Adopt-A-School Program

AISC's University Relations Department's Adopt-A-School Program began four years ago and has continued to grow throughout the years into a very prosperous program. Many fabricators all over the U.S. have partnered up with a university near them to provide assistance. The participation with a local university introduces faculty and students to the steel industry thus providing a mutually beneficial relationship. There are currently 150 universities "adopted" by 150 fabricators.

Last spring we sent out a survey to all fabricators that participate in this program inquiring their specific interactions with their "adopted" university/universities. We received many encouraging responses on how they efficiently interact with the university/universities they have "adopted." Some responses included: plant tours, support and assistance with the Student Steel Bridge Competition, placing of a steel teaching aid (sculpture) on campus and providing assistance in response to Professors' requests. This survey has indicated to us that the continuous efforts made by steel fabricators keeps this program successful and rewarding for our engineers of the future.

If you are a steel fabricator and are interested in "adopting" a university please contact Kelly Johnson at 312.670.5442 or kjohnson@aisc.org. For more general information on the program please contact Kelly Johnson. ★

Cast Your Vote for the Best *Engineering Journal* Paper of 2004

Go to **www.aisc.org/ejsurvey** to cast your vote for the best *Engineering Journal* paper of 2004. All articles published in the *Engineering Journal* in 2004 are eligible. The winning author will receive free registration to the 2005 North American Steel Construction Conference in April, round trip airfare, and a one-night stay at the conference hotel in Montreal, Quebec, where the award will be presented.

Cast your vote today! Votes will not be accepted after December 31, 2004. ★

In Memoriam

Gilbert M. Dorland, AISC Honorary Member and President of the Board from 1971 to 1973, passed away January 7, 2004 at the age of 91. As the Nashville District Engineer of the U.S. Army Corps of Engineers from 1952 to 1956, he directed a period of major construction of dams and facilities throughout the Tennessee Valley region. In 1956, he became president of the Nashville Bridge Company and received the Outstanding Civilian Service Award from the Department of the Army in 1968. Mr. Dorland also worked as president of the Carolina Steel Corporation in Greensboro, NC. He is survived by five children and 10 grandchildren and great-grandchildren. ★

2005 T.R. Higgins Lectureship Award

Jerome Hajjar, Ph.D., P.E., and Robert Dexter, Ph.D., P.E., have been named winners of AISC's 34th Annual T.R. Higgins Lectureship Award. Their paper, "Continuity Plate Detailing for Steel Moment-Resisting Connections," demonstrates that creativity and understanding of steel fabrication can continue to confirm the reliability of economic steel configurations.

Hajjar is a civil engineering professor at the University of Minnesota. His research and teaching interests include 70 published papers on analysis, experimental testing, and design of steel and composite steel/concrete structures.

Hajjar is a member of the AISC Committee on Specifications and participates in task committees on composite construction and on stability. He is vice-chair of the task committee on loads, analysis, and systems. He received AISC's Special Achievement Award in 2004.

Dexter, a registered professional engineer and associate professor at the University of Minnesota, has 23 years experience with the Southwest Research Institute and Lehigh University. His research interests include fatigue and fracture of structures, design, fabrication, and behavior of bolted and welded connections, wind loading and dynamic behavior of structures, and repair of damaged and deteriorated structures. Findings on these topics are reflected in over 25 of his recently published articles. Dexter is also a member of the AISC Committee on Specifications and participates on the task committee on connections.

The T.R. Higgins Lectureship Award recognizes an outstanding lecturer and author whose technical paper or papers are considered an outstanding contribution to the engineering literature on fabricated structural steel. In addition to recognition, the recipient receives a $10,000 cash award.

Jerome Hajjar

Robert Dexter

The award is named for Theodore R. Higgins, former AISC Director of Engineering and Research, who was widely acclaimed for his many contributions to the advancement of engineering technology related to fabricated structural steel. The award honors Higgins for his innovative engineering, timely technical papers and distinguished lectures. For more information on the award, visit **www.aisc.org/higgins**. ★

The following papers appeared in the Fourth Quarter 2004 issue of AISC's Engineering Journal *which mailed in October.* Engineering Journal *is available to AISC members online at* **www.aisc.org/epubs**.

Recommended Provisions for Buckling-Restrained Braced Frames

Rafael Sabelli

This paper contains a document that has been developed to serve as a supplement to existing building codes in order to give guidance to design engineers wishing to employ buckling-restrained braced frames on projects in the United States, as well as to the building officials to whom such designs are submitted. It is expected that the Recommended Provisions for Buckling-Restrained Braced Frames will be included in the 2005 edition of the AISC Seismic Provisions for Structural Steel Buildings. All of the provisions presented are currently under review in the draft of the 2005 Seismic Provisions. The provisions, as they are presented, are suitable for use with the 2002 Seismic Provisions, and include references to other sections of those provisions throughout. Therefore, consistent with the 2002 Seismic Provisions, LRFD format is used.

UC Berkeley Stanley Hall — Structural Design and Experimental Verification of a Buckling-Restrained Braced Frame System

Walterio A. López, David S. Gwie, Thomas W. Lauck, and C. Mark Saunders

To satisfy the seismic performance goals required by the owner, the structural engineer of record proposed to use Buckling-Restrained Braced Frames (BRBFs) as the seismic force resisting system of a new seven-story building. Because not all of the testing requirements found in the Recommended Provisions for Buckling-Restrained Braced Frames were met by the braces specific to this project, the structural engineer of record proposed conducting three frame subassemblage tests to validate their BRBF design. This article is a case study that describes a viable BRBF design methodology and the tests conducted to support it. This article summarizes some of the experimental results and discusses possible design implications of some of the experimental findings.

Confined Steel Brace for Earthquake Resistant Design

Christopher C. Higgins and James D. Newell

An experimental study of a passive energy dissipation tension-compression yielding brace or buckling-restrained brace has been conducted. The Confined Yielding Brace (CYB) consists of a steel yielding core confined within a tube filled with non-cohesive material. The external tube and confined non-cohesive material provide lateral stability to the core enabling the device to yield in compression as well as tension. This device is similar to the Unbonded Brace developed by Nippon Steel of Japan. Fourteen large-scale CYBs were tested to determine the effect of varied confining material, yielding core perforation blocking configurations, and displacement histories. Based on experimental results, Confined Yielding Braces produce relatively stable and symmetric hysteretic damping.

Technical Note: Abrasive Waterjet Cutting Application

Christopher C. Higgins and James D. Newell

Abrasive waterjet cutting is a relatively little used technique for fabrication of structural steel components. The technique may permit economical fabrication of earthquake resistant structural steel members such as core elements of buckling-restrained braces. Abrasive waterjet cutting was used to fabricate yielding core elements for a new type of buckling-restrained brace. A 50,000 psi (344.7 MPa) waterjet and garnet abrasive cutting stream was computer numerically controlled to cut dog-bone and perforated yielding core configurations in 3/4 in. (19.05 mm) and 1-1/4 in. (31.75 mm) A36 steel bar stock. Abrasive waterjet cutting is a cold process and does not produce the heat affected zone associated with oxyfuel or plasma cutting. Tension coupon testing of a small number of samples of both traditionally machined and abrasive waterjet cut specimens indicated little change in the ultimate stress and only slightly reduced yield stress and total elongation for abrasive waterjet cut A36 steel coupons.