Steel News & Events

AISC Launches Breakthrough Initiatives

In a major initiative to significantly advance the steel design and construction industry, the American Institute of Steel Construction, Inc. has announced plans to increase spending by more than $13.5 million on education, fire engineering of steel structures, electronic data interchange, marketing, and other innovations over the next five years. Most of the increased funding is the result of an association reorganization that invites domestic steel mills and service centers to join AISC as active members.

"This membership change represents the conclusion of more than two years of planning a multi-year, multi-million dollar market breakthrough program for our industry," explained Robert G. Abramson, Chairman of AISC's Board of Directors and CEO of Interstate Iron Works in Whitehouse, NJ. "This unprecedented change in the membership of our association presents an exciting opportunity for the two major segments of the steel construction business to join together in a spirit of cooperation."

The increased funding is expected to pay for a dozen key initiatives, including the establishment of a Steel Solutions Center, according to Andy Johnson, AISC's Vice President of Marketing. The Solutions Center will serve three primary roles: outbound calls for strategic project-oriented work, inbound calls regarding the use of structural steel, and information gathering and cataloging. "We hope the Steel Solutions Center will be a one-stop shop for information on steel construction," Johnson said. It's expected that the Solutions Center will be operational in the third quarter of this year.

The Solutions Center's engineering staff will have numerous tools available to aid designers, contractors and developers, including a powerful new project estimating software package that will present framing, construction schedule and cost comparisons. In additional, the Solutions Center will be available to provide preliminary design studies. "Studies have shown that designers, contractors and developers are interested in cost, quality and speed. Our initiatives are designed to help in all of these areas," Johnson explained.

The increased funding also is expected to pay for the development of new information on key project areas, including multi-story residential construction and parking structures. "We're working to gather and update existing technical information, as well as develop continuing education programs for fabricators and designers," Johnson stated. Similarly, funding will be made available for new work on fire protection, partially restrained connections and coating systems. "AISC is already participating as part of an international steering committee looking at improving fire safety, and we hope to fund research that will include full-scale fire tests that will help to establish a more rational approach to fire protection of steel structures." For partially restrained connections, AISC plans on studying its economic feasibility and, if they prove economical, to produce design aids.

One area well underway is the move to achieve commercial adoption of the CIMSteel standard for data exchange between software programs. Numerous software vendors are currently working to make their programs CIMSteel compliant and AISC is assisting the effort both financially and through staff activities.

Another key area for AISC is education and faculty development. "We hope to increase the number of courses in steel design taught at universities to ensure that engineering graduates are prepared to meet the needs of consulting firms," Fromy Rosenberg, Assistant Director of Education, said. "In addition, AISC hopes to provide seed money for researchers and doctoral students to make sure that there's a constant source of new 'steel stars'." Other educational efforts include more work on detailer training and seminars for fabricators on such subjects as design/build and developing marketing programs.

AISC also plans on working on increased industry standardization to improve efficiency and capacity to meet the market demand.

For more information on AISC's Market Breakthrough Initiatives, contact: Lou Gurthet, President of AISC, One East Wacker Dr., Suite 3100, Chicago, IL 60601-2001 (fax: 312/670-5403; email: gurthet@aisc-mail.com).

Focus on Wind and Low-Seismic Design

Nearing the halfway point in a national touring schedule, AISC's latest lecture series has generated strong positive feedback, according to Steve Ashton, Senior Engineer-Continuing Education at AISC.

The 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 initial series of feedback surveys, which included respondents in Las Vegas, Nashville, Memphis and Birmingham reported that nearly nine out of 10 attendees agreed that the course was well worth the registration fee, while more than 90% of the attendees noted that the course was beneficial. The data showed that more than seven out of 10 attendees had more than a decade of professional experience and nearly 80% of the attendees were structural engineers.

Schedule-at-a-Glance

June 7 .....Cleveland, OH	Sept. 28.....Columbus, OH
June 8 .....Detroit, MI	Oct. 4.....Rochester, NY
June 21 .....Cincinnati, OH	Oct. 5 .....Albany, NY
June 22 .....Indianapolis, IN	Oct. 18 .....Meriden, CT
June 28 .....Stillwater, OK	Oct. 19 .....Boston, MA
June 29 .....Denver, CO	Oct. 24 .....Washington, DC
Sept. 6 .....Chicago, IL	Oct. 25 .....Philadelphia, PA
Sept. 7 .....Grand Rapids, MI	Nov. 1 .....Edison, NJ
Sept. 13.....St. Louis, MO	Nov. 2.....New York, NY
Sept. 14 .....Kansas City, MO	Nov. 15 .....Houston, TX
Sept. 27 .....Pittsburgh, PA	Nov. 16.....Dallas, TX

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 Ashton. "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 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, which offers 0.5 CEUs (5 PDH), is $200 ($150 for AISC members) with discounts for multiple attendees from one firm.

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

HPS Welding Course

Lincoln Electric is offering a seminar entitled "Welding HPS Bridges." This program is designed for bridge fabricators using or planning to use the relatively new HPS70W steel.

Through a series of lectures, discussions, and laboratory sessions, the essential elements will be covered, including:

- Welding requirements and procedures
- Welding consumable requirements
- Metallurgy of high performance steels
- Case studies of previous projects
- HPS Fabricator's Guide
- AWS D1.5 Bridge Welding Code
- Other fabrication issues (drilling, cutting, flame straightening, etc.)

When: June 20 - 21, 2000

Where: Lincoln Electric, Cleveland

For more information and a detailed agenda please visit Lincoln's website at **http://www.lincolnelectric.com/services/educate/hps-bridges.asp**.

Steel News and Events

Correspondence

Dear Editor:

Thank you for including the Steel Joist Institute's "Reducing Joist Costs" article in the April issue. Reducing fabricating costs through careful consideration in the design process is very beneficial to the steel fabricator and in the long run reduces the overall cost for steel construction.

We read with interest the article by David T. Ricker on "value Engineering for Steel Construction" and in particular the segment for "Designing for Steel Joist Economy." While it contains very useful information, there is one serious error. The statement that "A joist top chord is designed to support a 400 pound concentrated load anywhere between panel points in addition to the normal uniform load" is totally incorrect and could cause a serious member overstress (last bulleted item on page 32).

Steel joists are simply supported, uniformly loaded open web trusses designed to support the uniform load indicated in the appropriate load table for the joist designation and span. Joists are very versatile and can be designed for any number of special loading conditions. Special loading conditions other than the load table uniform load must be conveyed to the joist manufacturer by the designer. A concentrated load(s) is a special loading condition and the magnitude and location of the load must be conveyed to the joist manufacturer in order that proper consideration is given to the joist design. Contrary to what the article states, the standard K- and LH/DLH joist is not designed to support extraneous, randomly located, concentrated loads.

R. Donald Murphy
Managing Director
Steel Joist Institute

Dear Editor:

We would like to bring to your attention an inaccurate statement in the article "Value Engineering for Steel Construction" that was was published in the April 2000 edition. In the section of this article entitled "Designing for Steel Joist Economy" the author indicates that "A joist top chord is designed to support a 400 lb. concentrated load anywhere between panel points in addition to the normal uniform load." This statement is not supported in the current Steel Joist Institute's Specifications.

For K-Series joists section 4.4(a) of the specification states:

"The top chord shall be designed for only axial compressive stress when the panel length, L, does not exceed 24 inches (609 mm). When the panel length exceeds 24 inches (609 mm), the top chord shall be designed as a continuous member subject to combined axial and bending stresses..."

When panel lengths are less than or equal to 24 inches standard procedure in steel joist design is to determine design axial forces assuming all elements of the joists are truss types. The members are then sized considering axial stress only. There is no provision to superimpose a concentrated load between panel points.

When panel lengths are greater than 24 inches, the design axial forces are again calculated assuming truss members. The design bending forces are determined by analyzing the top chord as a continuous beam, supported at each top chord node. A combined axial and bending check is then used to design the top chords. Note that all of these forces are determined using the published SJI uniform load only and do not include any off panel concentrated loads.

Note that KCS type joists also do not have any off panel load considerations designed into them.

For LH, DLH-Series joists section 103.4(a) of the specification is slightly different. Combined axial and bending must always be checked regardless of the panel length. However, there still is no provision for an off panel concentrated load.

For joist girders, section 1003.4(a) of the specification indicates that top chords are designed only as axial loaded compression members.

The New Columbia Joist Company (NCJC) assumes that any off panel concentrated loads that are considered during the selection of the joists are supported by a field applied angle that goes from to the nearest bottom chord panel point. NCJC will shop apply web stiffeners when it is negotiated as part of our contract and complete loading diagrams are supplied by the design engineer.

Drew R. Potts, P.E.
Engineering Manager
The New Columbia Joist Company

Dear Editor:

Your in-depth analysis of the practical considerations of steel design and construction (*Designing for Metal Deck Economy* by David T. Ricker in the April 2000 issue) was very enlightening and put necessary considerations into proper perspective. You indicated in your hypothetical design project that welding was selected as the most efficient manner of attaching 20 ga. deck because of the relatively thick flanges of the structural support members and that screw type or power-driven fasteners would have been considered if the substrate had been thinner. I do wish to bring to your attention, however, that there is a well established pneumatically driven mechanical fastening system in commercial use for the attachment of steel deck that is capable of successfully penetrating steel substrates of no maximum thickness limitation. The fasteners are designed in a progression of shank diameter vs. length to accommodate any thickness of supporting steel above 1/8" minimum, for use with any of the structural steel grades currently specified. Pneutek's Air/Safe Fastening System is designed to provide consistent quality.

Raymond L. Schwartz
Asst. V.P./Principal Engineer
Pneutek, Inc.

Corrections & Clarifications

Incorrect information on Structural Detailers, Inc., and Diversified Engineering Group was inadvertently included in the Steel Detailers Listing in the May issue of Modern Steel Construction. The correct information is as follows:

Structural Detailers Inc.
Pittsburgh, PA
Ph: 724/224-2418
Fax: 724/224-2418
Years: 7
Detailers: 6
Checkers: 3
CAD#: 6
Metric: Yes
Foreign: No
Experience: Low-rise, high-rise, commercial, industrial, bridges, misc.
Software: Steelcad, Fastcad

Diversified Engineering Group
Idaho Falls, ID
Ph: 208/528-6110
Fax: 208/529-5621
Years: 18
Organizations: NFIB, AGC
Detailers: 6
Checkers: 2
CAD#: 6
Metric: No
Foreign: No
Experience: Low-rise, commercial, industrial
Software: SDS-II, AutoCAD

Also, Progressive Detailers Corp. was inadvertently omitted from the listing.

Progressive Detailers Corp.
Landing, NJ
Ph: 973/770-3350
Fax: 973: 770-4888
Years: 25
Detailers: 7
Checkers: 4
CAD#: 7
Metric: Yes
Foreign: No
Experience: Industrial, commercial (low- and high-rise), bridges, tubs
Software: AutoCAD, ProDRAW