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CCFSS News February 2001

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CCFSS NEWS

Wei-Wen Yu Center for Cold-Formed Steel Structures at the University of Missouri-Rolla

Email: ccfss@umr.edu; <http://www.umr.edu/~ccfss>

Director: Roger A. LaBoube, Ph.D, P.E.

Founding Director: Wei-Wen Yu, Ph.D., P.E.

Butler-Carlton Civil Engineering Hall

1870 Miner Circle

Rolla, MO 65409-0030

Telephone: 573-341-4471

Fax: 573-341-4476

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Center Named in Honor of Dr. Wei-Wen Yu

The UMR Center for Cold-Formed Steel Structures is now named after its founding director, Dr. Wei-Wen Yu, Curator's Professor Emeritus of Civil Engineering, thanks to the American Iron and Steel Institute.

AISI suggested that the Center be renamed the "Wei-Wen Yu Center for Cold-Formed Steel Structures" in honor of Yu, who retired as Director in December. The designation recognizes Yu for his contributions to UMR, the Center and the cold-formed steel industry.

Yu was honored during UMR's 15th International Specialty Conference on Cold-

Formed Steel Structures held in St. Louis, Missouri, Oct. 19-20, 2000. Yu has directed the previous 14 conferences.

The Center for Cold-Formed Steel Structures was established on the UMR campus in 1990 with sponsorship from AISI. The Center now has five additional sponsors: Metal Building Manufacturers Association, Metal Construction Association, Rack Manufacturers Institute, Steel Deck Institute and Steel Stud Manufacturers Association. The Center also has one corporate member, The Steel Network.

Yu, who has published four textbooks on cold-formed steel design, has had many years

of experience in teaching, research, design and development of design specifications of cold-formed steel structures. Since joining the UMR faculty in 1968, he has taught graduate courses in cold-formed steel structures on the UMR campus and at the UMR Engineering Education Center in St. Louis.

15th International Specialty Conference on Cold-Formed Steel Structures

Recent research discoveries, as well as industry applications and developments, were discussed at the 15th International Specialty Conference on Cold-Formed Steel Structures that was held in St. Louis, Missouri on October 19th and 20th, 2000.

Based on the Planning Committee's paper review, 45 technical papers were accepted for publication and presentation at the two-day conference. A total of 112 participants from fifteen countries attended the conference. Geographically, 80 participants came from 24 states and the District of Columbia in the United States, and 32 participants represented 14 foreign countries.

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: 573-341-4471, Fax: 573-341-4476, e-mail: ccfss@umr.edu).



Del Boring of AISI congratulates Dr. Wei-Wen Yu on the recent renaming of the Center in his honor.

MBMA to Release Metal Roofing Systems Manual

-- Design and Detail Guide will Examine Industry's Best Practices --

CLEVELAND (February 15, 2001) - The Metal Building Manufacturers Association (MBMA) will publish the *Metal Roofing Systems Manual*, a one-of-a-kind design and detail manual for architects, manufacturers, engineers, specifiers, builders and others involved in the metal roofing industry.



For over two years, a team of MBMA roofing systems members and association staff has worked to develop the manual, due for publication first quarter 2001. The *Metal Roofing Systems Manual* will include sections covering:

- *Systems Components* (such as materials, panels, ribs, clips and accessories)
- *Substrates* (such as purlins, bar joists, metal decks and wood decks)
- *Specifications and Standards* (such as current industry standards and a comprehensive standing seam metal roof system guide specification)
- *Retrofit*
- *Common Industry Practices*
- *Design* (such as the determination of environmental loads, designing panels for strength and serviceability, factors of safety, drainage calculations and design examples)
- *Installation* (such as erection, walkability and safety)
- *Energy* (such as condensation, ventilation and insulation)
- *Fire Protection* (including several UL tested and listed assemblies)

Another essential component of the Design and Detail Manual will be the detail

drawings, which represent the industry's best design practices. Based on designs submitted by MBMA members, these "generic" design details will give those designing or specifying standing seam metal roofs an important tool to verify the dependability of their systems.

"The manual will expose and examine the best practices in the metal roofing systems industry. In turn, we hope it will become the harbinger for common understanding of metal systems practices among architects, engineers, specifiers and manufacturers," said MBMA chairman Robert Lowe.

The *Metal Roofing Systems Manual* is increasing knowledge of common practices within the industry. Another step MBMA is taking to increase this knowledge is the Metal Roofing Systems Quality Certification Program. On November 18-19, MBMA held a Metal Roofing Systems Quality Certification training seminar in Houston, Texas. The training seminar helped metal roofing systems manufacturers gain a comprehensive working knowledge about the certification program. All MBMA members will be required to meet this rigorous certification program.

"We believe MBMA's Metal Roofing Systems Certification Program and the new *Metal Roofing Systems Manual* will complement each other to help continue our industry's growth," said Lowe.

Organized in 1956, MBMA serves the metal building systems manufacturers, metal roofing systems manufacturers and associate member suppliers. Its membership represents more than \$2.6 billion in annual steel shipments and accounts for 46 percent of the total non-residential low-rise construction marketplace. For more information about MBMA visit www.mbma.com.

Top Stories From AISI

Here is a sampling of the topics found in the February 2001 AISI Newsletter. For more on these stories and others, the AISI Newsletter may be accessed at www.steel.org/news/newsletters/newsletters.htm.

AISI's 2000 Top Ten List

What were some of the key initiatives or milestones for the American Iron and Steel Institute in 2000? Looking back, AISI presents a countdown of the "Top Ten" accomplishments of AISI and the North American steel industry to further the mission to "make steel the material of choice."

Bethlehem's Dunham Named New AISI Chairman

The Board of Directors of the AISI has elected Duane R. Dunham, chairman, president, and CEO of Bethlehem Steel Corporation to a one-year term as chairman. Mr. Dunham succeeds Richard K. Riederer, CEO, Weirton Steel Corporation, who served as chairman throughout 2000.

New Sensor Prototype a Success

A new sensor developed to facilitate energy conservation in steel production has proven successful following a one-week prototype trial. The laser-based system, which measures the composition of gases exiting a steel-melting furnace, was recently installed in an electric arc furnace at The Timkin Company's Faircrest Steel Plant in Canton, Ohio.

2001 General Meeting to Take Place in Washington, DC

Mark your calendar and make plans to attend the 2001 General Meeting on May 14-15, 2001 in Washington, DC. In this fast-paced global marketplace, what will it take for North American steel to be top of mind for future generations? What are steel's customers saying will be critical for steel to compete in future markets? What innovative technologies will enable steel to provide competitive solutions?

Personal News...

Wei-Wen Yu Receives ASCE Award

Dr. Wei-Wen Yu, Curators' Professor Emeritus of Civil Engineering and Founding Director of the Wei-Wen Yu Center for Cold-Formed Steel Structures at the University of Missouri-Rolla, has recently been selected by the Structural Engineering Institute of the American Society of Civil Engineers (ASCE) as the recipient of the 2001 Shortridge Hardesty



Dr. Wei-Wen Yu

Award. This Award recognizes research and other contributions to the field of structural stability during more than thirty years of research in the area of cold-formed steel structures. The Award will be presented during the Structures Congress & Exposition

scheduled for May 21-23, 2001 in the Renaissance Washington DC Hotel.

The Shortridge Hardesty Award was instituted in 1987 by the firm of Hardesty & Hanover to honor the contribution of Shortridge Hardesty as first Chairman of the Structural Stability Research Council (formerly, Column Research Council). This Award is given to a member of the American Society of Civil Engineers who has contributed substantially in applying fundamental results of research to the solution of practical engineering problems in the field of structural stability.

Following his employment with the American Iron and Steel Institute in New York City for seven years, Dr. Yu joined the UMR faculty in 1968. Since that time, he has conducted and directed numerous research projects on cold-formed steel structures in support of the AISI ASD and LRFD Specifications for the Design of

Cold-Formed Steel Structural Members and the AISI Automotive Steel Design Manual, along with the AISI and ASCE Standards for stainless steel design. Since 1969, Yu has directed 14 International Specialty Conferences and 15 short courses on cold-formed steel structures. In 1990 he founded the UMR Center for Cold-Formed Steel Structures, which was renamed in 2000 to honor Yu's contributions.

Yu is the author of four textbooks on cold-formed steel structures and design published by McGraw-Hill Book Company and John Wiley & Sons and a contributor to three engineering handbooks. He is the editor and co-editor of 15 conference proceedings and several professional books in addition to the author and co-author of more than 200 technical papers and research reports. He has been very active in the activities of various engineering societies and received numerous awards and honors.

Edward R. Estes, Jr. Receives ASTM Award of Merit

Edward R Estes, Jr, PE, Emeritus Professor of Civil Engineering Technology at Old Dominion University (ODU) in Norfolk, Virginia, and Technical Consultant to the National Association of Architectural Metal Manufacturers, has been given a 2000 American Society for Testing and Materials (ASTM) Award of Merit from ASTM Committee F16 on Fasteners. Estes received the award for outstanding dedication and leadership in furthering the objectives of F16 and for continuing contributions to the understanding of ASTM structural bolting standards and the application of high strength structural bolts in construction. The award, which is the highest society award given to an individual member for committee participation and contributions, is accompanied by the title of Fellow.

An ASTM member since 1961, Estes is chairman of F16.91 on Editorial and secretary of F16.93 on Quality Assurance Provisions for Fasteners. In addition, he is a member of Committees A01 on Steel, Stainless Steel, and Related Alloys; A05 on

Metallic-Coated Iron and Steel Products; C11 on Gypsum and Related Building Materials and Systems; E05 on Fire Standards; E06 on Performance of Buildings; E49 on Computerized Systems and Chemical and Materials Information; F25 on Ships and Marine Technology; and F33 on Detention and Correctional Facilities. He has contributed significantly to the development of standards related to high strength bolting; he has also served as liaison between F16 and the Research Council on Structural Connections, of which he is a former chairman.

As a consultant and an arbitrator, Estes has helped provide recognition and acceptance of ASTM standards in the structural bolting field. As a professor, he has brought to students a better understanding of standards, in particular, ASTM standards, and their important role in design and construction. After establishing a new materials lab course curriculum in 1978, all experiments referenced and followed appropriate ASTM standards.

A graduate of Tulane University with a bachelor's degree in civil engineering, Estes has a master's degree in applied mechanics from the Virginia Polytechnic Institute. He joined the Department of Civil Engineering Technology at ODU in 1978 and held both teaching and administrative positions there before his retirement in 1993. His previous experience includes employment as assistant professor in the School of Engineering at the University of Virginia, director of engineering for Florida Steel Corp, research engineer for the American Institute of Steel Construction, and chief research engineer for the American Iron and Steel Institute.

Estes has received a number of awards including the Lincoln Arc Welding Award and the A. F. Davis Silver Medal. In 1992, he received the Outstanding Civil Engineering Technology Faculty Member Award from ODU. He is a life Fellow of the American Society of Civil Engineers and a distinguished life Fellow of the American Welding Society.

Continuing Education...

Short Course on Cold-Formed Steel Design

The Wei-Wen Yu Center for Cold-Formed Steel Structures is planning its 17th Short Course on Cold-Formed Steel Structures to be held October 16th, 17th, and 18th, 2001 in St. Louis, MO.

The short course will discuss the behavior of cold-formed steel members and connections. The course is structured to provide an introduction to behavior and design for the engineer unfamiliar with cold-formed steel. For engineers experienced with cold-formed steel design, the short course will strengthen their understanding of the fundamental behavior of both members and connections, as well as provide a better understanding of the AISI design specification. 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 Specification for the Design of Cold-Formed Steel Structural Members, 1996 edition with the 1999 Supplement and its Commentary. The text *Cold-Formed Steel Design*, 3rd edition, by W. W. Yu will also serve as a course reference.

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 on Cold-Formed Steel Design

The six-hour seminar on cold-formed steel design was developed to explain the intricacies of designing structures using cold-formed steel members and connections. The contents of the lectures provide an overview of the 1996 AISI Specification and also highlight the new provisions contained in the 1999 Supplement to the AISI Specification. Seminar attendance would be beneficial for

practicing engineers, engineering professors, and students. Seminars are being planned for June and July 2001. For details watch the Center's website, <http://www.umn.edu/~ccfss>, or contact 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.

The six-hour seminar is also an ideal in-house training program for staff engineers. If your firm or organization has an interest in offering an in-house training program on cold-formed steel design, please contact the Center through the information provided above.

Cold-Formed Steel Design for the Practicing Engineer

The use of cold-formed steel, and the volume of technical information, for both residential and commercial construction, is growing at an ever-increasing rate. Chances are, if you haven't already been using cold-formed steel, you may have the opportunity to use it in the future. This seminar introduces the latest developments in cold-formed steel framing, and presents practical and invaluable design tips and techniques, for use on a future cold-formed steel project. Seminars are being planned for May 2001. For details contact Larry Williams, Managing Director, Light Gauge Steel Engineers Association, Tel: (615) 279-9251, Fax: (615) 385-5045, e-mail: lgsea@aol.com.

Sixteenth International Specialty Conference

Preparations are being made for the Sixteenth International Specialty Conference on Cold-Formed Steel Structures. The conference is scheduled for October, 2002 and will be held in Orlando, Florida. It is anticipated that approximately 40 technical papers will be selected for presentation during the two-day conference. To submit a paper, visit the Center's webpage (<http://www.umn.edu/~ccfss>) for the announcement for the call for papers.

MCA News

Atlanta was the site of METALCON International 2000, which drew a record number of exhibitors and near record levels of show attendance. In addition to the 500 booths at the show, participants had the opportunity to attend the MCA Technical Advisory & Coordinating Committee sponsored seminar that featured the MCA-sponsored Diaphragm Design Research. The Seminar speaker was the research director, Dr. Larry Luttrell, Professor Emeritus at West Virginia University. MCA will be publishing "A Primer on Diaphragm Design" in early 2001. METALCON International 2001 is scheduled for October 23-25, 2001 in Las Vegas, NV.

MCA Code Consultant Dan McGee recently completed a review of the Florida Building Code to analyze the new code and assess its impact on metal roof construction. Mr. McGee is also reviewing the NFPA code which is newly formulated under a program developed by NFPA to establish a separate building code.

For additional information regarding MCA activities directed toward expanding the use of metal construction through marketing, technology & education, contact Mr. James C. Stanley, Managing Director, 104 S. Michigan Avenue, Suite 1500, Chicago, IL 60603 or fax to 312-201-0214.

Wei-Wen Yu Updates Textbook

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

AISI Committee Updates

AISI Committee on Framing Standards

by Jay Larson, Bethlehem Steel

The AISI Committee on Framing Standards (COFS) and its subcommittees last met in Baltimore, MD on December 5 and 6, 2000. Significant progress was made at and has been made since these meetings. Three new standards have successfully completed ANSI public review and are in the final process for publication. These documents are the following:

- *Standard for Cold-Formed Steel Framing General Provision*
- *Standard for Cold-Formed Steel Framing Header Design*
- *Standard for Cold-Formed Steel Framing Truss Design*

These standards are intended to apply to both engineered and prescriptive designs. The

General Provisions document applies to the design, construction and installation of structural and nonstructural cold-formed steel framing members where the specified base metal thickness is between 18 mils and 118 mils. The *Header Design* document applies to conventional box and back-to-back C-section headers, as well as the new double L-header beam. The *Truss Design* document applies to design of cold-formed steel trusses for load carrying purposes in buildings, as well as manufacturing, quality criteria, installation and testing as they relate to the design.

Within the COFS, work also continues towards the development of prescriptive standards for one and two family dwellings,

including areas subject to high wind and high seismic. Once completed, the above documents will form a solid foundation from which the COFS and the light-gauge steel framing industry can build.

The COFS develops and maintains consensus standards for cold-formed steel framing. The COFS mission is to eliminate regulatory barriers and increase the reliability and cost competitiveness of cold-formed steel framing in residential and commercial building construction. For more information, please contact the AISI, Kevin Bielat (202-452-7215) or Mosunmola Adeboyeke (202-452-7119), or check the AISI website (<http://www.steel.org/construction/framing/>).

AISI Committee on Specifications

The Committee on Specification for the *Specification for the Design of Cold-Formed Steel Structural Members* and its subcommittees met for their semi-annual meeting on February 23 and 24 in Atlanta, GA. The busy two-day meeting 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. J.M. Fisher provided a summary of a study to develop a design methodology for strut-purlins when one flange is attached to a standing seam roof panel. Dr. T.B. Pekoz updated the Committee on the progress of a

study of cold-formed steel beam-columns. Test verification of webs with stress gradients is the focus of a study reported on by Dr. Ben Schafer. Dr. T.M. Murray briefed the Committee on the progress of a study to better define the anchorage forces for a purlin roof system. Dr. Murray also summarized the findings from a study to reduce the number of Base Tests for standing seam panel-purlin roof systems. S. R. Fox reported on the progress of a study to develop design guidelines for webs with bearing stiffeners.

A major focus of the meetings was the development of the 2002 edition of the Specification. This edition of the

Specification will be historically significant because the document will reflect a major harmonizing of the design provisions in North America. The 2002 edition of the Specification, the North American Specification, will be applicable to cold-formed steel design in the United States, Canada, and Mexico.

Enhancements and/or additions to the Specification as adopted at the February 23 and 24 meetings pertained to appropriate loads and load combinations, applicable steels, as well as the design of beams, built-up columns, screw connections, and bracing.

Calendar

March 21-23, 2001
Meeting of the AISI Committee
on Framing Standards
Nashville, TN
Contact: (202) 452-7119

March 22-23
LGSEA Committee Meetings
Nashville, TN
Contact: (615) 279-9251

May 9-12, 2001
AISC North American Steel
Construction Conference
Fort Lauderdale, FL
(312) 670-5415

May 10-12, 2001
SSRC Annual Technical Session and
Meeting
Fort Lauderdale, FL
Contact: (954) 765-5424

June 5-7, 2001
Third International Conference on Thin-
Walled Structures
Cracow, Poland
Contact +48-42-631-2217

June 22-23, 2001
LGSEA Committee Meetings
Dallas, TX
Contact: (615) 279-9251

July 26-27, 2001
Meeting of the AISI Committee on
Specifications
Location TBA
(202) 452-7119

October 16-18, 2001
Short Course on Cold-Formed Steel
Structures
St. Louis, MO
(573) 341-4471

October 23-25, 2001
METALCON International
Las Vegas, NV
Contact: (615) 279-9251

October 23-25, 2001
LGSEA Committee Meetings
Las Vegas, NV
Contact: (615) 279-9251