STEEL NEWS & EVENTS

NASCC 2002—SEATTLE

Come to Seattle April 24-27 for the 2002 North American Steel Construction Conference (NASCC), co-sponsored by the American Institute of Steel Construction, a once-a-year opportunity for design and construction professionals to:

- Learn how to apply the latest engineering, fabrication, detailing, and erection techniques to your everyday work;
- Discover the latest product offerings from the leading industry vendors; and
- Network with your peers, customers and future employees.

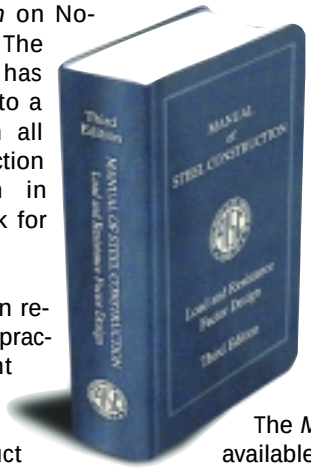
This year's NASCC features more than 40 technical sessions aimed at practicing structural engineers, fabricators, detailers, and erectors. This year's exhibit hall expects to feature more than 200 booths. Take this opportunity to meet nearly 3,000 of your peers-in one location, at one time. The 2002 conference features six short courses and tutorials:

- Connection Design Tutorial
- Practical Steel Design Tutorial
- Financial Management Short Course
- Mission Statement Short Course
- HSS Connections Short Course
- Fabricator Workshops

For more information about the NASCC, visit www.aisc.org/NASCC.html.

NEW MANUAL NOW AVAILABLE

The American Institute of Steel Construction, Inc. (AISC) released the 3rd edition of the *Manual of Steel Construction, Load and Resistance Factor Design* on November 15, 2001. The 3rd edition *Manual* has been reformatted into a single volume with all member and connection design information in one thumb-cut book for easy reference.



The manual has been reorganized to provide practical and efficient access to the information needed to design and construct structural steel buildings. "Road maps" are provided to quickly take the user to the applicable specifications, codes and standards, as well as the applicable provisions in those standards. All current structural shapes are covered, and guidance is provided the new OSHA safety regulations, stability bracing requirements and proper material specification. Additional new information is provided on design drawing information requirements, criteria needed for connection design, mill, fabrication and erection tolerances, façade issues, temperature effects and fire protection requirements with summaries of common UL assemblies.

The *Manual of Steel Construction* is available to AISC members for $99 and to non-members for $150. The manual is available for purchase at the AISC bookstore at www.aisc.org/bookstore.html or by calling 800.644.2400.

AISC STANDARDS FOR PUBLIC REVIEW

AISC is now requesting public review and comment on the following three specifications:

- *Load and Resistance Factor Design Specification for Steel Hollow Structural Sections*
- *Load and Resistance Factor Design Specification for Single Angle Members*
- *Seismic Provisions for Structural Steel Buildings*

These specifications are available for downloading on the AISC web site at www.aisc.org. Copies are also available (for a $12 nominal charge) by calling 312.670.5410.

Please send your specific comments to Cynthia J. Lanz, Director of Specifications, at lanz@aiscmail.com or by fax to her attention at 312.644.4226. Negative comments must be accompanied by specific recommendations for revision. Comments must be received by December 22, 2001 for consideration.

CORRECTION

The AISC-member fabricator and detailer for the Aiken Street Bridge (2001 NSBA Merit Award winner in the "Reconstructed" category) were unintentionally omitted in the In the October 2001 issue of *Modern Steel Construction*.

Both the steel fabricator and steel detailer are AISC-member **Foster-Precise, a division of L.B. Foster**, Georgetown, MA. We regret any inconvenience this omission has caused.

SEISMIC DESIGN OF STEEL BUILDINGS

Plan now to attend AISC's practical seminar on the design of steel moment-frame structures in seismic regions. Presented by Thomas A. Sabol, Ph.D., S.E., this seminar will familiarize the practicing engineer with the latest provisions on the use of steel in building structures in high-seismic applications, including the new FEMA 350 Guidelines, "Recommended Seismic Design Criteria for New Steel Moment-Frame Buildings," and the AISC "Seismic Provisions for Structural Steel Buildings" with Supplement No. 2. A short overview of FEMA 353 will also be presented. An extensive set of handouts will be given to each attendee and lunch will be provided. AISC will issue a certificate awarding 0.7 CEUs or 7.0 PDHs to each participant upon completion of the seminar. Fees are $170 for AISC members and $200 for non-members. For more information, locations, and dates, as well as a downloadable registration form, visit: www.aisc.org/seminars.html

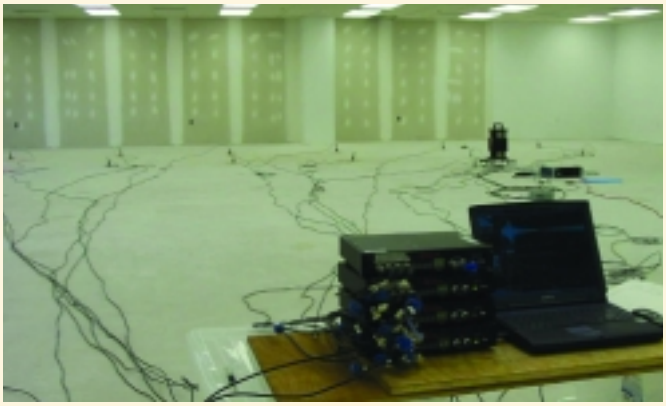
STEEL NEWS & EVENTS

NEW APPROACH STEADIES FLOORS TOO FLEXIBLE FOR COMFORT

A Penn State architectural engineer has developed a less disruptive, more cost-effective, active control approach to steadying floors that move excessively and annoy or frighten people who walk, work, exercise or dance on them.

Linda M. Hanagan, assistant professor of architectural engineering, says, "People don't think floors should move, and when they do, this motion can be perceived as annoying or even dangerous. This perception of danger can persist, even though no danger is present." Stiffening or thickening the floors in an existing building to decrease excessive motion is costly and can take months to complete, disrupting the building's occupants, she adds. However, Hanagan's new approach can be more effective than other retrofits and often takes less than a week to fix the problem.

This approach, for which Penn State recently filed a provisional patent application, uses active control systems installed on the floor or in the ceiling cavity below it to damp the vibrations.



A recently-completed open-plan office space, showing the floor fully-instrumented for the collection of floor vibration response data. Hanagan will use the collected data to develop computer modeling techniques for assessing vibration serviceability.

For example, if people are doing the bunny hop, the hop, hop, hop motion can cause a long-span, steel floor to begin to vibrate in response to the up-and-down motion of the dancers. Each time the dancers hop, the regular "beat" can cause the floor's up and down motion to increase. Hanagan says, "This happens because a component of the 'beat' is in resonance with the natural frequency of the floor."

The researcher's solution is to use strategically placed "smart" counterweights that sense the magnitude of the floor's motion and move to apply opposing forces to damp or diminish the vibrations. The active control system detects when the floor is moving up and down and when ▶

KALTENBACH EUROPEAN STEEL TOUR 2001

As part of their first Annual European Steel Tour by American fabricators, Kaltenbach, a world leader in the manufacture of structural steel technology, hosted a group of American structural steel fabricators on a tour of Europe to experience some of the world's most productive and sophisticated structural steel fabricating technology. The tour took the group through the historic Alsace region, the Black Forest, the Alps, through Germany, Switzerland, and France.

Following their arrival in Zurich the group took a short drive to Kaltenbach's world headquarters in Lörrach, Germany. From Lörrach, they traveled to four structural steel fabricators and one steel service center located nearby in Germany, France, and Switzerland. They were able to see innovative machinery in various working environments.

The American guests participated in a free exchange of ideas with their European hosts. The group came away genuinely impressed by the overall levels of sophistication within the plants toured, as well as the business practices and technologies presented. The participants all noted that European hospitality was warm and welcoming.

One day was spent exclusively in Kaltenbach's new, $5 million Structural Tech Center, with the opportunity to participate in a hands-on workshop that presented the latest in structural sawing, drilling, marking, and plate processing machinery—all downloadable from a central workstation. The star attraction, however, was Kaltenbach's innovative robotic coping machine, which garnered a great deal of interest. The tech center, which houses nine machines, functions as a small, high-tech structural steel fabricating center.

The last day of the tour was spent relaxing in the Swiss Alps. The day included a walk along the Mürren Alpine trail and a trip by cable car to the Schilthorn restaurant, which was featured in the James Bond movie *On Her Majesty's Secret Service*, for lunch at 9,745' above sea level. The restaurant is located on the tip of an Alpine peak and affords a magnificent panoramic view of the Alps, including the adjacent peaks of Jungfrau, Mönch, and the notorious Eiger. The day was concluded with shopping in Interlaken.

Valentin Kaltenbach (4th from right, standing) with a party of American structural steel professionals atop the Schilthorn in the Swiss Alps.

to react in the opposite direction to counter the movement.

Hanagan notes that her active floor vibration control system is similar in concept to the tuned mass damper (TMD) approach that is sometimes used to correct floor motion. Both Hanagan's approach and TMD rely on a moving mass to dissipate the energy in the floor system. The advantage of the active system, which uses floor velocity measurements to generate the amount of force needed to damp the floor motion, is that it requires less moving mass to get the same degree of control as a TMD system. One study showed that a TMD system would have to weigh 30 times more than the active control system.

"When TMDs have been ruled out as a repair option because the existing structure can't support the additional weight, the active system could be the only viable option," she adds.

The active system is cost effective too. "As recently as a few years ago, 20 pounds of force cost about $30,000 to generate. Today, thanks to the improved capabilities of commercially available linear motors, we can generate 500 pounds for about $50,000," Hanagan notes.

The Penn State researcher is currently working on a non-exclusive basis with a commercial partner to apply her approach. She also measures and assesses floors on a consulting basis. In addition, she conducts research to provide design engineers with better tools to predict vibration behavior and prevent vibration problems before a building is constructed.

Hanagan's early work on active control of floor vibration was supported in part by the National Science Foundation. The active control approach has been described in publications including "Experimental Implementation of Active Control to Reduce Annoying Floor Vibrations" in the *Engineering Journal*, fourth quarter issue, 1998. Other publications are accessible through www.engr.psu.edu/www/dept/arc/server/caulty/hanagan.htm.

THE FUTURE OF TALL BUILDINGS

A task force of leading building industry experts formed by the Council on Tall Buildings and Urban Habitat (CTBUH) met today and concluded that there are several actions that can be taken to enhance the emergency performance of buildings including egress strategies, multiply-redundant building systems, integrated building control systems, performance-based design, education and research.

The task force also concluded that it is not practical to design any building to withstand the maliciously directed impact of a large fuel-laden aircraft and that the buildings in the World Trade Center attack performed heroically, which allowed more than 20,000 people to evacuate.

"It is important to understand that the attack on the World Trade Center was not about tall buildings, it was about terrorism," says the task force.

Overall, tall buildings have excellent safety records. The general themes that the task force is exploring to further increase the level of safety in the built environment include:

1. **Egress strategies.** It is unlikely that there is one answer to exit and evacuation procedures that applies for every building and for every situation. Developing updated standards, however, that contain the varied approaches of egress processes, systems, shelters, stairwells and elevators is vital to increasing awareness, understanding and probability to exit a building.

2. **Multiple-redundant building systems.** Systems should be designed with multiple sources and independent distribution routes to better withstand disruptions caused by extreme events.

3. **Integrated systems.** There are numerous systems inside of and outside of the building that if integrated could provide on-site and remote information about the building and its occupants to the appropriate authorities. These systems measure, monitor and control a building and the environment of the occupants. Specific systems include structure and infrastructure, electrical, security, building management and utility management.

4. **Performance-based design.** Building codes and standards are required and necessary for the built environment. The task force is exploring the potential for adding the function of performance-based design of buildings so those involved with designing, building and operating buildings can match the overall building design with the building's purpose.

5. **Education.** Safety procedures are regularly explained on airplanes and in our school systems. As our built environment includes many more applications, the task force will be establishing guidelines to better educate building management on safety procedures, decision-making and communicating during an emergency.

6. **Research.** The task force will be making recommendations for research on the built environment and will serve as a global advisory panel for all aspects relative to overall building safety.

The task force includes 24 experts, most representing organizations with global presence. Their expertise is architectural, structural engineering, mechanical engineering, electrical engineering, vertical transportation, fire protection and safety, building owners and developers, building control systems, building security, blast and curtain walls.

The next step for the task force includes sub-committee meetings. They are then scheduled to confer again prior to the "Building for the 21st Century" conference to be held in London in December. The conference is sponsored by the CTBUH and includes a global forum in which to discuss all aspects of the built environment under three themes technology, livability and productivity. More information can be accessed at:

www.buildingforthe21stcentury.com

NEWS & EVENTS

CONNECTION SEMINAR

AISC has developed a 7-hour connection-design seminar. For both connection design and the evaluation of connections that are shown on shop drawings, this course will help engineers understand the fundamentals of connection design, including bolting, welding, and connecting elements. This class will also give insight into the design of shear, moment, bracing, and other connections used in steel structures.

Speakers will vary from location to location, but will be selected among experts throughout the U.S. in the field of connection design. The new AISC Specification and other handouts will be given to each attendee and AISC will issue a certificate awarding 0.7 CEUs or 7.0 PDHs to each participant. For locations, dates and times, and registration information, please visit:

www.aisc.org/seminars.html

Fees are $170 for AISC members and $200 for non-members.

DO YOU HAVE WHAT IT TAKES TO BECOME AN ENGINEER?

For National Engineers Week 2001, Bonamy Publishing will launch a fun and informative engineering assessment test, a nationwide project to bring a glimpse of the world of engineering to students everywhere. The test covers such questions as:

Do you like to take things apart?

Do you like to play video games?

Do you enjoy tutoring other students?

Do you like to play sports?

Do you like to solve problems?

Do you like to ride roller coasters or go to amusement parks?

and many, many more.

Is there an Engineer Inside You?, published by Bonamy Publishing, can be purchased in leading bookstores or by calling 877.NGINEER (877.644.6337).