

IN MEMORIAM

In Memory of Lew Brunner, Former AISC Vice President

Lewis (Lew) Brunner passed away peacefully at his home in Wheaton, Ill., surrounded by family and friends, on September 14, 2015, at the age of 92. He was a recognized leader at AISC, joining the Institute in 1980 as its director of marketing and later becoming vice president of membership services. Prior to his retirement in 1995, he served briefly as director of meetings and conferences.

Brunner was born and raised in Hulmeville, Penn. He graduated from Pennsylvania Military College with a bachelor of science degree in civil engineering and was a veteran of World War II, serving in the U.S. Army Air Corps, stationed in Italy. His career began at U.S. Steel Corporation, where he held various management positions and was responsible for promoting their full range of products nationally to the construction industry.

Brunner joined AISC during a time of reinvention for the Institute. AISC had recently moved its headquarters to Chicago from New York City and grew from purely a technical institute into a broad-based, inclusive organization that championed its members' needs with effective marketing, certification and education programs. As director of marketing, Brunner oversaw AISC's expanding regional engineering staff and developed a long-term marketing plan to increase structural steel's share in the marketplace before moving into the role of vice president of membership services.

"Lew taught me a lot about the steel industry and about AISC," said Scott Melnick, whom Brunner hired in 1989 as editor of *Modern Steel Construction* and who later became vice president of communications. "He was a great resource and liaison between the steel producers and the Institute. A lot of what AISC does

today, including our membership activities and conference programs, is a direct outgrowth of programs he initiated."

As vice president, one of Brunner's great achievements was expanding AISC's annual steel conference from a technical conference to a combined industry event that brought together designers and manufactures to share their expertise and exhibit their products. For the first time at the conference, engineers could be exposed to the tools used to realize their designs. As Brunner put it, "We had people designing things who never saw how you made them. The opportunity to walk through and talk to the people who made the machines really enhanced our ability to design things you could put together." In 1992, he was named director of meetings and conferences and planned logistics for the conference up until his retirement.

Brunner enjoyed tennis, skiing, golf, travel, cars, airplanes, history, architecture and conversation. He is preceded in death by his wife of 61 years, Helen Newbold Brunner, and survived by his four children, eight grandchildren and six great-grandchildren.



CORRECTION

In the September 2015 article "Steel Symmetry," the steel detailer was accidentally not listed. The detailer for the project, the Pasquotank River Bridge in Elizabeth City, N.C., was Candraft Detailing, Inc., New Westminster, B.C., Canada, an AISC Member.

People and Firms

- Nucor Corporation** (an AISC Member) has announced that Nucor-Yamato Steel Company (NYS), a joint venture between Nucor and Yamato Kogyo Co. Ltd., is installing a \$75 million quench and self-tempering (QST) process to be used on its 1.4 million tons of Mill 2 rolling capacity. Nucor Chairman, CEO and President John Ferriola was recently joined by Arkansas Governor Asa Hutchinson to make the announcement at the Nucor-Yamato Steel mill in Blytheville, Ark. The project is expected to be commissioned during the second half of 2016. Upon completion, the process will give NYS the ability to produce ASTM A913 Grade 65 and Grade 70 structural sections with a high-strength, low-alloy grade chemistry that provides excellent weldability while achieving good toughness at low temperatures. Common applications for the material will include gravity columns for use in high-rise buildings, long-span trusses for projects such as convention centers and stadiums and any projects where seismic design is a critical factor. The higher strength achieved from A913 will allow lighter foot weights to be specified, thus reducing overall weight and material costs.
- Engineering firms **Thornton Tomasetti, Inc.**, and **Weidlinger Associates, Inc.**, have merged. The combined firm will have 1,200 employees operating in 34 cities internationally and will remain headquartered in New York City. The new firm will operate under the Thornton Tomasetti name; three practices continue to be marketed with the Weidlinger brand where it carries strong industry recognition: Weidlinger Applied Science, Weidlinger Protective Design and Weidlinger Transportation.

STUDENT NEWS

Steel Design Student Competition Winners Announced

Sixteen student design projects were honored in the 15th annual Steel Design Student Competition for the 2014-2015 academic year. Administered by the Association of Collegiate Schools of Architecture (ACSA) and sponsored by AISC, the program challenges North American architecture students to explore the use of steel in design and construction. A total of \$14,000 in cash prizes was awarded to the winning students and their faculty sponsors.

More than 500 design projects by nearly 1,500 students from 75 universities were received this year. Students competed individually and in teams to submit designs in two categories requiring steel to be used as the primary structural material, with special emphasis placed on innovation in steel design.

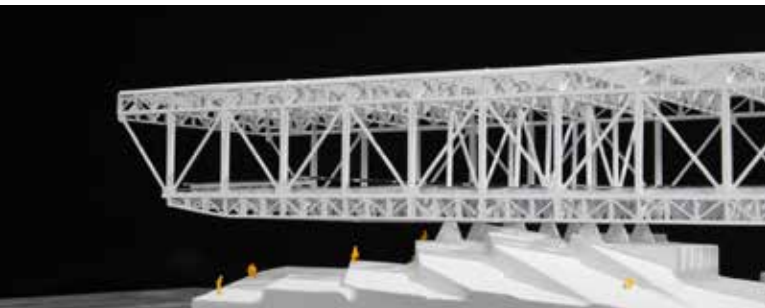
Three projects received top honors in each category.

This year's Category I competition, titled "Library," challenged students to envision a library as an open source exchange for all forms of information and entertainment, serving a diverse public and playing a critical role as a cultural agent in the community. First place in this category went to "Rebound," designed by Natacha Schneider and Chip Hubert from California Polytechnic State University, San Luis Obispo; second place went to "Integration through Circulation: Jesuit Community Library," designed by Joseph Binck, Emily Girardi, Kelly Foley and Tatiana Barbuzza from Catholic University of America; and "Beacon—Heterotopia of Lagos' Public Space," designed

by Nicholas Fish, Junye Zhou and Tony Tai-An Yue from Drury University, came in third.

Category II was an open submission design option, giving students the flexibility to select a site and building program. First place in this category went to "Murshidibad Women's Resource Center," designed by Caroline Angell from California Polytechnic State University, San Luis Obispo; second place went to "Miami S Stadium," designed by Xiao Wang, Hanwei Fan and Yifeng Guo from Iowa State University; and "Canopy: Georgetown Chocolate Factory," designed by Matthew Fuhr from the University of Washington, came in third.

View the complete list of the winning designs at www.aisc.org/studentdesign.



Rebound, Library Category



Murshidibad Women's Resource Center, Open Category

STEELDAY

Seventh SteelDay Delivers Industry Insight to Thousands

Thousands of people gained special access to the innovations and accomplishments of the U.S. structural steel industry in celebration of the seventh annual SteelDay on September 25, hosted by AISC and its members and partners. Among the free offerings were steel facility and job site tours as well as online educational opportunities. "This year's SteelDay offered not only annual insight into the structural steel industry, but also leaves behind some invaluable educational pieces that will be useful for a long time to come," said Ross Allbritton, AISC's industry mobilization manager.

The highlight of this year's SteelDay was a lunchtime webinar from Charles J. Carter, S.E., P.E., Ph.D., AISC's vice president and chief structural engineer. His presentation "Steel and the Phan-

tasmagoria" focused on recent advancements in steel design and construction and provided a roadmap to information sources available to structural engineers. The webinar drew nearly 1,500 connections and more than 6,500 viewers. During the presentation, AISC provided free Domino's pizza to about 700 structural engineering firms. If you weren't able to watch the webinar live, a free recording and quiz (for 1.0 PDH) is available at www.steelday.org/webinar.

AISC also premiered a new educational video called *Architecturally Exposed: Understanding the Art and Science of Architecturally Exposed Structural Steel (AESS)*. The documentary takes a fascinating look at AESS, from its beginnings to the latest information available, from

prominent AESS expert Terri Meyer Boake, professor of architecture at the University of Waterloo in Ontario, Canada. The video (which also offers 1.0 LU/HSW credit from AIA) is available for free online streaming and download at www.steelday.org/aessvideo.

Photos from this year's SteelDay events can be found on AISC's Facebook page (www.facebook.com/AISCdotORG) in the SteelDay 2015 photo album. If you'd like your SteelDay photos featured on our page, email them to socialmedia@aisc.org with the event information. You can also catch up on the action on Twitter and Instagram using the hashtag #SteelDay. Next year's SteelDay is scheduled for September 30. Find more information at www.steelday.org.

SCHOLARSHIPS

Annual AISC Scholarship Winners Announced

This year, AISC has administered a total of \$177,000 in financial aid to 49 deserving freshman, sophomore, junior, senior and masters-level students for the 2015-16 academic year. For the fourth straight year, AISC offered two scholarship programs for university-level students.

The David B. Ratterman Fast Start Scholarship program for freshman and sophomores, now in its fourth year, awarded 11 scholarships to students at two-year and four-year colleges. These students, who are relatives of AISC Member company employees, are full-time freshmen or sophomores during the current 2015-16 academic year.

The AISC Education Foundation, in conjunction with several other structural steel industry associations, awarded \$137,000 in scholarships to 38 sophomore, junior, senior and masters-level students for the 2015-16 academic year. We would like to offer our sincere thanks to these organizations for their generous continued support of our student programs.

Congratulations to the following students for their well-deserved scholarships for the current school year:

David B. Ratterman

Fast Start Scholarships

\$2,000 Award Recipients

- Adam Fechter, Kansas State University
- Omar Gomez, Ohlone College
- Coleby Hutchinson, Mississippi Delta Community College
- Nathaniel Mendez, Fresno City College
- Caden Woods, Colorado Northwestern Community College

\$5,000 Award Recipients

- Cassidy Bartlett, University at Buffalo
- Jennifer Figueroa, University of Nebraska-Lincoln
- Lindsey Gilberg, Drake University
- Samuel Kupiec, Union College
- Kristen Schaffer, University of Rhode Island (*not pictured*)
- Andrew Wong, University of San Diego

AISC Scholarships for Juniors, Seniors and Masters Students

AISC Education Foundation

- Kimberly Bowes, University of California, San Diego
- Bridget Crowley, University of Cincinnati
- Shannon Danforth, University of Portland
- Tommaso Di Gesaro, Stevens Institute of Technology
- Kady Dye, University of California, San Diego
- Rebecka Girard, University of California, Berkeley
- Elena Good, University of California, Berkeley
- Michael Gritzmacher, Lehigh University
- Nicholas Heim, Case Western Reserve University
- Alexander Lakocy, Georgia Institute of Technology
- Josh Landis, University of Cincinnati
- Luke Livers, University of Illinois at Urbana-Champaign
- Joshua Lott, University of California, San Diego
- Patrick O'Brien, Virginia Tech



Fechter



Gomez



Hutchinson



Mendez



Woods



Bartlett



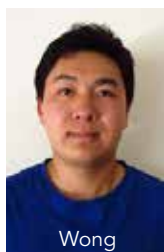
Figueroa



Gilberg



Kupiec



Wong



Bowes



Crowley



Danforth



Di Gesaro



Dye



Girard



Good



Gritzmacher



Heim



Lakocy



Landis



Livers



Lott



O'Brien



Stauffer



Studer



Sutherland



Wang



Fleming



Peterson



Marquess



Aronson



Duchaj



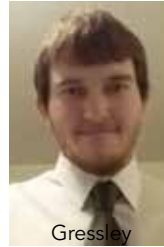
Hahn



Strelow



Wolfgram



Gressley



Mojica



Wilbee



Castor



Cochran



Friedman



Mestre



Roper



Schwarz



Nokes



Williams

AISC Education Foundation (cont.)

- Steven Stauffer, University of Nebraska-Lincoln
- Jude Studer, Iowa State University
- Benjamin Sutherland, University of Arkansas
- Karen Wang, University of California, Berkeley

AISC/Great Lakes Fabricators & Erectors Association

- Nathan Fleming, University of Michigan

AISC/Ohio Structural Steel Association

- Nicholas Heim, Case Western Reserve University

AISC/Rocky Mountain Steel Construction Association

- Nicole Peterson, University of Wyoming

AISC/Southern Association of Steel Fabricators

- Alexander Lakocy, Georgia Institute of Technology
- Elizabeth Marquess, University of Kentucky

AISC/Associated Steel Erectors of Chicago

- Michael Aronson, Northwestern University
- Grace Duchaj, Illinois Institute of Technology
- Sean Hahn, Illinois Institute of Technology
- Luke Livers, University of Illinois at Urbana-Champaign
- Seth Strelow, Valparaiso University
- Joshua Wolfgram, Valparaiso University

AISC/Indiana Fabricators Association

- Seth Gressley, Trine University
- Alejandro Mojica Cadario, University of Evansville
- Alana Wilbee, Purdue University

AISC/W&W Steel/ Oklahoma State University

- (Program includes sophomores, juniors and seniors)*
- Randall Castor, Construction Management
 - Dillon Cochran, Civil Engineering
 - Alexa Coleman, Architectural Engineering (not pictured)
 - Bri Friedman, Civil Engineering
 - Matthew Mestre, Civil Engineering

- Kaylee Roper, Architectural Engineering
- Benjamin Schwarz, Architectural Engineering
- Charles Spencer Nokes, Construction Management
- Preston Williams, Civil Engineering

The AISC Scholarship jury consisted of the following six individuals:

- Benjamin Baer, Baer Associates Engineers, Ltd.
- David Bibbs, Cannon Design
- Christopher Brown, Skidmore Owings & Merrill, LLP
- Erin Criste, AISC
- Colleen Malone, H.W. Lochner, Inc.
- Carol Post, Thornton Tomasetti

The David B. Ratterman Scholarship jury consisted of the following six individuals:

- Brad Bourne, AISC Education Foundation Chair
- Babette Freund, AISC Board Member
- David Harwell, AISC Past Chair
- Rex Lewis, AISC Past Chair
- Lawrence Kruth, AISC Board Member
- David B. Ratterman, AISC General Counsel

ENGINEERING JOURNAL

Fourth Quarter EJ Now Available

The fourth quarter 2015 issue of AISC's *Engineering Journal* is now available at www.aisc.org/ej, where you can view, download and print the current digital edition. Articles in this issue include:

► **Crippling of Webs with Partial Depth Stiffeners under Patch Loading**

Raghuvir Salkar, Abbasbek Salkar and William Davids

Chapter J of the 2010 AISC *Specification* recommends the use of either single- or double-sided minimum half depth transverse web stiffeners where web crippling strength is less than design concentrated load; use of a doubler plate of minimum half web depth is also suggested in the *Specification*. Commentary on the *Specification* mentions that since the web crippling phenomenon has been observed to occur in the web adjacent to the loaded flange, a half-depth stiffener (or stiffeners) or a half-depth doubler plate is needed to eliminate web crippling. Research conducted at the University of Maine, however, clearly showed that web crippling can occur even in webs having half depth stiffeners. Further, the AISC *Specification* does not have a formula to predict crippling strength of webs with partial depth stiffeners under local compressive loads. This paper presents a formula for evaluating crippling strength of webs with partial depth stiffeners which considers the effect of depth of stiffener, width of load, and eccentricity of loading.

Keywords: web crippling, stiffened webs, transverse stiffeners, nominal resistance or ultimate stiffened web capacity

► **Double-Tee Members in Axial Compression**

Leigh Arber, Meng Wang and Pat McManus

This paper presents tabulated compressive strengths of double-tee members, which are comprised of two WT members oriented with their flanges back to back (referred to as "2WTs" or "double WTs" hereafter). The benefits and typical use of these members are described, including schematic details of connection designs. All WT members built from the WT7 and WT6 series are included in the table, which gives available strengths in both ASD and LRFD. Slenderness effects and the effects of shear deformations of intermediate connectors are taken into account.

Keywords: compression member, WT section, double WT section, truss

► **Weld Effective Lengths for Rectangular HSS Overlapped K-Connections**

Kyle Tousignant and Jeffrey A. Packer

One large-scale, 33-ft-span, simply supported, Warren truss was tested to assess the performance of welds in rectangular hollow structural section (HSS) overlapped K-connections. Nine overlapped connections, within the truss, were designed to be weld-critical and

sequentially failed by producing an axial force distribution with a point load, applied quasi-statically, to strategic panel points. The structural reliability (or safety index) of the existing AISC specification formulas for the effective length of welds in rectangular HSS overlapped K-connections, in Table K4.1 of the 2010 AISC *Specification for Structural Steel Buildings*, was determined from the tests. The results indicate that these provisions are conservative; hence, a modification to the current requirements that limits the effective width of the transverse weld elements is proposed. The proposal establishes a more economical and yet still safe weld design method for rectangular HSS overlapped K-connections.

Keywords: hollow structural sections, welded joints, trusses, K-connections, weld effective lengths, fillet welds, flare-bevel-groove welds, flux-cored arc welding

► **Steel Structures Research Update: System Behavior and Collapse Assessment of Braced Frames**

Judy Liu

Current and recently completed research on system behavior and collapse assessment of braced frames is presented. The research includes work on concentrically braced frames, buckling restrained braced frames, and dual systems with braced frames and secondary moment frames.

UNIVERSITY PROGRAMS

AISC Launches Early Career Award for University Faculty

Nominations are being accepted through December 1 for AISC's new Early Career Faculty Award. The award recognizes individuals who demonstrate promise in the areas of structural steel research, teaching and/or other contributions to the structural steel industry.

This award is open to full-time North American university faculty in

civil engineering, architectural engineering, architecture, construction or construction management, and who are either on the tenure track or have received tenure within the last three years.

A maximum of three awards will be recommended by the AISC Educator Awards Committee to the AISC Board of Directors for consideration

based on submitted nominations. The winner(s) will receive an award plaque at the 2016 NASCC: The Steel Conference during the opening keynote and awards presentation on Wednesday, April 13.

For more information and to submit your nomination, go to www.aisc.org/universityprograms.