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, including a downloadable copy of the advanced program, visit the NASCC web site at www.aisc.org/NASCC.html.

James A. Anders Award Inaugurated

Davy L. Beicker, P.E., is the first recipient of the newly created James. A. Anders Award, which was presented at the Structural Engineering Association of Texas's (SEAoT) annual state conference in Dallas on October 19, 2001.

Anders was Charter Member of the SEAoT and a long-time AISC Southwest Regional Engineer. The James A. Anders Award has been established in recognition to his outstanding contributions to the Structural Engineering Association. Each year SEAoT will recognize a member who has demonstrated exemplary service to the organization.


James A. Anders


Davy L. Beicker

Anders attended George Washington University and Virginia Polytechnic Institute. He received a B.S. in Civil Engineering after serving in the U.S. Army Corps of Engineers. He also received an M.S. in Engineering Sciences as the Gordon McKay Prize Scholar at Harvard University's Division of Engineering and Applied Sciences.

Anders was named to the American Men of Science and became the first Deputy Director and then Director of Planning and Marketing for the Combat Operations Research Group, Technical Operations, Inc. He also managed the Systems Science Center, Melpar, Inc.

Anders also formed his own marketing and technical consulting firm, Anders Associates, Inc. His career then led him through several executive positions in engineering and construction-related marketing, including his first stint with AISC from 1979 to 1984. As Vice President of Texas Testing Laboratories, Inc., he co-founded the Dallas Committee on High-Rise Development before rejoining AISC in 1988 until his death in 1999.

Beicker has made a significant number of contributions as a member of the SEAoT. Beicker has served as Treasurer, Secretary, and twice as Director and President. He has helped organize the State Annual Conference in San Antonio and was instrumental in the foundation of the San Antonio Chapter SEAoT Scholarship Fund. He has also served as SEAoT State President in 1992 and continues to be the Alternate Delegate for NCSEA and a liaison with the State Board of Insurance.

Beicker earned a B.S. in Civil Engineering from Texas A&M as a nationally honored member of the Chi Epsilon Fraternity. At the age of 27, Beicker founded Beicker Engineering, Inc. Under his leadership, Beicker Engineering, Inc. has grown into one of San Antonio's largest structural engineering firms.

Beicker's dedication to his profession and his reputation as one of Texas' most outstanding engineers earned him the TSPE Young Engineer of the Year Award for the state of Texas in 1990. His leadership in his firm earned Beicker Engineering the TSPE Bexar Chapter Firm of the Year and AGC Engineer Firm of the Year in 1998.

Corrections

October 2001: Finley McNary Engineers, Inc. was omitted from the credits for the Storrow Drive Connector Bridge project.

November 2001: There is a typographical error in the article "Meet the Experts: Structural Welding Issues." On page 27, the second answer, in a reference to cracks in WW II Liberty Ships, should state that "…the cracks initiated in plates with less than 10 ft.-lb [of toughness]."

December 2001: Amscot Structural Products Corp. should be noted as an NSBA member in the credits of the article "Gateway to Newark."

December 2001: The following credit was omitted from the article "5 Times Square." *Marco J. Shmerykowsky, P.E. is a principal with SCE/Shmerykowsky Consulting Engineers, New York City. As a project engineer with Thornton-Tomasetti Engineers, Shmerykowsky was a member of the design team during the design phase of the project. His involvement ceased prior to construction.* All photos should have been credited to Thornton-Tomasetti.

We apologize for any inconvenience or confusion these errors may have caused.

STI to Co-Fund New Research on Flare Weld Joints for HSS

The HSS Committee of the Steel Tube Institute of North America (STI) announced today that it will co-fund a research project to pre-qualify a number of flare welds used in connections that include steel Hollow Structural Sections (HSS). The study is expected to significantly reduce fabrication time and costs by eliminating current pre-qualification procedures for these applications.

The research will be conducted by Jeffrey A. Packer, Professor of civil engineering at the University of Toronto, and George Frater, a Design Engineer with Canron Construction Corp., a Canadian steel fabricator. Packer and Frater collaborated on an earlier research study that formed the basis of weld effective-length rules pertaining to HSS in K-type truss connections. AISC will also help to fund the study.

Tim Andrassy, Executive Director of the STI, noted that the AWS D1.1 code already pre-qualifies effective throats of $^5/_{16}R$ for flare-bevel welds and $^1/_2R$ for flare-V groove welds. "However, the AISC LRFD specifications presently require fabricators to verify that these effective throats are being consistently achieved," he said. "That means fabricators must have their procedures checked, a process that is both time-consuming and expensive because it requires trail welds and sectioning."

Frederick J. Palmer, P.E., a Technical Consultant to the TI and a member of committees of the AISC and AWS, said that the new study will examine weldment geometries more closely to better define the relationship between three variables: HSS wall thickness and corner geometries, the three most widely used welding processes and welding position.

"We expect the study to allow effective throat size of welds to be quantified by joint variables, of particular size for specific welding situations, thereby permitting a pre-qualified joint," Palmer said. The study's first phase will be to research literature on the subject worldwide. Further research will involve production of test specimens.

The results of the study will be presented at the NASCC in Spring 2002. A paper will be published in the AISC's *Engineering Journal* and an overview and summary in *Modern Steel Construction*. Technology transfer is expected to follow rapidly.

Steel Dynamics to Begin Steel Production June 2002

Beginning in June of 2002, a new player is anticipated in the steel production business. Steel Dynamics, Inc. (SDI) expects to have its new structural mill up and running by mid-year. Located in Columbia City, IN (just west of Ft. Wayne), the new mill is scheduled to produce W-shapes (W8x4 through W36x12), S-shapes (S8 through S24), HP-shapes (HP8 through HP14) and C-shapes (C8 through C15). The plant expects to be fully operational within two to three years of starting to roll shapes with a capacity of 900,000 to 1,200,000 tons annually.

"For the start-up year of 2002, we will be focusing on orders for 'non-critical' stock inventories versus 'critical' job requirements. Our product range and production rates should be at a point in 2003 to allow us to service specific fabricator job requirements," explained Jim Wroble, Manager of Sales and Marketing at SDI. "The main marketplace for our products will include fabricators, service centers, manufacturers, and railroads located throughout North America. We look to be a 'strategically important' primary supplier to companies in the Midwest."

According to Wroble, Indiana was a natural location for the new mill since seven of the 10 largest steel consuming states are located in that region. In addition, the Midwest has the largest concentration of low cost resources (scrap).

Aerial view of the new Steel Dynamics Inc. steel mill in Columbia City, IN.

2002 ASCE Structures Congress

Denver, CO—April 4-6, 2002

New sessions have been announced for the 2002 Structures Congress & Exposition. More sessions than ever will be focused on business issues for the practicing structural engineer. Attendees will learn practical tips to do it easier, faster, and better. Topics will include time saving tips for designing with structural steel, light gage steel, timber, concrete, masonry, and foundations. New sessions include:

Making Rainmakers—learn how to successfully market your practice

Young Professionals—participate in discussions on career planning and marketing skills

Managers—how to retain your best staff and how to make profits

Industry update—developments in dispute resolution and the current status of registration and certification

Also, attend briefings by members of the ASCE Building Performance Teams who inspected the Pentagon and World Trade Center after the September 11 attacks. Briefings will end with a discussion on approaches to mitigating threats to our infrastructure.

For program information and to register, visit www.asce.org/conferences/structures 2002.

Engineering Journal Abstracts for Fourth Quarter 2001

AISC LRFD Rules for Block Shear in Bolted Connections – A Review

By Geoffrey L. Kulak and Gilbert Y. Grondin

The current AISC LRFD block shear provisions are reviewed and compared to test results on bolted gusset plates under tension. Revised provisions are proposed.

Compactness and Bracing Recommendations for Equal Leg Single Angle Beams

By Christopher J. Earls

Currently, the design of single angle members is governed by the Load and Resistance Factor Design Specification for Single Angle Members (AISC, 2000). The provisions in this document are meant to augment the more general design provisions contained in the Load and Resistance Factor Design Specification for Structural Steel Buildings (AISC, 1999). The design provisions contained in the LRFD Specification for Design of Single Angle Members are the result of the best information available at the time of the preparation of the document in the early, to mid, 1990's. In the intervening years, new information about single angle flexural response has accumulated from research efforts aimed at quantifying structural ductility associated with equal leg single angle beams. This new information will be summarized herein and recommendations made for rational enhancements to the LRFD Specification for Design of Single Angle Members.

The Effects of a Severe Fire on the Steel Frame of an Office Building

By Robert J. Dexter and Le-Wu Lu

This paper discusses the effects a severe fire had on a steel high-rise frame. The damage to this frame was no worse than in other fire-damaged steel-framed buildings such as the Alexis Nihon Hotel in Montreal and the Broadgate in London. The yield strengths of the columns were not significantly decreased. There were locked-in residual moments and forces. However pushover analyses of simple frames with and without residual moments show that the stability and lateral load carrying capacity of the frames were unaffected by residual moments, as would be expected from the principles of plastic analysis. The steel frame and floor system of this building could have been reinstated relatively quickly, as has been done in comparable fire-damaged steel-framed high-rises.

Design Considerations For W-Shape Flexural Members Built Up From Plates

By Richard M. Drake and Michael E. Bankes

It is common practice in some areas of the world to build up or fabricate W-shapes from plate as alternates to rolled W-shapes.

It is also possible that in order to meet project delivery schedules, a fabricator may request approval from the engineer-of-record to substitute a built-up W-shape for a temporarily unavailable rolled W-shape. In either case, it would be practicable if the engineer-of-record can select his W-shape members using the AISC Manual and LRFD Specification and companion design aids.

This paper addresses design and/or fabrication issues for the practice and attempts to arrive at "rules" to allow safe and timely application.

Constrained Through-thickness Strength of Column Flanges of Various Grades and Chemistries

By Robert J. Dexter, Sara D. Prochnow, Minerva I. Perez

Tee-Joint specimens were fabricated with high-strength "pull" plates welded transversely to opposite flanges of short lengths of heavy column shapes to determine strength, deformation, and fracture behavior of the flanges of wide-flange column shapes when loaded in the through-thickness direction. Forty-seven specimens were tested, including wide-flange shapes obtained from four steel mills from 1995 to 2000 conforming to specifications A572 Gr. 50, A992, and A913 Gr. 50 and 65. Sulfur levels ranged from 0.003 to 0.043 percent and Carbon from 0.05 to 0.20 percent, up to the limits of the current specifications. Several shapes with especially high sulfur were specially produced for this research. The through-thickness strength of the column flanges tested exceeded the 690 Mpa (100 ksi) yield strength of the pull plates, well above any possible demand that could come from Grade 50 beam flanges.

Copies of this issue of *Engineering Journal* or individual articles may be obtained by calling 312.670.2400 or by visiting www.aisc.org/ejreprints.html.