercial structures. The use of IMPs for the building envelope will make a significant contribution to reducing greenhouse gas emissions related to lower energy consumption, less solid waste stream, and efficient water usage."

The single panel includes an insulated foam core, metal exterior, continuous interior metal liner, tongue-and-groove joinery, concealed clips and fasteners and factory installed joint sealants and/or gaskets. The panels can be used for the entirety of an exterior wall system or roof system, and they can be used in conjunction with other panels or various other materials for multi-component solutions. They are effective in any climate.

Since the panels are produced in a factory, there is reduced job-site waste, as little or no field cutting is required, water is conserved and chemical usage is avoided during maintenance procedures. Because of the long life span and the durability of the panels, repairs are required less often than in other forms of building panels.

These metal-formed IMPs do even more for the environmental efforts than conserve energy. The skins of these insulated sandwich panels are metal, which has a very high recycled content. The foam insulation within the panels is also recyclable. Technology already exists to

recycle 100% of the insulation when the extended life spans of the panels eventually reach their end.

The IMPs reduce air loss, contributing to better HVAC performance, which can earn Leadership in Energy and Environmental Design (LEED) Energy Optimization Credits. IMPs can earn up to 10 points in the Optimized Energy Performance credit. They can also contribute to LEED points for recycled content and for low-emitting materials (adhesives, sealants, paints and coatings).

About Metal Construction Association (MCA) Founded in 1983, MCA strives to expand the use of metal in construction through marketing, technology, and education. MCA's members can develop and implement both macro and micro programs and activities to promote the use of metal in construction. MCA offers its members a unique opportunity in focusing industry efforts to increase the use of metal through innovation. For more information, visit [www.metalconstruction.org/imp](http://www.metalconstruction.org/imp).

### *AISI - Continued from page 4*

AISI S212-07 is the new designation for the revised North American Standard for Cold-Formed Steel Framing - Header Design. The referenced document listing was updated, requirements for evaluating shear were added and provisions were included for designing inverted L-header assemblies.

AISI S213-07 is the new designation for the revised North American Standard for Cold-Formed Steel Framing - Lateral Design. Referenced documents were updated and editorial clarifications were made. Substantive changes were made to the standard and commentary, including provisions for other in-plane lateral loads, shear walls with fiberboard sheathing, and special seismic provisions for diagonal strap bracing, forces contributed by masonry and concrete walls and forces contributed by other concrete or masonry construction.

AISI S214-07 is the new designation for the revised North American Standard for Cold-Formed Steel Framing - Truss Design. The referenced document listing was updated, and the standard and commentary were revised. Provisions for designing gusset plates were added and the special beta-factors for trusses were deleted.

AISI S230-07 is the new designation for the revised Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings. The standard was updated to the latest codes and standards, and enhanced in many ways. The allowable number of stories was increased from two to three, and provisions were added for clip angle bearing stiffeners, anchor bolt washers in high wind/seismic areas, gable endwall framing, hip roof framing, single L-headers, inverted L-header assemblies, and grade 50 headers and roof rafters.

These standards can be purchased from the Steel Framing Alliance, either online ([www.steel framing.org](http://www.steel framing.org)) or by phone (toll-free 1-866-465-4732).

With these 2007 edition standards completed, the AISI Committee on Framing Standards has shifted into a strategic planning mode to define goals and objectives for the next building code cycle. The next meetings of the COFS will be in Salt Lake City, UT on April 15 and 16, 2008. For more information about the activities of the COFS, please check the AISI website at [www.steel.org](http://www.steel.org) or contact Jay Larson at [jl Larson@steel.org](mailto:jl Larson@steel.org).

## PANEL MEETS TOUGH REQUIREMENTS FOR ENVIRONMENTAL STANDARDS

Insulated Metal Panels (IMP) are becoming the best solution to meet increasing thermal performance standards in the United States due to its thermal efficiency and energy conservation capabilities, as well as its high performance, reduced erection time, and aesthetics. The efforts of the Metal Construction Association (MCA) to expand the use of metal in construction through marketing, technology, and education, has recently taken steps to make architects, architectural students, universities, and builders more aware of benefits of insulated metal panels. With a recent increase in thermal efficiency requirements, solutions such as these are more important than ever.

The 2007 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) 90.1 Standard, scheduled for release, increases insulation efficiency requirements by 10% over the current standard, which was established in 2004.

The new standard breaks the continental United States into three zones- A, B, and C. In 2004, Zone A, which starts at the U.S./Canada border and heads southward, accounted for less than 10% of the U.S. It also had the highest insulation requirement in the country with a necessary R-rating of 15.6. With the new ASHRAE standard, Zone A now covers 75% of the U.S., making it necessary for the implementation of new building materials. Methods and deadlines for adoption of the new standard will vary by state but changes must be made.

The current multi-component practice of insulating walls in a metal stud cavity performs better than walls with no insulation, but they are not energy efficient options. Putting the insulation outboard of the studs isn't foolproof, as construction clips and brackets can penetrate and jeopardize a wall's performance. However, using one-piece

factory formed systems, such as IMPs, prevents air spaces and thermal bridging which allows for optimal thermal performance above multi-component assemblies.

With energy accounting for approximately 39% of expenses for commercial buildings, thermal efficiency of exterior walls has become a key concern among architects and builders. Insulation placed within the stud cavity can be as little as 33% effective in its thermal efficiency. In contrast, IMPs can provide up to 95% thermal efficiency. A lightweight, single component, factory-foam IMP installed outboard of a building's metal studs is an excellent alternative.

The single panel system includes an insulated foam core, steel exterior, continuous interior metal liner, double tongue-and-groove joinery and concealed clips and fasteners. The panels can be used for the entirety of an exterior wall or they can be used in conjunction with other wall systems. They are effective in any climate.

MCA spokesperson, Scott Kriner, states, "Now, with new energy codes and moisture control concerns, insulated metal panels provide a unique high performance solution in a compact product, eliminating other materials and reducing field labor." As ASHRAE improves standards for U.S. building codes, so must architects improve upon material selection to meet these standards. IMPs meet the ASHRAE standards, enhance construction performance, and ensure increased quality in buildings for the future.

ASHRAE is accredited by the American National Standards Institute and "develops standards for both its members and others professionally concerned with refrigeration processes and the design and maintenance of indoor environments." These stan-

## Calendar

### June 18-20, 2008

5th International Conference on Thin-Walled Structures (ICTWS 2008)  
Brisbane, Australia  
<http://www.ictws2008.qut.edu.au/>

### June 23-25, 2008

5th International Conference on Coupled Instabilities in Metal Structures (CIMS - 2008)  
Sydney, Australia  
[www.civil.usyd.edu.au/cims2008/](http://www.civil.usyd.edu.au/cims2008/)

### October 1-3, 2008

METALCON International  
Baltimore Convention Center  
Baltimore, MD  
[www.metalcon.com](http://www.metalcon.com)

### October 14-15, 2008

19th International Specialty on Cold-Formed Steel Structures  
St. Louis, MO  
[http://ccfssonline.org/cont\\_ed/intnl\\_speciality%20updated.html](http://ccfssonline.org/cont_ed/intnl_speciality%20updated.html)

dards are used to establish methods useable in commerce, which will guide the industry. ASHRAE publishes three standards: the Method of Measurement or Test, Standard Design, and Standard Practice. ASHRAE.org goes on to explain:

"ASHRAE does not write rating standards unless a suitable rating standard will not otherwise be available. Consensus standards are developed and published to define minimum values or acceptable performance, whereas other documents, such as design guides, may be developed and published to encourage enhanced performance."

## 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 6 and 7 in Charlotte, NC. 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. The Direct Strength Method for Perforated Members is in its third year research on how to design perforated members using the Direct Strength method. Dr. Ben Schafer reported that a final report will be ready for review by July, 2008. Once the final report is approved, it will be posted on the AISI website. Dr. Cheng Yu reported on research at the University of North Texas to define the behavior of bolts in oversize and slotted holes. A design guide to aid engineers in the proper application of the Specification Section D6.3, Roof System Bracing and Anchorage, is under the development at Virginia Tech and was the focus of Dr. T.M. Murray's report. The draft document of this design guide will be ready for review by the committee in July, 2008.

One of the important aspects of the meetings was the development of the 2008 edition of the AISI Design Manual. The manual is being updated and revised to provide better support for engineers using of cold-formed steel. All the existing examples will be revised in conformance with the 2007 Specification and new examples will be added to illustrate the new added provisions, which include:

1. unstiffened elements and edge stiffeners with stress gradient;
2. bearing stiffener design;
3. combined bending and torsional loading;
4. anchorage of bracing for purlins roof systems under gravity loads with top flange connected to metal sheathing;
5. Direct Strength Method;
6. Second-Order Analysis.

In addition, all the test standards have received a technical review and will be presented in a recently adopted standard format.

The next meeting of the Committee on Specification is scheduled for July 24-25, 2008.

*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 <http://ccfssonline.org>.*

*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@mst.edu](mailto:ccfss@mst.edu) and provide us with both your email and physical mailing addresses.*