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CCFSS News Fall 2004

Wei-Wen Yu Center for Cold-Formed Steel Structures

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UNIVERSITY OF MISSOURI-ROLLA

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

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17th International Specialty Conference Scheduled for November 4 - 5 in Orlando, Florida

The 17th International Specialty Conference on Cold-Formed Steel Structures is scheduled to take place on November 4-5, 2004 in Orlando, Florida. The Conference will be presented by the Wei-Wen Yu Center for Cold-Formed Steel Structures. Other conference sponsors include American Iron and Steel Institute, Metal Building Manufacturers Association, Metal Construction Association, Rack Manufacturers Institute, Steel Deck Institute, and Steel Stud Manufacturers Association. This event is designed to bring together leading scientists, researchers, educators, and engineers who have engaged in the field of research and design of cold-formed

steel structures for discussion of recent research findings and design considerations.

As in previous specialty conferences which have been held since 1971, this conference will include presentation of technical papers and the publication of a volume of conference proceedings. A total of 49 papers are scheduled for presentation in several areas of interest to include: Element Behavior, Flexural Members, Web Crippling of Beams, Compression Members, Rack Structures, Stainless Steel Structures, Wall Studs, Building Systems, Materials and Other Topics, and Connections. For a brief abstract of

the papers refer to the August 2004 Edition of the CCFSS Technical Bulletin at www.umn.edu/~ccfss.

The conference will be held at the Wyndham Orlando Resort, which is conveniently located on Orlando's International Drive only minutes away for the Orlando airport and major area attractions such as Walt Disney World, Universal Studios, and Sea World. Advance registration is requested. For more information, including a conference registration form, program, and additional information on the Orlando area, visit the Center's website at www.umn.edu/~ccfss, or contact the Center by e-mail at ccfss@umn.edu or phone 573-341-4471.

ASCE - SEI CFS Committee Activities

The ASCE-SEI committee on cold-formed steel, part of the larger committee on metals, met in Charleston SC on the 9th and 11th of August. The committee is working on a number of projects, including: development of a design guide for proper bracing of cold-formed steel, development of a list of frequently asked questions (FAQs) and answers for cold-formed steel design, and sponsorship of a forthcoming special issue of the Journal of Structural Engineering.

The senior author for the bracing design guide is committee member, Tom Sputo. Funding for the guide was provided by a special project grant from ASCE. The goal of the guide is to give practical guidance to engineers on how to successfully brace cold-formed steel members to achieve desired performance. The guide should be available for purchase in approximately one year.

As part of the committee's mission to disseminate and interpret information on the behavior and design of cold-formed steel the committee has drawn up a list

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Continuing Education

PDH Seminars On-Line

The Center for Cold-Formed Steel Structures and the University of Missouri-Rolla offers online PDH seminars to satisfy your continuing education needs. Each of these seminars uses streaming video and is technical in nature. These seminars can be used to aid in your recertification of your professional engineer's license, all from your home or office. Each course is worth 2.0 PDH (professional development hours). Dr. Roger LaBoube has developed the following PDH seminars related to cold-formed steel behavior and design:

- Changes included in the 2001 AISI Specification
- Frequently Asked Questions
- Connection Design
- Computing Section Properties and the Consideration of Local Buckling

In addition to being available online, they may be made available on a DVD for an in-house "lunch and learn". For more information regarding these seminars contact: 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 2001 AISI North American Specification for the Design of Cold-Formed Steel Structural Members. Seminar atten-

dance would be beneficial for practicing engineers, engineering professors, and students. For details watch the Center's webpage www.umr.edu/CCFSS.

The six-hour seminar is 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, contact Ms. Christina Stratman, 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

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 cold-formed steel 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.

The seminar is 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, contact Ms. Christina Stratman, 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

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.umr.edu/~CCFSS>.

Seventeenth International Specialty Conference

Preparations are being finalized for the Seventeenth International Specialty Conference on Cold-Formed Steel Structures. The conference is scheduled for November 4th and 5th, 2004 and will be held in Orlando, FL. For program details refer to the Center's webpage (<http://www.umr.edu/~CCFSS>) for the final technical program.

METALCON International

METALCON International 2004 offers access to expertise and the opportunity to question industry leaders. The latest developments and applications of residential and commercial metal roofing, steel framing, architectural sheet metal, and wall panels will be showcased. Seminar topics range from manufacturing and peripheral products and services to equipment, technology, and business practices. METALCON will offer a daylong course titled "Steel Framing in Wall Systems" with Don Allen and Roger LaBoube as the presenters. For more details and registration information for this October 19 - 22, 2004 industry event visit www.metalcon.com.

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.umr.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.

State-of-the-Art Report on Industry Sponsored Education Programs

This report was developed by the Education Committee of The AISI Committee on Specifications.

To grow the market for cold-formed steel products requires the existence of an educated design community. This community includes structural engineers in private or government practice, architects, and building officials.

Institutions of higher education do not adequately prepare the future engineers, architects or building officials in the nuances of cold-formed steel design. In fact, typically at the undergraduate education level, cold-formed steel is not introduced to the student and only a handful of opportunities are available to educate future design professionals at the graduate level. Thus, the responsibility of educating future design professionals in the application of cold-formed steel rests with the steel industry and its' partners.

Educating design professionals can be achieved through the offering of seminars, short courses, publication of design guides, and publication of technical bulletins/notes. To facilitate education of design professionals, the Education Committee has adopted the following mission, strategic objectives, and tactics:

Mission: To increase the awareness, understanding and effective application of cold-formed steel industry codes, standards and design resources by design professionals in the construction industry.

Strategic Objectives: Promote, encourage, monitor and coordinate the educational activities of the cold-formed steel industry that target existing and future design professionals in the construction industry.

Tactics:

- 1) Operate as an open Subcommittee that brings together a broad range of industry constituents (e.g., ASCE, AISI, LGSEA, MBMA, MCA, RMI, SDI, SFA, SSMA, and SSRC).
- 2) Identify "holes" and inaccuracies in existing resources and identify new resources that need to be developed or maintained.
- 3) Partner with the industry associations to establish priorities and project funding.
- 4) Delegate to small, highly focused technical subcommittees and task groups to develop and/or maintain resources.
- 5) Maintain editorial control, to assure consistency of resources.
- 6) Partner with the Center for Cold-Formed Steel Structures and other industry associations to facilitate technology transfer.

The following discussion summarizes both ongoing and past successes of Education Subcommittee and its partners.

DESIGN AIDES AND GUIDES

Student Design Guide

The development of a Student Design Guide is in progress and a draft document should be available soon. This development effort is being undertaken by the UMR Center for Cold-Formed Steel Structures. The goal of this document will be to facilitate the teaching of cold-formed steel in an existing advanced steel design course. Both undergraduate and graduate students will benefit from this design guide. The UMR Center for Cold-Formed Steel Structures has developed extensive PowerPoint slides that will be made available to university faculty to present the material.

Steel Stud Brick Veneer Design Guide

This 2004 published document was developed to provide design guidance for steel stud brick veneer wall systems.

Design Guide for the Direct Strength Method

To facilitate the use of the new Direct Strength Method, this design guide is being developed at Johns Hopkins University.

Design Guide for Purlins Designed with Standing Seam Panels

The development of the second edition of this highly successful design guide is being co-funded by AISI and MBMA and is being performed by Computerized Structural Design.

Design Guide for Standing Seam Roof Panels

This document was created with co-funding from MBMA and AISI to educate the design professionals on the applications and design methodology for standing seam roof panels. Both metal building and joist applications are discussed.

Cold-Formed Steel Framing Design Guide

The first edition of this important and well received design guide is based on the 1996 edition of the Specification with the 1999 supplement. Based on co-funding from AISI and SSMA, this design guide will be revised to incorporate both the 2001 Specification and the appropriate COFS design standards.

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ONGOING EDUCATIONAL PROGRAMS**Cold-Formed Steel Design for Practitioners by LGSEA**

LGSEA in cooperation with the UMR Center for Cold-Formed Steel Structures have developed and have offered numerous one-day seminars that focused on the design of cold-formed steel in the commercial and residential markets.

Six-Hour Lecture on Cold-Formed Steel Design

This one-day seminar was first developed for the 1996 edition of the Specification. The seminar has been updated and offered in both the United States and Canada for the 2001 edition of the Specification.

The UMR Center for Cold-Formed Steel has created four two-hour seminars based on the six-hour seminar have been taped and are available either by internet video streaming or on a DVD. These mini-seminars are appropriate for PDH/CEU credit. The DVD could be used by a design firm as a "lunch and learn" resource.

METALCON

The premier annual gathering of the cold-formed steel community in the United States is METALCON. In its 14th year as the leading trade show and conference for the metal construction industry METALCON is a forum for architects, builders, craftspeople, designers, framers, contractors, students and other industry leaders to come together to share their expertise, hone their skills, and make connections that will help their businesses reach new heights.

UMR Three-Day Short Course on Cold-Formed Steel Design

This is a biennial intensive three-day UMR continuing education program that presents the background of the AISI Specification and the application of the Specification. The 16th course was offered in October 2003 and the 17th course will be offered in October 2005.

International Specialty Conference on Cold-Formed Steel Structures

This is a biennial two-day UMR continuing education program that offers a forum for researchers and practitioners to share the most recent advancements in cold-formed steel research and development. Significant is the large number of international participants. The 17th conference is scheduled to be held in Orlando, FL in November 2004.

Other Educational Programs -

Subcommittee members have presented seminars to various technical entities to include local and state ASCE sections, staff engineers for metal building manufacturers and stud and joist manufacturers, regional chapters of the Steel Framing Alliance, and METALCON audiences.

New Officers Elected

News Brief

In the last issue of the LGSEA Newsletter, the election of the board of directors was reported, which included the reelection of board members Nader Elhaji and Howard Lau, and the addition to the board of Pat Ford of Matsen Ford Design. In July, the board met to select the new officers who are: Reynaud Serrette, President; Ken Vought, Vice President; and John Lyons, Secretary Treasurer.

Reynaud Serrette, Ph.D., is an associate professor at Santa Clara University, as well as project director for the Center for Light Framed Construction. Dr. Serrette has been involved with the LGSEA for many years, and has served on the board of directors, as well as co-chair of the Research and Development committee. Dr. Serrette also serves on the American Iron and Steel Institute's Committee on Framing Standards (AISI/COFS,) and has been the LGSEA representative to the Steel Framing Alliance Research Team.

Ken Vought, formerly of USS Posco, can arguably be considered the originator of the idea for the LGSEA. Vought's vision for the future of light gauge engineering, and his skills at getting other individuals and organizations to support his idea, has helped make the association the organization it is today. Currently retired, Mr. Vought spends much of his time volunteering to assist in the growth of the membership of the organization. He continues to solicit funding, forge relationships, attend trade shows and engineering meetings, to help get the word out about the association.

John Lyons is a Senior Associate with Walter P. Moore and Associates in their Atlanta, Georgia office. Lyons has previously served as president of the Atlanta/Southeast Chapter of the LGSEA, and has authored many LGSEA tech notes, including the upcoming note on screw to wood connections.

The officers will be installed and recognized at the October 20 luncheon and awards banquet at the Las Vegas Convention Center.

Committee Retirement

At the August 11, 2004 meeting of the Committee on Specifications it was announced that Wes Midgley, of Midgley-Clauer Associates, Inc. had announced his retirement from the Committee. Wes has been a long-standing, active member of the main committee and several subcommittees.

A plaque was awarded that recognizes Wes' many years of outstanding leadership and technical service to the steel industry through participation on the AISI Committee on Specifications.

Also at the August 11 meeting it was announced that Robert McClure, Manager of Codes and Standards for the International Code Council had also announced his retirement from the Committee.

We wish both Wes and Bob the best in their retirement!

LGSEA meeting at METALCON in Las Vegas

The next series of meetings of the LGSEA working committees will be held at the Las Vegas Convention Center on Wednesday, October 20, in conjunction with METALCON. As meeting rooms are announced, the full schedule along with room numbers and agendas, will be posted at www.lgsea.com. For the first time this year, all committees and task groups will meet, and all meetings will be on the same day. We have worked to consolidate meeting times and the awards luncheon, to allow the maximum number of participants to attend. For additional information, visit the LGSEA web page, or call 866-GO LGSEA.

LGSEA Committee and Task Group Meetings
Las Vegas Convention Center: 3150 Paradise Road, Las Vegas, NV 89109

11:00 am - noon	Fastener/Connector Committee Roger LaBoube, Chair
noon - 1:30 pm	LGSEA 10th Anniversary Banquet and Awards Luncheon
1:30 pm - 3:00 pm	Structural Assemblies Committee Jeff Ellis, Chair
3:00 pm - 4:00pm	Research and Development Committee Dean Peyton, Chair
4:30 pm - 5:30 pm	Truss Task Group Brad Cameron, Chair
5:30 pm - 8:30 pm	LGSEA Board of Directors Meeting Reynaud Serrette, President

AISI Committee on Specifications Meets

The Committee on Specification for the North American Specification for the Design of Cold-Formed Steel Structural Members and its subcommittees met for their semi-annual meeting on August 9th, 10th, and 11th in Charleston, SC. The 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. Distortional buckling experiments were the focus of a study reported on by Dr. Ben Schafer. Dr. Schafer also provided an update on the development of a design guide for the Direct Strength Method, Dr. T.M. Murray briefed the Committee on the progress of a study to better define the anchorage forces for a Z-purlin roof system. Dr. Steve Fox summarized a study of the strength of transversely loaded stud-to-track connections. A study to re-evaluate the tilting and bearing strength of screw connections was reported by Dr. Roger LaBoube. The second edition of the AISI Guide for Designing with Standing Seam Roof Panels is a project under the direction of Dr. Jim Fisher. Special presentations were provided by Jennifer Tovar and Jennifer Turner. Ms. Tovar reported on her study that applied the Direct Strength Method to Axially Loaded Perforated Studs, and Ms. Turner summarized the progress on the development of a state-of-the-art summary of bracing systems for use in cold-formed steel design.

A major focus of the meetings was the completion of the 2004 Supplement to the specification, as well as review of potential new specification changes. Several enhancements to and/or additions to the Specification were adopted at the meetings. These enhancements or additions pertained to the following:

1. AISI test procedures will be submitted to ANSI for approval as national test standards.
2. Design equations for screw connections subject to combined shear and pull-over.
3. Clarification changes to the bearing equations for bolts.
4. Elimination of sheathing braced design provisions.
5. New provisions for unstiffened elements under stress gradient.
6. Revision to the design provisions for built-up columns.
7. Changes to the design for standing seam roof panels.
8. Clarification of design for lateral-torsional buckling of beams.
9. New design provisions for high strength, low ductile steel used for compression members.
10. Agreement on the definitions of common terms used by both AISI and AISC specifications.

The Committee on Specifications acknowledged the contributions of Wes Midgley and Bob McClure who both resigned from the Committee.

Steel Deck Institute (SDI) - Available Soon

Diaphragm Design Manual (DDMO3) - Third Edition

The Third Edition, DDMO3, of the Steel Deck Institute Diaphragm Design Manual will be published shortly. This edition continues the evolution of building shear resistance presented in the First and Second Editions of this manual. The manual is based on research, testing and analysis done at West Virginia University since 1965. This work, sponsored by the Steel Deck Institute and its member and associate member companies, has been under the direction of Dr. Larry D. Luttrell, Technical Advisor to the SDI, since its inception.

The Third Edition is based on the 2004 Supplement of the 2001 North American Specification for the Design of Cold-Formed Steel Structural Members. The manual explains the method developed to calculate the capacity of diaphragms using steel roof decks or composite steel floor decks and the use of the diaphragm load tables.

The diaphragm tables have been revised and adapted for ease of use with either the allowable stress design (ASD) or load and resistance factor design (LRFD) methods according to the North American Specification for the Design of Cold-Formed Steel Structural Members. With over 130 pages of diaphragm load tables using welds, screws and other mechanical fasteners, the manual is a comprehensive resource for the design profession. There are 16 example problems for ASD and LRFD design and equations to check fasteners for the combined effect of shear and tension.

DDMO3 should be available for sale to the design profession and other interested parties by November 2004. Please monitor the SDI web site at www.sdi.org for complete details.

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of FAQs related to cold-formed steel. This list is meant to compliment similar efforts that a number of other cold-formed steel organizations have undergone. Committee members are currently working on answers to the questions and an interactive web page will be made available for all members to share from and add to the knowledge.

As one of the sponsoring organizations for the Center for Cold-Formed Steel Structures (CCFSS) Specialty Conference on Cold-Formed Steel (campus.umn.edu/ccfss) this ASCE committee has agreed to sponsor a special issue of the Journal of Structural Engineering based on the "best of" papers from the conference. Committee members will also be providing the review process for the journal. The competitive selection process is currently underway.

The committee was also recently successful in convincing Compendex, one of the premier online database companies, to be cataloging the CCFSS conference proceedings, as well as the annual proceedings of the Structural Stability Research Council.

For more information on the committee activities please see our web page (www.ce.jhu.edu/bschafer/asce-sei-cfs/asce-sei-cfs.htm). The committee is always interested in having new active participants in its efforts, please email the Chair (schafer@jhu.edu) if interested in joining.

10th Anniversary of Association

To mark the 10th Anniversary of the founding of the Light Gauge Steel Engineers Association, on Wednesday, October 20, 2004, LGSEA will have a 10th Anniversary Celebration Luncheon at METALCON in Las Vegas, Nevada. All LGSEA members are invited and encouraged to attend.

In addition, as part of LGSEA's 10th Anniversary Celebration, LGSEA thought it fitting to look back and put together a series of "Honor Roll" lists of those individuals and companies that:

- * Founded LGSEA.
- * Helped LGSEA to grow over the years.
- * Helped to expand and improve cold-formed steel design.
- * Helped to educate cold-formed steel designers, and others interested in steel framing.
- * Conducted needed research for cold-formed steel design.
- * Made an impact on helping us to achieve our common goal of increasing "steel framing" market share in the Residential and Light Commercial Construction market place.

These Honor Roll lists have been posted on the LGSEA's website (www.lgsea.com).