

# Economical Steel Design Seminar

While attendees responded favorably to the educational content in AISC's latest lecture series, many disliked the format. As a result, beginning with the Dallas lecture, AISC has cut the program by two hours. Now, the lectures will begin at 1:30 and conclude at 6:30.

## Seminar Schedule

Pittsburgh .....	Sept. 14
Charleston .....	Sept. 15
Washington, DC .....	Sept. 22
Richmond, VA .....	Sept. 23
Boston .....	Sept. 29
Portland, ME .....	Sept. 30
Philadelphia .....	Oct. 6
Edison, NJ .....	Oct. 7
Meriden, CT .....	Oct. 13
New York City .....	Oct. 14
Albany .....	Oct. 27
Rochester, NY .....	Oct. 28

*Full seminar brochures will be automatically mailed to all MSC subscribers. If you do not receive one at least six weeks prior to the seminar date, please fax 312/670-5403 and request one or you can view the full brochure on AISC's web site at [www.aisc.org](http://www.aisc.org)*

The 1999 Lecture Series, "Essentials of Steel Design Economy," is designed to give engineers the tools they need to do their job within the time and budget constraints created by a project's owner.

The seminar will feature five lectures:

- Planning for Steel Design Economy
- Decision Making in System Selection and Layout
- Decision Making in Member Selection
- Economy in Connection Detail
- Project Review

These lectures will focus on giving a designer a better understanding of the economics of the

steel fabrication/erection process and will focus on specific items the design engineer can use to reduce fabrication and erection costs, such as optimal bay sizes and layout and the use of repetitive member sizes. "The presenters have taken a step back to reveal the overall design perspective instead of drowning the audience in tedious technical calculations we all know how to use," explained one attendee at a presentation in January.

As part of the lectures, an example of a moment connection will be presented and then ana-

lyzed for economy in design, fabrication and erection. Also included in the lecture will be an assessment of the different roles and perspectives of members of the construction team.

"The seminar should help to improve communication and understanding between the design-detail-fabrication-erection team," explained Robert F. Lorenz, P.E., AISC's Director of Education. "We'll provide tips that will allow design professionals to anticipate detailed solutions to special conditions."

## What's Coming: 3rd Quarter Engineering Journal

### "Seismic Performance and Design of Bolted Steel Moment-Resisting Frames"

1998 T.R. Higgins Lectureship Award Paper by A. Astaneh-Asl

Bolted moment-resisting frames, and their predecessors riveted frames, were used for many decades prior to the use of welded frames in steel structures. Riveted and bolted steel structures have performed well during past earthquakes from the 1906 San Francisco earthquake to the infamous 1994 Northridge, Los Angeles earthquake. This paper presents information on past performance of bolted steel moment-resisting frames, a summary of shaking table tests, comparative studies of bolted and welded moment frames and a summary of results of cyclic tests of bolted top-and-bottom flange plate moment connections.

### "Probabilistic Modeling of Steel Moment Frames with Welded Connections"

By Jianlin Song and Bruce Ellingwood

Two steel moment-resisting frames (WSMF) that suffered damage to welded connections in the Northridge Earthquake are evaluat-

ed using deterministic and stochastic approaches. Nonlinear dynamic analyses of these two buildings utilize a new degrading hysteretic connection model that incorporates the effects of weld fractures. The role of inherent randomness and modeling uncertainties in ground motion and structural resistance in forecasting or explaining observed building performance is examined for one of the buildings, leading to a probabilistic description of building performance and insights that are useful for condition assessment and performance-based design.

### "Cantilever Beam Framing Systems"

By Michael Hemstad

The advantages and disadvantages of cantilever beam framing systems are discussed. Simplified methods and equations are described and applied. A design example demonstrates that cantilever-framing systems are a reasonable and economical alternative to simple span and continuous beam framing systems.

**To order Engineering Journal, call 312/670-5444**

# Seismic Seminar: Braced and Special Moment Frames

August 18 marks the premier of a new steel design seminar, "Applying AISC Seismic Provisions for Braced Frames and Special Moment Frames." The course is aimed at practicing professionals who need an immediate update on the 1997 Seismic Provisions and their application in LRFD for Braced and Special Moment Frames.

The seminar is divided into three parts:

- AISC 1997 Seismic Provisions/SAC Update (scope; seismic maps & design categories; load combinations; materials; SAC & NEHRP Update)
- Design/Detail: Braced Structures (Special Concentrically Braced Frame [SCBF]; Ordinary Concentrically Braced Frame [OCBF]; and Eccentrically Braced Frame [EBF])
- Connections for Special Moment Frames (Reduced Beam Section Connection; Tapered Welded Haunch Connection; Truss Analogy Connection; Proprietary Connection 1; Proprietary Connection 2; and others).

The 1997 Seismic Provisions are expected to become mandatory for seismic design in California as a replacement for the 1997 UBC, Chapter 22, Divisions IV and V. In addition, certain jurisdictions in California have requested the endorsement of SEAOC for the early adoption of the Provisions.

Developed by the AISC Committee on Specifications and Task Committee 113—Seismic Design with input from the Building Seismic Safety Council, the National Science Foundation, the SAC Joint Venture and the Structural Engineers Association of California, the Provisions are intended for the design and construction of structural steel members and connections in seismic force resisting systems in buildings for which the design forces resulting from earthquake motions have been determined on the basis of energy dissipation in the inelastic range of response. They currently are required for buildings that are classified by the Applicable Seismic Category D (or equivalent) and higher or when required by the Engineer of Record.

The course has a value of 5.5 PDH. The cost for the seminar is \$185

(\$135 for AISC members) with discounts for multiple attendees from the same firm. For more information, call 630/369-7784.

## Seminar Schedule

Los Angeles .....	Aug. 18
Orange County .....	Aug. 19
Seattle .....	Sept. 8
Anchorage .....	Sept. 9
Sacramento .....	Oct. 12
San Francisco .....	Oct. 13
Salt Lake City .....	Oct. 27
Portland .....	Oct. 28

## Bracing Seminar Features Yura And Helwig

A new series of Bracing Short Courses, featuring Joseph A. Yura from the University of Texas at Austin and Todd Helwig from the University of Houston is about to get underway. The two-day, eight-hour course, including an 80-page handout, costs \$200 (\$175 for AISC/RCSC members). Covered are present principles, case studies and recommendations. The lectures include: column & frame bracing; lean-on systems; torsional bracing; beam buckling; lateral bracing of beams; and torsional bracing of beams.

Jointly sponsored by AISC and the Structural Stability Research Council, the seminar is a repeat of the standing-room only short course at the 1995 NSCC Conference. For more information, fax 312/670-5403 or register by calling 630/369-7784.

## Bracing Course Schedule

1999

Sept. 23-24 .....Minneapolis

Dec. 6-7 .....Atlanta

2000

Jan. 11-12 .....Pittsburgh

Jan. 13-14 .....Denver

To receive more information on the Bracing Short Course, please fax 312/670-5403 or consult the AISC web site at [www.aisc.org](http://www.aisc.org).

## Steel Bridge Forum Focuses On Innovation

The American Iron and Steel Institute (AISI), in partnership with the NSBA and in collaboration with the Pennsylvania Department of Transportation, is sponsoring a Steel Bridge Forum on "Innovative Ideas that Improve the Performance and Life Cycle Costs of Steel Bridges."

Scheduled for September 10 in Columbia, SC, October 21 in New York and November 9 in Frankfort, KY., the Forum will include discussions on cost-effective design of steel bridges, design analysis, applications of high performance steel and efficient fabrication. The session is designed to provide practical and informative ideas for steel bridge owners, consultants and industry affiliates. The agenda was developed with input from Scott Christie, P.E., chief bridge engineer for the Pennsylvania Department of Transportation.

For more information or to register, contact Dan Snyder in AISI's Transportation and Infrastructure Department (ph: 202/452-7217; email: [DSnyder@steel.org](mailto:DSnyder@steel.org)) or visit AISI's web site at [www.steel.org/infrastructure/sbf](http://www.steel.org/infrastructure/sbf).

## **SSRC Headquarters Relocates**

The Structural Stability Research Council (SSRC) has moved its headquarters from Lehigh University to the University of Florida at Gainesville.

Established in 1944, SSRC is the worldwide recognized leader in research on the stability of metal structures and is best known for its "Guide to Stability Design Criteria for Metal Structures," a monograph now in its fifth (1998) edition.

For further information, contact SSRC, University of Florida, P.O. Box 116580, Gainesville, FL 32611-6580 (ph: 352/846-3874; fax: 352/846-3978; email: [ssrc@ce.ufl.edu](mailto:ssrc@ce.ufl.edu)).