

Steel News & Events

Focus on Wind and Low-Seismic Design

AISC's latest lecture series, "Streamlining Your Steel Design Process: Lateral Framing Systems East of the Rockies," is aimed at engineers designing framing systems in wind and low-seismic applications. The course focuses on the 2000 International Building Code, which incorporates ASCE 7, the 1997 NEHRP Provisions and the 1997 AISC Seismic Provisions. These documents form a consistent design basis for the building codes that are being implemented nationally.

"In using current building codes, you will need to become much more familiar with seismic design," explained Steve Ashton, Senior Engineer-Continuing Education at AISC. "In many situations, special seismic detailing is required or desirable, even when the design is controlled by wind effects."

The five-hour course provides information on two distinct groups of framing systems: normal ductility and high ductility. Framing systems of normal ductility are designed to meet the requirements of the AISC Specification for Structural Steel Buildings, while framing systems of high ductility are designed to meet the requirements of both the AISC Specification for Structural Steel Buildings and the AISC Seismic Provisions for Structural Steel Buildings.

The seminar is designed to provide a wide-range of useful information. For normal ductility

Schedule-at-a-Glance

March 22Nashville, TN	June 29Denver, CO
March 23Memphis, TN	Sept. 6Chicago, IL
April 5Atlanta, GA	Sept. 7Grand Rapids, MI
April 6Birmingham, AL	Sept. 13.....St. Louis, MO
April 11Jacksonville, FL	Sept. 14Kansas City, MO
April 12New Orleans, LA	Sept. 27Pittsburgh, PA
May 3.....Greenville, SC	Sept. 28.....Columbus, OH
May 4Charlotte, NC	Oct. 4.....Rochester, NY
May 10.....Richmond, VA	Oct. 5Albany, NY
May 11.....Raleigh, NC	Oct. 18Meriden, CT
May 24Minneapolis, MN	Oct. 19Boston, MA
May 25Omaha, NE	Oct. 24Washington, DC
June 7Cleveland, OH	Oct. 25Philadelphia, PA
June 8Detroit, MI	Nov. 1Edison, NJ
June 21Cincinnati, OH	Nov. 2.....New York, NY
June 22Indianapolis, IN	Nov. 15Houston, TX
June 28Stillwater, OK	Nov. 16.....Dallas, TX

designs, attendees will learn:

- A streamlined design sequence for moment-frame systems and braced-frame systems;
- What seismic and code information applies to the various lateral-load resisting systems;
- Typical connection details that are used in the various lateral-load resisting systems;
- Useful and cost-effective moment connection details;
- Useful and cost-effective bracing configurations and bracing connection details; and
- How to identify special considerations for unusual structures.

Those interested in high ductility will learn:

- Advantages and implications of selecting higher levels of ductility for your designs;

- How to apply the AISC Seismic Provisions, including testing requirements for moment connections;
- Connection details that have already been qualified by testing;
- Differences between ordinary (OMF), intermediate (IMF) and special (SMF) moment frames; and
- Differences between special (SCBF) and ordinary (OCBF) concentrically braced frames.

Registration for the course is \$200 (\$150 for AISC members) with discounts for multiple attendees from one firm.

For more information, see AISC's website at www.aisc.org or fax 312/670-5403.

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US and Canada Join Forces to Finalize Research Series

AISC has recently awarded contracts for the last in a series of four research projects recommended by the Research Subcommittee on Shape Material and Design. The project, titled *Updating Standard Shape Material Properties Database for Design and Reliability*, will be jointly undertaken by Professor Robert J. Dexter of the University of Minnesota and Professor F. Michael Bartlett of the University of Western Ontario, Canada. A significant portion of Professor Bartlett's work is funded by a grant from Canada's Steel Structures Education Foundation for a similar project. This is AISC's first joint research project with Canada.

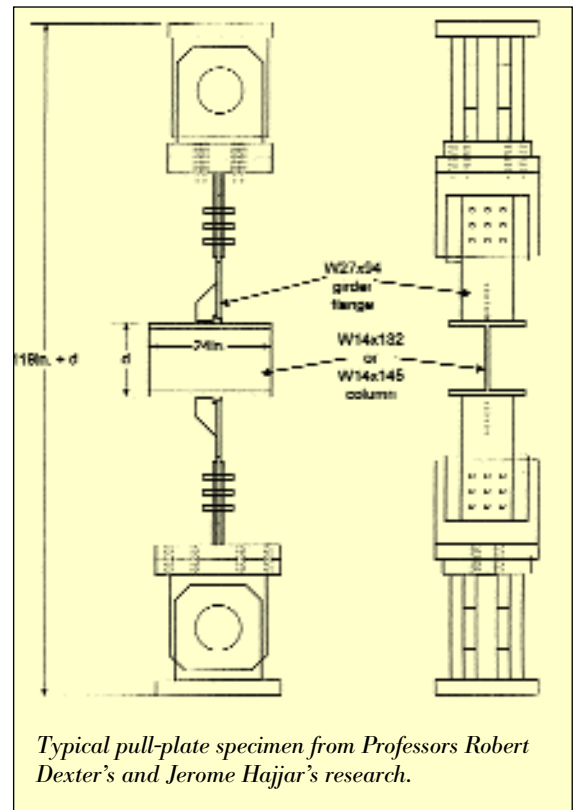
Both researchers are enthusiastic about the project. "I am really excited about the possibilities for collaboration here," notes Professor Bartlett. The main thrust of the project is to determine a complete stress-strain curve and statistical database of shape mechanical properties to be used in re-evaluating the AISC LRFD resistance factors. Current AISC LRFD resistance factors are based on data collected in the 1960's on ASTM A36 steel. The work is scheduled to be completed by mid-2001.

AISC formed the Research Subcommittee on Shape Material and Design in 1997 to reconsider the steel design properties and design criteria as they related to highly-restrained welded connections at or near the k-area of rolled sections. Among other actions, the subcommittee recom-

mended that AISC pursue four research projects, three of which are substantially in progress:

Characterization of Cyclic Inelastic Strain Behavior on Properties of A572 Grade 50 and A913 Rolled Sections is underway at Lehigh University with Professor John Fisher and researcher Eric Kauffman. This project is complete except for the final portion of the project that requires the testing of a heavy steel shape rolled between 1960 and 1975. Although several AISC member fabricators have come forward with possible shapes, none of the shapes have met all of the research criteria. AISC is currently looking for a wide-flange shape, rolled between 1960 and 1975, with a $\frac{3}{4}$ " web thickness, about 15 feet long, with a reasonably verifiable "pedigree"-that is, it must be reasonably certain that the shape was rolled in the 1960's or '70's. If you have, or know of such a shape, contact Keith Grubb at AISC at 312/670-5422 or by email at grubb@aiscmail.com.

Load Tests on k-Area of Rotary Straightened Column Sections to Determine Effects on Service Performance is a joint project with Lehigh University and the University of California-San Diego. This project was instituted to assess if and how the low-toughness material in the k-area affects the ability of rotary-straightened column sections to transmit loads in service. Professor John Fisher and researcher



Typical pull-plate specimen from Professors Robert Dexter's and Jerome Hajjar's research.

Eric Kaufmann of Lehigh, and Professor Chia-Ming Uang of UCSD, expect to be able to report results in early 2001.

Reassessment of Design Criteria and New Alternatives for Column Transverse Stiffeners and Web Doubler Plates is currently underway at the University of Minnesota. Professors Robert Dexter and Jerome Hajjar have completed their literature reviews and preliminary analyses and are finalizing the fabrication of specimens for testing. The results of their research are expected to be available in 2001.

The results of these four projects, combined with results from relevant portions of the FEMA-SAC project and the Structural Shape Producers Council (SSPC) survey, will be used to systematically evaluate the impact of today's higher strength steel shapes on structural performance and design.

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Correction I:

In the December, 1999 issue of MSC, there was an error in the Certified Fabricator listing. PDM Bridge should have been listed as follows:

Cbr, Cbd FP1	PDM Bridge
Eau Claire, WI	
Buck Roberds	(715)835-2250
Cbr,Cbd FP2	PDM Bridge
Palatka, FL	
Robert Herm	(904)328-4683
Cbr,Cbd FP1	PDM Bridge
Wausau, WI	
Ben Bristol	(715)848-1119

We are sorry for any inconvenience this may have caused.

Correction II:

Do to a typographical error, some shapes for Nucor Yamato Steel and Nucor Steel were inadvertently omitted from the January Steel Shapes listing. We apologize for the mistake and list the correct shapes below (for a complete correct listing, please visit www.aisc.org).

Nucor Yamato

W40 (x 16) x 199, 215, 249, 277, 297, 324, 362, 372, 397
 W40 (x 12) x 149, 167, 183, 211, 235, 264, 294, 327
 W36 (x 16-1/2) x 230, 245, 260, 280, 300, 328, 359, 393
 W36 (x 12) x 135, 150, 160, 170, 182, 194, 210, 232, 256
 W33 (x15-3/4) x 201, 221, 241, 263, 291, 318, 354, 387
 W33 (x 11-1/2) x 118, 130, 141, 152,

169
 W30 (x 15) x 173, 191, 211, 235, 261, 292, 326, 357, 391
 W30 (x 10-1/2) x 90, 99, 108, 116, 124, 132, 148
 W27 (x 14) x 146, 161, 178, 194, 217, 235, 258, 281, 307, 336, 368
 W27 (x 10) x 84, 94, 102, 114, 129
 W24 (x 12-3/4) x 104, 117, 131, 146, 162, 176, 192, 207, 229, 250, 279, 306
 W24 (x 9) x 68, 76, 84, 94, 103
 W24 (x 7) x 55, 62
 W21 (x 12-1/4) x 101, 111, 122, 132, 147, 166
 W21 (x 8-1/4) x 48, 55, 62, 68, 73, 83, 93
 W21 (x 12-1/4) x 101, 111, 122, 132, 147, 166
 W21 (x 8-1/4) x 48, 55, 62, 68, 73, 83, 93
 W21 (x 6-1/2) x 44, 50, 57
 W18 (x 11) x 76, 86, 97, 106, 119, 130, 143, 158, 175, 192, 211, 234, 258, 283, 311
 W18 (x 7-1/2) x 50, 55, 60, 65, 71
 W18 (x 6) x 35, 40, 46
 W16 (x 10-1/4) x 67, 77, 89, 100
 W16 (x 7) x 36, 40, 45, 50, 57
 W16 (x 5-1/2) x 26, 31
 W14 (x 16) x 145, 159, 176, 193, 211, 233, 257, 283, 311, 342, 370, 398
 W14 (x 14-1/2) x 90, 99, 109, 120, 132
 W14 (x 10) x 61, 68, 74, 82
 W14 (x 8) x 43, 48, 53
 W14 (x 6-3/4) x 30, 34, 38
 W14 (x 5) x 22, 26
 W12 (x 12) x 65, 72, 79, 87, 96, 106, 120, 136, 152, 170, 190, 210, 230, 252, 279, 305, 336
 W12 (x 10) x 53, 58
 W12 (x 8) x 40, 45, 50
 W12 (x 6-1/2) x 26, 30, 35
 W12 (x 4) x 16, 19, 22
 W10 (x 10) x 49, 54, 60, 68, 77, 88, 100, 112
 W10 (x 8) x 33, 39, 45
 W10 (x 5-3/4) x 22, 26, 30
 W8 (x 8) x 31, 35, 40, 48, 58, 67
 W8 (x 6-1/2) x 24, 28
 W8 (x 5-1/4) x 18, 21
 W6 (x 6) x 15, 20, 25
 C15 x 33.9, 40, 50
 C12 x 20.7, 25, 30
 MC18 x 42.7, 45.8, 51.9, 58
 MC13 x 31.8, 35, 40, 50
 MC12 x 31, 35, 40, 45, 50
 MC10 x 22, 25, 28.5, 33.6, 41.1
 MC 7 x 19.1, 22.7
 L8 x 8 x 1/2, 9/16, 5/8, 3/4, 7/8, 1, 1-1/8

L8 x 6 x 1/2, 9/16, 5/8, 3/4, 7/8, 1

Nucor Steel

W24 (x 12-3/4) x 104, 117, 131, 146, 162, 176, 192, 207, 229, 250, 306
 W24 (x 9) x 68, 76, 84, 94, 103
 W24 (x 7) x 55, 62
 W21 (x 12-1/4) x 101, 111, 122, 132, 147, 166
 W21 (x 8-1/4) x 48, 55, 62, 68, 73, 83, 93
 W21 (x 6-1/2) x 44, 50, 57
 W14 (x 5) x 22, 26
 W12 (x 6-1/2) x 26
 W12 (x 4) x 16, 19, 22
 W10 (x 5-3/4) x 22, 26, 30
 W8 (x 6-1/2) x 24, 28
 W8 (x 5-1/4) x 18, 21
 W6 (x 6) x 15, 20, 25
 W6 (x 4) 8.5, 9, 12, 16
 W5 (x 5) 16, 19
 W4 (x 13) 13
 C8 x 11.5, 13.75, 18.75
 C7 x 9.8, 12.25
 C6 x 8.2, 10.5, 13
 C5 x 6.7, 9
 C4 x 4.5, 5.4, 7.25
 C3 x 3.5, 4.1, 5, 6
 M12 1/2 x 11.6, 12.4
 M12 x 10.0, 10.8, 11.8
 M10 x 7.5, 8, 9
 M8 x 6.2, 6.5
 M6 x 3.7, 4.4
 M5 x 18.9
 M4 x 6
 L6 x 6 x 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1
 L5 x 5 x 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8
 L4 x 4 x 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4
 L3 1/2 x 3 1/2 x 1/4, 5/16, 3/8, 7/16, 1/2
 L3 x 3 x 3/16, 1/4, 5/16, 3/8, 7/16, 1/2
 L2 1/2 x 2 1/2 x 3/16, 1/4, 5/16, 3/8, 1/2
 L2 x 2 x 1/8, 3/16, 1/4, 5/16, 3/8
 L7 x 4 x 3/8, 7/16, 1/2, 5/8, 3/4
 L6 x 4 x 5/16, 3/8 7/16, 1/2, 9/16, 5/8, 3/4, 7/8
 L6 x 3 1/2 x 5/16, 3/8, 1/2
 L5 x 3 1/2 x 1/4, 5/16, 3/8, 1/2, 5/8, 3/4
 L5 x 3 x 1/4, 5/16, 3/8, 7/16, 1/2
 L4 x 3 1/2 x 1/4, 5/16, 3/8, 1/2
 L4 x 3 x 1/4. 5/16. 3/8, 7/16, 1/2, 5/8
 L3 1/2 x 3 x 1/4, 5/16, 3/8, 1/2
 L3 1/2 x 2 1/2 x 1/4, 5/16, 3/8, 1/2
 L3 x 2 1/2 x 3/16, 1/4, 5/16, 3/8, 1/2
 L3 x 2 x 3/16, 1/4, 5/16, 3/8, 1/2
 L2 1/2 x 2 x 3/16, 1/4, 5/16, 3/8

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Structural Welding: Design and Specification Seminars Scheduled

"Structural Welding: Design and Specification", a seminar conducted by the Steel Structures Technology Center, will be offered in several US cities this Spring and Summer. The seven-hour course will incorporate the new AWS D1.1-2000 Structural Welding Code - Steel, both AISC specifications, including the new welding and fatigue design provisions in the new AISC LRFD Specification, and new FEMA guidelines for structural welding in seismic regions. The seminar is geared for structural and civil engineers and those involved in the fabrication and erection of steel-framed structures. Over 3400 engineers and related professionals have attended this seminar over the past four years.

Course topics include the AWS D1.1 Structural Welding Code, weld design rules and restrictions, AISC's ASD and LRFD design methods, use of prequalified joints and welding procedures, fabrication criteria, inspection functions and acceptance criteria, nondestructive testing, retrofitting existing structures, welding economics and constructability, welding symbols, introductory welding metallurgy, weld design for fatigue, and guidelines for welded designs and specifications in seismic applications.

The seminars will begin at 1:00 p.m. and conclude at 9:00 p.m., except for New York City, which will begin at 9:00 am and conclude at 5:00 pm. As a working

session, attendees are encouraged to bring their latest edition of the AWS Structural Welding Code - Steel and an AISC Manual. Upon completion of the course, 0.7 CEU's or 7 PDH's will be awarded to attendees. The fee for the seminar is \$185.00 per person, with a group discount available for groups of three or more. In-house seminars are also available.

For further information on this seminar, contact the Steel Structures Technology Center, 42400 W. Nine Mile Rd., Novi, Michigan, 48375, phone (248) 344-2910, fax (248) 344-2911, email: info@steelstructures.com, or visit SSTC's website at www.steelstructures.com.

Accounting Guide Available

The first industry-specific accounting guide for construction financial professionals is now available from Harcourt Professional Publishing.

The 2000 Construction Accounting Deskbook, written by John L. Callan, CPA, and Hugh L. Rice of FMI, covers construction accounting, taxation, financial administration, management and legal issues in one volume. It also offers additional coverage of risk management, government contracting project management procedures, litigation support and labor relations.

Also included is a companion CD-ROM containing the sample forms, checklists, worksheets and letters found in the book. All documents are compatible with Word or WordPerfect for Windows and can be customized for each project.

For more information on the \$139 resource, contact 800/831-7799.

Asia Pacific Conference

The 4th Asia Pacific Structural Engineering & Construction Conference is scheduled for Sept. 13-15 in Kuala Lumpur (Malaysia). Topics scheduled to be presented at the conference include: analysis and design methods; material behavior; safety and reliability; planning and development; project management; information technology; and quality assurance.

Keynote speakers include Muhammad Ridzuan Salleh, Director, Council of Tall Buildings & Urban Habitat, and the president of the International Council for Building Research Studies & Documentation.

English is the official language of the conference, which costs \$300 US (\$350 US after June 30).

For more information, email: apsec2000@fka.utm.my or visit www.fka.utm.my/events/apsec2000.

Dear Editor:

I finally got around to reading my December *MSC* and read your "Off the Beam" column. Your perspective on "online list discussions" was right on! There are several such forums relating to steel detailing and steel fabrication. While I subscribe and infrequently participate in one of these forums, I find that it is extremely risky and sometimes annoying to observe the exchanges. Usually, the only source for my annoyance is that I am concerned that bystanders to the steel detailing business might get the impression that what is exchanged on such discussions is gospel.

To be kind, let's say that the views and opinions are not always fully or thoughtfully formed. There is often misinformation and misbelief that is propagated by the unfiltered nature of the exchanges. I find all this healthy for and helpful to the steel detailing community. However, I often shudder at the thought that someone "out there" is forming their opinion and understanding of our fragile little industry based on information gained through this vehicle.

By the way, I heard your axiom in a lyric by BB King: "Nobody loves me but my mother...and she could be jivin' too"!

Greg Brawley
Director
Pacific Chapter - NISD

Dear Editor:

I found the February 2000 issue of *Modern Steel Construction* to be very worthwhile reading. The first article that caught my eye was the one by Ioannides and Ruddy, "Rules of Thumb for Steel Design". While no one

would use this for final design, it sure makes a client feel they have picked the right consultant when they get a specific answer (even an approximate one) to an off-the-cuff question, rather than a "I need to run some numbers" answer.

The second article to catch my eye (since I usually read a magazine from back to front) was Blodgett's "Lessons Learned in the Field". Once again he targets in a simple, yet elegant way, three seemingly simple ideas (after you read his article). I would suggest that if the "professional" degree that ASCE is promoting included this kind of knowledge transfer, they wouldn't have to twist people's arms to get it. A common problem today is that civil/structural engineers get no field experience and therefore have no way to learn such ideas except through publications such as yours.

Keep the good stuff coming.

Alan Fisher, PE
Chief Structural Engineer
Cianbro Corporation
Pittsfield, ME

Dear Editor:

I read your editorial opening to *Modern Steel Construction's* January, 2000 edition.

I must disagree with the premise that engineers are slow to change, period. I feel the reason that I, for one, have not gone to LRFD is mainly that while LRFD can better model the behavior of steel members/structures it requires more time to be that 'exact.' This is a *BIG* problem for the smaller practicing engineer on little projects with short schedules that are not high fee jobs.

With ASD I know that I may not be the most frugal designer

but with the low cost of raw steel why should I get so worked up over saving a couple of pounds per foot of member on a 20 ton job with tight design and construction schedules. I believe for these jobs practicality of erection and fabrication is much more important.

I think that all design standards should have a short and quick design methodology and a more extensive one if needed for an existing evaluation for instance. The creation of the standard by academics with more time and graduate students on their hands and looking for the next grant is a mistake. More people with real design skills and business backgrounds need to be involved in how the standards are structured.

Until the LRFD standard is streamlined in this line I will keep my ASD version going; maybe I need to think of buying a spare since I have many years to go and I'm not holding my breath for the LRFD methodology to change.

James Stromecki
via email

Modern Steel Construction welcomes letters-to-the-editor. Please send them to: Scott Melnick, Black Squirrel Communications, One East Wacker Dr., Suite 2406, Chicago, IL 60601 (fax: 312/670-0341; email: melnick@blacksquirrel.net).