

AISC Announces New Seminar Series: "Designing Steel for Serviceability"

The advent of powerful computer software allows engineers to readily review a myriad of alternative design schemes to obtain optimum strength designs. Today's successful designer must look beyond just strength, however, and consider a building's function and maintenance requirements. In short, serviceability issues are becoming increasingly important.

AISC's new 49-city Seminar Series, "Designing Steel for Serviceability", covers five important topics: frame layout options & strength design; roof ponding; floor elevation & levelness; control of lateral drift; and control of floor vibrations.

Frame Layout Options & Strength Design: This portion of the seminar will include information on selection of a steel system, frame layout options and trade-offs, structural analysis, member selection for strength, and serviceability design concerns.

Roof Ponding: Most commercial buildings are designed and constructed with near-flat roofs. Too often, this is not well coordinated with roof drain location, which can create an unforeseen ponding load on the roof structure. If not considered in design, this ponding effect can cause leakage, damage or even partial roof collapse. This presentation provides an explanation of the ponding mechanism and through design examples shows how to minimize structural complications.

Floor Elevation & Levelness: The placing of fresh concrete on flexible floor systems to achieve a level floor requires an understanding of the interactive effect of construction floor deflections and the additional loading that may be created in the leveling process. For the unwary, this can result in: non-level floor surfaces; interference with ceiling plenum elements; additional concrete to compensate for the sagged supporting systems; failure to attain specific floor elevations; and potential construction collapse. This portion of the seminar will discuss these issues and through design examples provide alternative solutions to this troublesome problem.

Control of Lateral Drift: Lateral drift

1997-98 Seminar Series Schedule	
1997	Nov. 6Seattle
June 16-17*San Diego	Nov. 12New Orleans
June 18-19*Orange County	Nov. 13Houston
June 24Minneapolis	Nov. 18Meriden, CT
June 26Milwaukee	Nov. 19New York City
July 1Charlotte	Nov. 25Atlanta
July 2Greenville, SC	Dec. 2.....Memphis
July 9.....Rochester, NY	Dec. 4.....Nashville
July 10Albany, NY	Dec. 11Salt Lake City
July 16Cincinnati	
July 17Charleston, WV	1998
July 22Washington, DC	Jan. 14Los Angeles
July 23Richmond, VA	Jan. 15Los Angeles-East
July 24Norfolk, VA	Jan. 21Columbus, OH
July 29St. Louis	Jan. 22Cleveland
July 31Omaha	Jan. 27Jacksonville
Sept. 17Dallas	Jan. 29.....Tampa
Sept. 18.....Oklahoma City	Feb. 4Boston
Sept. 24.....Sacramento	Feb. 5.....Portland, ME
Sept. 25San Francisco	Feb. 11Albuquerque
Oct. 8Chicago	Feb. 12Phoenix
Oct. 15Philadelphia	Feb. 18Pittsburgh
Oct. 16.....Edison, NJ	March 3Kansas City
Oct. 21Detroit	March 5Denver
Oct. 23.....Indianapolis	
Oct. 28Raleigh	
Oct. 30.....Birmingham	
Nov. 5Portland, OR	

**Seminar will be held over the course of two evenings*

of a building has always been an index of structural performance under service loads. And as structural materials have become stronger while non-structural materials have become lighter and less rigid, its importance has only increased. This portion of the seminar provides new information by correlating the racking effect of lateral deformations with damage to various non-structural components. A design example will be presented.

Control of Floor Vibrations: Excessive vertical motion of floors can cause significant occupant discomfort and sometimes alarm. Modern construction materials and methods, where both structural and non-structural systems are lighter, have only exacerbated the problem. Serviceability guidelines in the past emphasized stiffness limits that have

been inefficient in neutralizing potential vibration in floors: Only when both mass and damping are included in the total design can effective control be expected. This portion of the seminar will provide guidelines for controlling this problem.

The seminar series has a CEU value of 0.55 (5.5 PDH). Registration is \$120 (\$90 for AISC members). The registration fee includes a wide range of handouts.

Please note that all MSC subscribers will automatically receive a registration form six weeks prior to the seminar scheduled in their area.

For more information, call 630/369-3772, fax 630/369-3773 or point your favorite web browser to: <http://www.aiscweb.com>

Two New Steel Mills

Chaparral Steel Company and Nucor Corporation have both announced plans for new steel plants. Chaparral's plant, designated Chaparral East, is planned to have an annual capacity of more than 1 million tons and is expected to begin production in 1999. Nucor's new plant, to be located in Berkeley, SC, is expected to produce approximately 500,000 tons of wide flange and bantam shapes beginning in 1998.

"With the reduction in domestic suppliers that has taken place over the last few years, the North American structural market requires substantial imports to meet demand. This low operating cost facility will be well positioned to supply expected market needs," explained Gordon E. Forward, president of Chaparral Steel. The new Chaparral plant, the final location of which has not yet been determined, will incorporate the patented Near Net Shape Casting technology previously developed at the company's Texas plant. The new facility will be the first to combine the patented casting technology with state-of-the-art melting technology and a proprietary, Schloemann SMS designed rolling mill to provide both low operating costs and a wide range of products, including structural beams up to 36" in depth. The mill will also produce North American and European sheet pile sections, "H" pile sections, Bantam Beams and other structural shapes.

Nucor's new South Carolina mill will be wholly-owned by Nucor, though the initial phases will be managed by Nucor Yamato Steel, including sales and related functions. The \$150 million mill is expected to employ nearly 200 people. Products are expected to include W6x15-25, W8x18-28, W10x22-30, W12x16-35 and W14x22-26. Also included will be 4" flange sections from W4-W12, S3-12, C10, Bantam Beams and some special sections.

AISC Staff Addition

Cynthia J. Zahn has accepted a new position with the AISC Engineering and Research department. Zahn, who formerly served as an AISC staff engineer for nearly

seven years before leaving in 1992, will work primarily on the development of AISC design publications and manuals. Zahn has an MSCE from Cornell University and has worked for several years as an independent structural consultant.

Also, AISC has announced that Charles Carter, P.E., has been promoted to Director of Manuals. Carter has had a lead role in the development of several recent AISC publications and is expected to be instrumental in developing the next *Manual of Steel Construction*.

(Zahn can be reached at zahn@aiscmail.com and Carter can be reached at carter@aiscmail.com.)

NSBA Staff Change

Effective July 1, 1997, William McElaney will be joining the National Steel Bridge Alliance as the NSBA Regional Director, Construction Services. Previously, McElaney worked as a regional engineer for AISC Marketing, Inc.

In his new capacity, McElaney will be working closely with the NSBA state and regional coordinators in promoting increased cost-effective use of steel bridges.

The mission of the NSBA, which was formed in 1995, is to enhance the art and science of the design and construction of steel bridges. Its activities include organizing meetings, conferences and national symposia, conducting the Prize Bridge Awards competition, supporting research, developing design aids, and providing assistance to bridge owners and designers. The NSBA membership includes representatives from all aspects of the steel bridge industry.

(McElaney can be reached at mcelene@aiscmail.com or by calling 401/943-5660.)

AISC Marketing Staff Openings

AISC, poised to set the course of the design and fabrication of structural into the next century, is now seeking qualified individuals to fill regional engineer positions in New England, New York/New Jersey metro area, and the West Coast. Individuals in

these high profile positions must be qualified engineers with good marketing and communication skills.

AISC provides competitive salary and excellent health and retirement benefits. For more information and consideration, send a letter and resume to: A.B. Johnson, AISC, Inc., One East Wacker Dr., Suite 3100, Chicago, IL 60601-2001.

New AISC Publications List Available

AISC has issued its 1997-1998 Publications List, which includes more than 20 items never previously offered. To receive a FREE copy of the publications list, call 800/644-2400.

Upcoming Events

- **August 3-4, 1997:** IFCI Expo '97, Denver. International Fire Code Institute Annual Conference and Expo. Call: 800/423-6587; fax: 562/692-2845.
- **September 16-18, 1997:** Composite Construction-Conventional and Innovative, Innsbruck, Austria. Sessions include: Analysis & Dimensioning; Safety & Serviceability; Connection between Materials; Joints between Structural Members; Fire Resistance; Structural Design; Fabrication & Erection; Earthquake Resistance; Codes & Standards; Diagnosis, Maintenance, Repair & Retrofitting; Behavior Modeling; and Advanced Composites. Contact: International Conference on Composite Construction, c/o IABSE, ETH-Honggerberg, CH-8093, Zurich, Switzerland; ph: (Int. + 41 1) 633 26 47; fax: (Int. + 41 1) 371 21 31.
- **September 26-October 2, 1997:** Project Management Institute 28th Annual Seminars and Symposium, Global Project Management Forum and Academic Forum: "Project Management: The Next Century." Contact: Project Management Institute, 130 South State Road, Upper Darby, PA 19082; ph: 610/734-3330; fax: 610/734-3266; <http://www.pmi.org>

• **September 29-October 2, 1997:** 1997 Iron and Steel Exposition, Cleveland. Showcase of new steel-making equipment, technology and services. Call: 412/281-6323; fax: 412/281-6216.

OSHA Compliance

Complying with thousands of pages of regulations that cover the protection of workers from occupational illness and injury isn't easy. "Making Sense of OSHA Compliance" is a comprehensive new book that helps safety and human resource professionals understand how the safety and health system works and how to manage the compliance process. Included in the \$59, 250-page book are sections on: when illnesses and injuries are reportable; the differences between health and safety standards; how the General Duty Clause covers hazards for which no standard exists; which employer is responsible for the actions of subcontractors; why accurate record keeping is so important; how companies are chosen for inspection; what to do if an inspector is at your doorstep; how types of violations differ; and when to contest violations and penalties.

Contact: Government Institutes, 4 Research Place, Rockville, MD, 20850; ph: 301/921-2355; fax: 301/021-0373; <http://www.govinst.com>

New Bridge Book

The National Steel Bridge Alliance, in cooperation with the American Iron and Steel Institute has published "Four LRFD Design Examples of Steel Highway Bridges (US Units)."

This design guide on the use of the AASHTO LRFD Bridge Design Specifications includes four composite tangent steel bridge girder design examples that have been prepared using the 1994 First Edition. Interim specifications are incorporated where applicable. The examples are a simple-span I girder, a two-span continuous I girder, a three-span continuous I girder and a three-span continuous box girder design.

The \$40.00 (plus s/h) publication can be ordered by calling 800/644-2400 (please specify H013 when ordering).

"Four LRFD Design Examples of Steel Highway Bridges" is Chapter 1B (Volume II) of the 2nd edition Highway Structures Design Handbook, which is scheduled for publication as a set in the fourth quarter of 1997.

New Engineering Organization

A new engineering organization has been formed to address a growing problem for the profession: low pay; low status; and a lack of recognition. The new group, the American Engineering Alliance, headquartered in New York City, has as its goal to "elevate the stature of engineering to its rightful place alongside the other learned professions," said Louis Comunelli, P.E., chairman of the board of directors.

The new group intends to use public relations, media relations, political action and networking to achieve its goal. "We want to promote the concept that engineering is one profession to which all engineers belong regardless of their field of practice," said Salvatore Galletta, P.E., a founding board member.

Voting membership is open to all graduates of ABET-recognized engineering programs and annual membership is \$15.

For more information, contact: Louis Comunelli or Salvatore Galletta at 212/606-4053.

English/French Civil Engineering Dictionary

Chapman & Hall have published an English/French - French/English Dictionary of Building and Civil Engineering. The dual-language dictionary lists more than 20,000 specialist terms in both French and English, covering architecture, building, engineering and property terms. It is available for \$72.95. Call: 800/842-3636

Correction

The project team listed for the Circle Centre project in the April issue of MSC on page 48 should include only Fink, Roberts & Petrie, Inc., as the structural engineer. Architects on the project were Ehrenkrantz and Ekstut, New York City, and Centre

Venture Architects, Indianapolis, a joint venture of Browning, Day, Mullins and Dierdorf, plus CSO Architects.

Steel Interchange Collection Now Available

Five years of Steel Interchange columns, from its inception in 1992 through the end of 1996, have been reprinted and collected into one large three-ring binder. The set, which also includes an extensive index, is available for \$25 plus \$5 s&h from the AISC Publications department (call 800/644-2400 and request publication G450). Additional yearly updates will be sold, when available, for \$10 each.

Particularly useful is the extensive index, which lists each question, when the question appeared, and each time an answer appeared. Call 800/644-2400.

Correspondence

Dear Editor:

I would like to respond to Jeffrey Nawrocki's article in the May 1997 issue of Modern Steel Construction entitled "How Fabricators Can Combat Metal Buildings." First of all, the majority of the article is based on Nawrocki's personal opinions—not actual facts. Obviously, his viewpoint is based on outdated material and his dislike of metal buildings. I agree with him that metal building lateral drift requirements can be too liberal, but many owners require pre-engineered metal buildings to have stricter lateral drift requirements especially when there are cranes involved. The MBMA h/60 criteria is a minimum not a standard that is practiced religiously. Our department just finished a building with a 100' eave height and supporting a 600-ton crane. Do you think our lateral drift criteria was h/60? Engineers working for metal building companies can use rational engineering judgement when deciding drift criteria and should not be depicted as stated by Nawrocki that all drift criteria used in pre-engineered metal building design is h/60.

As far as expansion limitations, Nawrocki is incorrect. As long as the future loads are given at the time of design, there is no problem with future expansion of a metal building. We have designed steel mill buildings with

adjacent expansion of five additional bays without any problems. The key is knowing there will be future loads for the existing structure to support.

Nawrocki's comments about metal roofs is unfounded. Metal roof valleys and transitions are easily sealed to be water proof if it is installed properly. Butler's MR-24 standing seam metal roof has a durability and lifespan superior to any built-up roofing system.

Regarding the RTU's or hanging mechanical loads, if the location and the loads are given, it is quite easy for a metal building supplier to provide the proper support for RTU's and hanging loads. Regarding impact loads, Nawrocki thinks all metal building companies use a three-plate built-up section for its members, which is not true. Our department uses mill shapes when designing crane columns and other members subject to impact and primarily uses an outside fabricator to fabricate our mill buildings. Sometimes it doesn't matter what type of member is used, the structural member may encounter unusual impacts that will affect its structural integrity. The durability issue Nawrocki raises in the article is not based on any facts. It may be true that not many metal buildings look the same way they did when it left the showroom, but don't other buildings also show signs of age? There are a number of metal buildings used in industrial and commercial applications that have long withstood the test of time and are an attractive, useful building far exceeding a 20-30 year life.

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