STEELDAY

Eighth Annual SteelDay Showcases Industry to Thousands

A webinar featuring a new documentary on one of America's greatest bridge designers drew more than 5,000 online viewers in celebration of the structural steel industry's eighth annual SteelDay on September 30. In addition, thousands of AEC professionals, students and others gained first-hand insight into the work, experience and accomplishments of the U.S. structural steel industry at dozens of networking and educational events at steel facilities and jobsites around the country, hosted by AISC and its members and partners. This year's national event also incorporated various online voting competitions.

"This year's SteelDay celebration continued the tradition of allowing design and construction professionals to gain insight into the structural steel supply chain and grow in appreciation of the expertise that the steel fabricator contributes to the successful completion of a project," said John Cross, AISC vice president.

The highlight of this year's SteelDay was a free on-demand screening of the new documentary film, *Bridging Urban America: The Story of Ralph Modjeski*, produced by sOlar eye communications. The movie illustrates the life story of Ralph Modjeski, the designer of some of the 20th century's most significant bridges, and his influence as an engineer, entrepreneur, artist and innovator. If you weren't able to watch it on SteelDay, purchasing information for the DVD is available on the film's website at **http://bridginguamericafilm.com**.

In the sixth annual SteelDay Sculpture Competition, AISC members crafted their own steel sculptures for a chance to be one of five finalists to have their creation put on display at the 2017 NASCC: The Steel Conference, March 22–24 in San Antonio, Texas. Nine sculptures were entered into the competition with their photos posted to **www.steelday.org/sculpturecompvoting**, where fans voted for their favorites. You can view all five finalists in the November Structurally Sound column "Final Five," available at **www.modernsteel.com**.

This year's SteelDay also celebrated 30 years of the AISC Steel Sculpture, a teaching sculpture made up of various steel members and connections that can be found on more than 170 college and university campuses across the U.S. Students entered photos of their campus' sculpture to be featured on AISC's Facebook page and voted on by fans during the week of SteelDay. The winners are: Christie Moore from Christian Brothers University; CJ Powell from Rochester Institute of Technology; Reggie Raney from Christian Brothers University; Lauren Santullo from The College of New Jersey; and Eric Bellville from the University of Central Florida. The winners are featured in the October 28 Steel in the News item at **www.modernsteel.com**.

Photos from this year's SteelDay can be found on AISC's Facebook page (**www.facebook.com/AISCdotORG**) in the SteelDay 2016 photo album. If you'd like your SteelDay photos featured in the album, please email **socialmedia@aisc.org**. Next year's SteelDay is scheduled for September 15, 2017. For more information, please visit **www.steelday.org**.

One of this year's many SteelDay events was a presentation on the new Tappan Zee Bridge north of New York City. Members of the design team provided insight on the project to a crowd of nearly 80 at a venue overlooking the bridge itself.

People and Firms

Cliffs Natural Resources, Inc., and the **American Iron and Steel Institute (AISI)** have announced that **U.S. Representative Rick Nolan (D-MN)** was honored with the 2016 Congressional Steel Champion Award from AISI. The award recognizes Rep. Nolan for his dedication to and support of the American steel industry and its employees.

Lourenco Goncalves, Cliffs' chairman, president and CEO, and **Thomas J. Gibson**, AISI president and CEO, presented the award at a gathering of Cliffs' employees at Hibbing Taconite mine in Hibbing, Minn.

"What an honor to receive this Steel Champion award from the American Iron and Steel Institute," said Nolan. "We've been fighting hard in Washington to support and protect Minnesota's workers in the iron ore and steel industries. The progress we've made is due to numerous appeals to the White House, the Commerce Department and the International Trade Commission to bring the hammer down on illegal steel imports that devastated the Iron Range economy."

In presenting the award, Goncalves said, "Congressman Nolan was instrumental in focusing the attention of the White House on the steel import crisis. He has fought for aggressive enforcement of our trade laws to combat these illegal imports in order to protect mining jobs on the iron range and to preserve our all-important domestic steel industry."

IN MEMORIAM

Amrit Das, Author of STAAD, Dies

Amrit Das, founder of Research Engineers International, Inc. (REI) and the original author of STAAD, passed away late this summer in Kolkata, India, after a battle with brain cancer.

Das changed the way structural engineers looked at design problems. By introducing finite element analysis—a specialty typically reserved for mechanical engineers to solve complex problems—to structural engineers whose results could easily be transferred seamlessly to steel or concrete design, he revolutionized how structural engineers approached problems, which ultimately led to more efficient designs.

Das was the chairman, CEO and founder of REI and then netGuru, Inc. He graduated from Bengal Engineering College in 1966 with a degree in civil engineering, and after starting his career at Catalytic Engineers, an engineering consulting company in Philadelphia, he decided to pursue his dream of starting his own engineering firm. He founded REI in 1978 after developing STAAD in his spare time using a used Telex machine, a borrowed VAX-11 and some late nights at the Drexel University library, learning FORTRAN. After taking some sound advice from John Walker (his booth-mate at an AEC Systems show in Washington, D.C.), he decided to port STAAD to a PC, banking on the fact that personal computers would become as ubiquitous to an engineer as paper and pens.

Over the next few decades, STAAD became the world's leading general-purpose structural engineering software responsible for the underlying design of tens of thousands of structures, including stadiums, skyscrapers, industrial plants, towers, dams and iconic edifices like the Wimbledon Centre Court roof, Guangdong Olympic Stadium, NASA rocket launching pads and the reconstruction of the Grand Palais in Paris. In 1991, after moving the company to California, Das had ambitions of expanding REI's footprint outside of the structural software realm. At the time, it was unheard of for a small engineering company to go public, but Das' vision was to expand REI from being solely a vendor of structural engineering software to a being solutions provider to the AEC community at large. The California Chamber of Commerce recognized him as its Man of the Year in 1996, when REI was listed as a public company on the NASDAQ and went on to create software for the piping and civil engineering industries.

After losing his first wife, Purabi, to ovarian cancer in 1998, Amrit looked to give back to his roots by connecting Indian immigrants in the U.S. with their families in India. Realizing the immense commercial potential of the information technology industry, he created netGuru in order to diversify into the areas of e-commerce, digital media and IT products and services.

Perhaps Das' biggest professional accomplishment was selling STAAD to Bentley. "David Nation and Amrit negotiated the REI sale to Bentley back in 2005," noted Santanu Das, Amrit's son and a senior vice president with Bentley. "An extremely complex deal was effortlessly completed because of David and Amrit's persistence and business acumen. It is a shame that both would lose their battles to brain cancer within 24 hours of each other. I am sure they are out there somewhere looking for the next venture."

Widely known and respected in the information technology and AEC communities worldwide, Das is listed in the International Who's Who of Global Business Leaders, Who's Who of Outstanding Americans and Who's Who of Leading American Executives. On top of his various professional achievements, Das had a passion to succeed and innovate. He came to the United States without knowing a soul and went to school in the segregated South in the 1960s. With no prior knowledge about computers, he taught himself computer programming and then started writing commercial-level software in his spare time. He simply would not take "no" for an answer, striving to bring his ideas to life.

"People said he couldn't start a software business as a structural engineer with little computer knowledge, but he proved them wrong when he took STAAD to global heights and made it a household name," recalled Santanu. "When investors said diversifying outside of his expertise was unwise, he started (at the time) the largest online e-commerce site for India and bought three IT companies to boot. And when critics said he knew little about the media business, he created a successful animation company, ran concerts with various Bollywood artists and even made a feature film in memory of his first wife."

"Although he only lived to the age of 71, Amrit accomplished enough in his life to fill ten lifetimes. He took great pride and satisfaction that his first child, STAAD, found such a great home in Bentley. He knew it was a family business like his and recognized that family businesses would always take care of their own."

Das is survived by his second wife, Tamisra, and their three children.

AISC SEISMIC STANDARD

2016 AISC Prequalified Seismic Connection Standard Now Available

The 2016 version of the AISC standard *Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications* (ANSI/AISC 358-16) is now available for free download. This updated version of the standard has been expanded to cover nine connections: reduced beam section moment connections; bolted stiffened and unstiffened extended end-plate moment connections; bolted flange plate moment connections; welded unreinforced flange-welded web moment connections; Kaiser bolted bracket moment connections; ConXtech ConXL moment connections; SidePlate moment connections; Simpson Strong-Tie Strong Frame moment connections and double-tee moment connections. In addition to general requirements and limitations, each prequalified connection chapter includes a step-by-step design procedure.

The new standard has been approved by the AISC Connection Prequalification Review Panel (CPRP) and is ANSI-accredited. "With the release of AISC 358-16, there are now nine prequalified beam-to-column moment connections for Special and Intermediate Moment Frames," said Michael D. Engelhardt, chairman of the committee. "Work is already underway to prequalify additional connections and to extend the range of use for some of the existing prequalified connections, with the goal of providing designers with an ever growing range of options." ANSI/AISC 358 is an essential companion to the upcoming AISC *Seismic Provisions* (ANSI/AISC 341-16), which outlines the requirements for the prequalification of seismic moment connections in Chapter K.

You can download ANSI/AISC 358-16 for free at **www.aisc.org/aisc358**; all current AISC specifications and codes are available as free downloads at **www.aisc.org/specifications**. And you can read more about it in the November article "What's New with Prequalified Connections?" available at **www.modernsteel.com**.

HIGGINS AWARD

Helwig Wins 2017 T.R. Higgins Lectureship Award

Todd A. Helwig, PhD, professor of civil engineering at the University of Texas at Austin, is the 2017 recipient of AISC's T.R. Higgins Lectureship Award. Helwig is being honored for his paper "Stiffness Behavior of Cross Frames in Steel Bridge Systems" and other papers related to stability bracing, as well as his outstanding reputation as an engineer and lecturer. This annual award, which includes a $15,000 cash prize, will be presented to Helwig at the 2017 NASCC: The Steel Conference in San Antonio, Texas, March 22–24.

"The jury noted the significant and meaningful contributions of all of Todd's work in stability bracing, not just the paper on which his nomination was based," said Charlie Carter, AISC's incoming president. "It touches buildings, bridges, long-span trusses and many other types of structures that defy description by these categories. We look forward to a broadly applicable lecture at The Steel Conference."

Helwig is in his 23rd year of teaching and conducting research in the field of structural engineering and currently holds the J. Neils Thompson Teaching Fellowship in Civil Engineering at UT Austin; he joined the faculty in 2005 after teaching at the University of Houston for 11 years. His area of interest is the design and behavior of steel structures with an emphasis in structural stability and bracing.

He has codeveloped and taught a number of short courses on structural stability and bracing on behalf of AISC, the Structural Stability Research Council (SSRC) and the National Highway Institute. Since 1994, more than 5,000 engineers have attended the short courses that Helwig has co-developed and taught. In addition, he has conducted a wide range of research studies on the design and behavior of steel buildings and bridges. Results from past studies have led to design methodologies for bracing systems for steel box girders as well as new details for stability bracing systems for I-shaped sections. Helwig has also developed recommendations for cross-frame and diaphragm systems that rely on lean-on bracing to help reduce the number of fatigue sensitive braces on steel bridges.

Helwig's research has been recognized with several awards from ASCE, including the Collingwood Research Prize, the Moisseiff Award and the Shortridge Hardesty Award. In 2005, he was recognized by TxDOT with a top innovation award for his work related to lateral bracing of bridge girders by permanent metal deck forms. He also received an AISC Special Achievement Award in 2010 for his work on stability bracing systems in steel bridges. He has served on a number of technical committees for AISC, ASCE and SSRC and currently serves as Chair of SSRC.

Each year, the T.R. Higgins Award recognizes an outstanding lecturer and author whose technical paper or papers, published during the eligibility period, are considered an exceptional contribution to the engineering literature on fabricated structural steel. The nominations are judged by a distinguished panel of industry experts who reflect a blend of professional insight, industry experience and academic excellence. For more information about the award, please visit **www.aisc.org/TRHigginsAward**.

BRIDGES

World Innovation in Bridge Engineering Competition Call for Abstracts

Abstract submissions are being accepted through December 31 for the inaugural World Innovation in Bridge Engineering (WIBE) competition. Organized by BERD-FEUP (Bridge Engineering and Research Design and the Faculty of Engineering of the University of Porto), the competition will award $50,000 to the author(s) of the paper that demonstrates the greatest potential of innovation and contributes to the development of bridge engineering worldwide. The winner will be selected by a jury of international associations, including AISC/NSBA. The submission period for actual papers will be May 1 through July 31 of next year.

For more information, visit **https://paginas.fe.up.pt/~wibe**.

AISC CODE

2016 *Code of Standard Practice* Now Available

The 2016 AISC *Code of Standard Practice for Steel Buildings and Bridges* (ANSI/AISC 303-16) is now available as a free PDF download at **www.aisc.org/2016code**.

"The most fundamental change is that the Code is now an ANSI-approved consensus document," commented Charles J. Carter, AISC's incoming president. "The composition of the Committee that developed it has equal representation from industry, design professionals, and general interest members. This includes structural engineers, architects, a building official, a general contractor, fabricators, detailers, erectors, inspectors and an attorney."

"The *Code* defines the statement of custom and usage for fabricated structural steel," said Code Committee Chair Babette C. Freund, president of Universal Steel of North Carolina. "This is important to all; you don't have to reinvent the wheel every time you have a new project."

Also of note is that portions of the *Code* have been incorporated by reference into the *International Building Code*. The *IBC* references ANSI/AISC 360 (the AISC *Specification*) and ANSI/AISC 341 (the AISC *Seismic Provisions*), and these documents both reference parts of the *Code*. A complete list of these parts is provided at **www.aisc.org/303IBC**.

Beyond the basic change of making the *Code* a consensus document, modifications have also been made in the 2016 revision. Beyond the basic change of making the *Code* a consensus document, the following modifications have been made in the 2016 revision of the *Code*:

- The *Code* now addresses contracts that utilize drawings, models or drawings and models in combination.
- Section 1.4 addresses responsibility for identifying contract documents; subsequent sections have been renumbered.
- Section 1.10 has increased emphasis that the absence of a tolerance in this *Code* does not mean that tolerance is zero.
- Section 1.11 addresses marking requirements for protected zones in frames designed to meet the requirements of ANSI/AISC 341.
- In Section 3.1, two items are added to the list of required information: preset requirements for free ends of cantilevered members and the drawing information required in ANSI/AISC 341.
- Section 3.1 better addresses what is required for bidding when the owner's designated representative for design delegates the determination and design of member reinforcement at connections to the licensed engineer in responsible charge of the connection design.
- Section 3.2 addresses revisions, if they are necessary, when referenced contract documents are not available at the time of design, bidding, detailing or fabrication.
- Section 3.3 has added emphasis that the fabricator need not discover design discrepancies.
- Sections 3.7 and 4.2.2 address intellectual property rights of the owner's designated representative for design and the fabricator, respectively.
- Section 4.4 has been clarified to better reflect the role of the connection design criteria required in Section 3.1.1 when connection design work is delegated.
- Commentary to Section 4.5 addresses potential pitfalls when fabrication and erection documents are not furnished by the fabricator.
- In Section 6.1.1, the listed shop-standard material grades have changed for HP-shapes and hollow structural sections (HSS).
- In Section 6.4.2, the tolerance for curved members has been improved.
- In Section 7.5.1, tolerances for anchor-rod placement have been revised for consistency with the hole sizes provided the AISC *Steel Construction Manual* and the tolerances given in ACI 117.
- In Section 7.8.3, the number of extra bolts required to be supplied has been increased to account for bolt loss and pre-installation verification testing requirements; also, backing has been clarified as steel backing.
- In Section 7.8.4, non-steel backing is now addressed.
- In Section 7.13, the term "building line" has been changed to "building exterior."
- Commentary has been added in Section 7.13.1.2(e) to coordinate with the cantilevered member preset information added in Section 3.1.
- Section 9.1.5 addresses allowances, when used.
- Section 10 has been significantly revised with multiple categories for architecturally exposed structural steel (AESS) and different treatments required for each.

Since the first edition of the *Code* was published in 1924, AISC has constantly surveyed the structural steel design community and construction industry to determine standard trade practices. Since then, this *Code* has been updated periodically to reflect new and changing technology and industry practices. The *Code* is significant and important to the process of buying and selling fabricated structural steel. Its provisions are balanced, fair, and consensus-based, and provide for the vast majority of work in standard form.

PROJECTS

3 World Trade Center Tops Out

Structural steel for 3 World Trade Center topped out recently. At 1,079 ft and 80 floors, the 2.5-million-sq.-ft tower is envisioned to be the third-tallest skyscraper at the World Trade Center site and will be the fifth-tallest in New York upon completion in 2018.

The tower consists of a steel framing system around a reinforced concrete core. A defining feature of the building is its load-sharing system of K-shaped bracing, which helps articulate the building's east-west configuration. The tower's gravity system has few interior columns and no perimeter columns, giving tenants ample space and unobstructed views.

The building's three-story lobby will provide visitors a "big picture window" of the Memorial park outside and contain a retail complex with architecturally exposed structural steel (AESS). Upper floors will straddle those beneath in a podium building formation, lending the tower a distinct interlocking nature and facilitating the high occupancy of the office floors. Finally, the redeveloped Cortlandt and Dey Streets that interface with 3 WTC will improve the accessibility both of the retail spaces in the building and the WTC Transportation Hub. The building will seek to achieve the LEED Gold standard for energy efficiency.

Owen Steel Company (an AISC member and certified fabricator) fabricated 27,000 tons of structural steel for the tower's gravity system. NYC Constructors, a company of Banker Steel (an AISC member and certified fabricator) erected the structural steel for the project.

For more about the project, visit **www.wtc.com/about/buildings/3-world-trade-center**.

▲ 3 WTC (middle) in relation to 1 WTC (left) and 4 WTC (right), all steel-framed.