Economic Steel Design Seminar Series

AISC is scheduled to begin its 1999 Lecture Series, "Essentials of Steel Design Economy," in January. This 45-city seminar series 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.

As part of the lectures, an example moment column will be presented and then analyzed 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."

New Assistant Director of Education

Steve Ashton, P.E., has joined AISC as Assistant Director of Education. Previously, he worked for more than seven years at Burns & McDonnell, a large world-wide consulting engineering firm headquartered in Kansas City, MO.

Ashton is very familiar with the steel design and construction industry, having worked part-time during college at AISC-member Egger Steel Company in Sioux Falls, SD. There, he gained experience in the bridge fabrication shop as a laborer, and in the drafting department as a structural steel detailer. "My experience at Egger Steel really helped me at Burns & McDonnell," Ashton said. "It gave me a leg up to know how the steel fabrication process worked."

"For a young man, Steve brings both talent and energy to AISC," said Robert F. Lorenz, P.E., AISC's Director of Education. "He will be able to contribute immediately to the goals of the education department." Ashton's duties will include both development and presentation of AISC's Annual Lecture Series. He has a B.S. in Civil Engineering from South Dakota State University, an M.S. in Civil Engineering from the University of Kansas, and is registered as a Professional Engineer in Missouri.

Input Requested on Revised Code of Standard Practice

The AISC Committee on the Code of Standard Practice has begun the development process for the next revision of the AISC Code of Standard Practice. Do you have a constructive suggestion as to how the AISC Code of Standard Practice can be improved? Please mail, fax or e-mail it to Charlie Carter at AISC, One East Wacker Drive, Suite 3100, Chicago, IL 60601-2001; 312/670-5403; carter@aiscmail.com. Your response before November 3, 1998 will be appreciated.

T.R. Higgins Nominations

Nominations are now being accepted for the 1999 T.R. Higgins Lectureship Award. Each year, AISC recognizes an outstanding lecturer and author whose technical paper or papers, published during the eligibility period, are considered an outstanding contribution to the engineering literature on fabricated structural steel.

Recent winners have included Hassan Astaneh for his work on seismic bolted steel moment resisting frames, Subhash Goel for ductile concentrically braced frames, Donald Sherman for designing with structural tubing, William A. Thornton for connection design and Lawrence Griffis for composite frame construction.

To receive a nomination brochure, please fax 312/670-5403 or you can view the brochure on the AISC web site at www.aisc.org.

New Electronic Data Interchange Standardization Underway

For more than a decade, software vendors and users have been discussing the possibility of creating an electronic data interchange (EDI) standard. Such a standard would greatly ease the transfer of information—such as project drawings, design calculations and connection designs—between all members of the design and construction team, including engineers, fabricators, detailers and erectors. In addition to increasing accuracy (there would no longer be any "oops, we incorrectly keyed some critical data"), it would reduce the cost involved with each project team reproducing drawings. Finally, an EDI standard will tighten project schedules and reduce project time.

While the creation of an EDI standard seems simple, in reality it faces numerous obstacles: Different vendors require different types of information; this information is stored in different fields of a database and there have been questions of liability responsibility in relation to any data corrupted during transfer. Still another difficulty is the large number of translators required to extract data from neutral files—an added expense for both engineers and fabricators and a difficulty which would be readily overcome through the use of a single EDI standard.

During the past few years, several EDI standards have been developed or announced (ranging from Fabtrol's KISS (Keep It Simple, Steel) standard to the European CIMSTEEL. initiative. However, no EDI standard has been generally accepted by vendors or users.

AISC has determined that the development of an EDI standard is critical to the advancement of the use of structural steel. Therefore, AISC has resolved to expedite the implementation of a commonly accepted EDI standard. However, rather than developing their own, AISC will investigate already existing standards and pick one. AISC will then endorse and promote that standard.

Request for Proposals

"Since AISC has chosen not to develop its own EDI standard, we've decided to provide all companies having developed their own EDI standards an opportunity to submit their EDI standards for review," explained Steven Hamburg, P.E., AISC's Software/Electronic Communication Director. Submitted standards will then be examined by an EDI Review Team, which will then make a recommendation to the AISC Board of Directors. Those wishing to submit a proposed standard must do so prior to Oct. 30, 1998. "We hope to be able to announce and publish information about an AISC-endorsed EDI standard early in 1999," Hamburg noted. Likewise, AISC would appreciate your involvement regarding comments, questions and concerns applying to this issue.

To submit a proposed standard or comment on this subject, contact Hamburg at 312/670-5413 (email hamburg@aiscmail.com).

Progress Reports

As they become available, progress reports—such as EDI Review Team meeting minutes—will be posted on AISC's web site (www.aisc.org). In addition, visitors can find a discussion of how the structural steel industry will be effected and optimized through implementation of an EDI standard. Also, the web site contains a listing of the EDI Review Team members.

Upcoming Events

• October 22, Chicago: "Seismic Performance and Design of Bolted Steel Moment-Resisting Frames"

Abolhasan Astaneh-Asl, Ph.D., P.E., from the University of California-Berkeley, will present his 1998 T.R. Higgins Lecture during a breakfast program sponsored by the Northern Illinois/Chicago AISC Advisory Committee and the Associated Steel Industry Promotion Fund.

Astanah's paper examines the past performance of bolted moment-resisting frames and presents the concept of performance-based design of steel connections using "hierarchical" desirability of failure modes.

While attendance to this breakfast meeting is free, it is requested that you pre-register. To do so, fax your name and company to 630/527-0860. Breakfast begins at 7:45 a.m. with the lecture starting at 8:15 a.m. and concluding at 9:30 a.m.

• November 3, Chicago: "Partially Restrained Connections in Steel"

SEAoI, together with the Associated Industry Promotional Fund, is sponsoring a dinner meeting featuring Nestor Iwankiw, V.P. of Engineering at AISC, Kurt Swenson, P.E., of Stanley Lindsay & Associates in Atlanta, and Larry Kloiber, V.P. of Engineering with Le Jeune Steel Co.

The three speakers will explain the AISC Code Provisions related to PR Connections and discuss their economical use in building construction.

For more information, contact: Sherry Hurrenga at 312/372-4198.

Steel Mill Roundtable

Steel Mill Roundtable is an occasional feature in Modern Steel Construction. The Roundtable focuses on a single issue of importance to designers and contractors and solicits information and opinions from major steel suppliers to the U.S. market. If you have a question related to mill products and practices, please send it to Scott Melnick at Modern Steel Construction, One East Wacker Dr., Suite 3100, Chicago, IL 60601-2001; fax: 312/670-5403; email: melnick@aiscmail.com. This month's answers come from Serge Bouchard, M.Sc., Resident Engineer with TradeARBED.

Is there a difference in ductility between A572 Gr. 50 and A36?

In principal, the ductility of A572 Gr. 50 is better due to the presence of fine-grain alloy elements in the steel.

However, let me point out that yield strengths for ASTM A36 have increased over the past 10 years so that several grades of steel may have similar properties or reversed properties with respect to beams and columns from those a designer intended. Therefore, material produced to the A36 specification may have a large variation in tensile properties with actual yield strengths that often exceed 50 ksi.

Fortunately, the new A992 steel, which has a maximum and minimum yield strength as well as chemical enhancements, will clarify these issues. It is expected that this new grade of steel will quickly replace A36 and A572 Gr. 50 as the standard material for structural shapes.

Is there an increased corrosion rate with A572?

We are not aware of any, and literature confirms that so far there is absolutely no difference in corrosion rates between A572 Gr. 50 and A36 in any environment.

Is A572 Gr. 50 more crack prone than A36?

Again, when looking at the chemistry, I would say that A572 Gr. 50 is potentially less crack prone as it contains fine-grain alloy elements, which enhance the toughness of the steel. Toughness is the ability of a material to absorb energy prior to fracture. It is known from fracture mechanics that a material with a higher toughness may be able to prevent an initiating crack from propagating.

There is no minimum toughness specified for either grade in ASTM standards. Thus, the judgement related to toughness can only be based on the presence of fine-grain alloy elements in A572 Gr. 50.

If toughness is an issue, you can specify steels with a minimum CVC toughness level, such as A913 Gr. 50 or Gr. 65.

Is there anyway for an engineer to identify A572 material when examining an existing structure when the engineering and contract documents are not available during a retrofit project?

It is difficult to identify A572 and A36 on site. We can imagine two possibilities:

a. There are lightweight spectrometers in the market that allow the determination of the chemical composition of steel.

b. It also is possible to measure the hardness on a ground steel area. However, this method is less reliable since hardness of A36 may overlap with the hardness of A572.