news

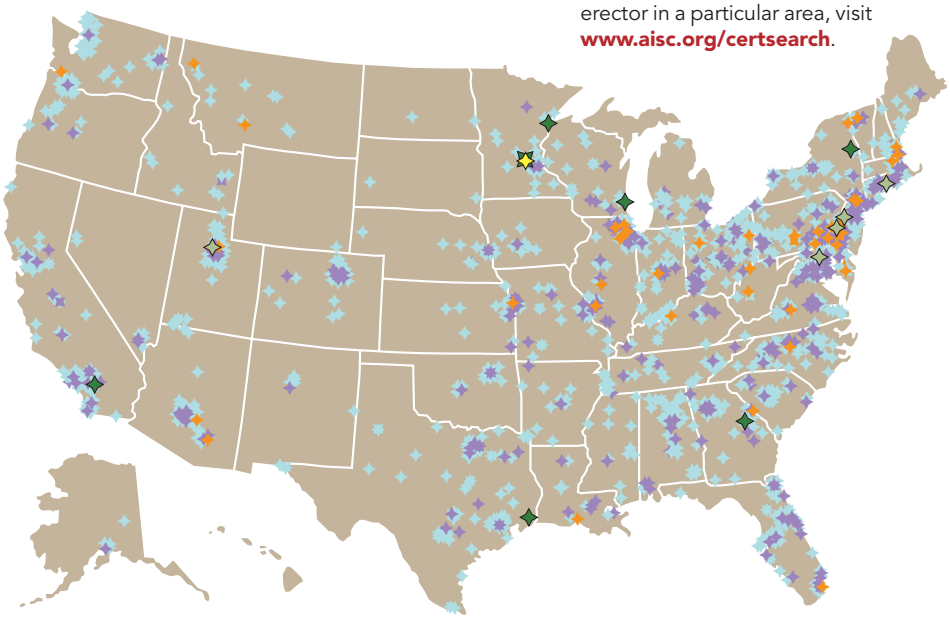
MAY 2011

This Month in *MSC*

- Each year the IDEAS² awards program highlights innovative design in engineering and architecture using structural steel. Read about this year's 14 outstanding projects beginning on page 22.
- "Green" isn't just about materials any more. Today it's a design and construction philosophy. Learn about how one project is raising the bar for sustainable construction (p. 54) and how you too can make your designs green (p. 52).
- How does a robotic solution compare with CNC equipment? (Do you still prefer to work in DOS?) One proponent of advancing the state of the art explains the flexibility advantage that robots offer, beginning on page 58.
- When does a structure need one or more expansion joints? And what's the best place to put them? These and other related considerations are the subject of this month's SteelWise, beginning on page 60.
- COMING NEXT MONTH: An industry expert in field bolting discusses proper installation of galvanized bolts and nuts, and how to troubleshoot the most common field problems associated with their use.

Newly Certified Facilities: March 1–31, 2011

To find a certified fabricator or erector in a particular area, visit **www.aisc.org/certsearch**.



Existing Certified Fabricator Facilities

Existing Certified Erector Facilities

Existing Certified Bridge Component Facilities

Newly Certified Fabricator Facilities

Newly Certified Erector Facilities

Newly Certified Bridge Component Facilities

Newly Certified Fabricator Facilities

Bell Bros. Steel Inc., Riverside, Calif.
CB&I Inc. (Island Park Fabrication Facility), Beaumont, Texas
Duluth Steel Fabricators, Inc., Duluth, Minn.
Grunau Metals, Oak Creek, Wis.
Joiner & Associates, Louisville, Ga.
Peter J Rozell Mechanical, Ltd., Queensbury, N.Y.
Standard Iron & Wire Works, Inc., Monticello, Minn.

Newly Certified Erector Facilities

Amfab Steel Erection Division, LLC, North Salt Lake, Utah
Bear Steel Erectors, Inc., Oakdale, Conn.
Highland Steel, LLC, Phillipsburg, N.J.
L & L Construction, Inc., Quakertown, Pa.
MR Metals, Inc., Frederick, Md.

Newly Certified Bridge Component Facilities

Standard Iron & Wire Works, Inc., Monticello, Minn.

People and Firms

- AISC member **Hirschfeld Industries** has partnered with **Martifer Energy Systems**, based in Portugal, to manufacture wind towers at a new plant under construction in San Angelo, Texas. When completed in 2013, the plant will be able to produce 400 towers per year and will service the North American continent. The wind energy market has grown dramatically, and the joint venture has secured multiple orders for towers.
- **Applied Bolting Technology**, manufacturer of Squirter DTIs and an AISC member firm, offers a set of eight short videos on its website (**www.appliedbolting.com**) that explain various aspects of direct tension indicator (DTI) washers. Two videos describe how the technology works, with one specifically for engineers and another for inspectors. Several others focus on questions frequently fielded by the company, including common reasons for not being able to "squash the bumps."
- **Buro Happold North America** has received Diamond Awards for Excellence in two categories from the American Council of Engineering Companies New York. The firm's design for the Curtis R. Priem Experimental Media and Performing Arts Center at Rensselaer Polytechnic Institute in Troy, N.Y., was honored in the Structural Systems category. In the Special Projects category ACECNY recognized the firm for its design of the Expanding Video Screen for U2's 360° Tour of 2009. Buro Happold NA also received two additional awards in the Building/Technology Systems and Research and Consulting categories.

Mark Fisher

- **EYP Architecture and Engineering** has established expanded headquarters and operations at the College of Nanoscale Science and Engineering of the University at Albany, N.Y., in its new "green" high-tech buildings. The company's new address is NanoFab East, 257 Fuller Road – 1st Floor, Albany, NY 12203. The telephone number is 518.795.3800.

PROJECT MILESTONE

Two-Span UDOT Bridge Rolled into Place Overnight

The Utah Department of Transportation and contractor Provo River Constructors (PRC) made history overnight on March 26-27 with the successful move of the Sam White Bridge over Interstate 15 in American Fork, Utah. Working with the longest two-span bridge ever moved by Self-Propelled Modular Transporters (SPMTs) in the Western Hemisphere, crews set the new bridge into place at approximately 4 a.m. Sunday and reopened the freeway at 7 a.m., three hours ahead of schedule. The move was part of UDOT's $1.725 billion Utah County I-15 Corridor Expansion (I-15 CORE) freeway reconstruction project.

"The Sam White Bridge move demonstrates our commitment to employing the latest technology to minimize delays to the traveling public and delivering our projects as fast as possible," said John Njord, executive director of UDOT. Utah includes the cost of traffic delays and other inconveniences to the public as part of its project estimating and bidding process. Using the bridge transport technology reduced delays from months to days to meet the project's aggressive three-year timeline.

"Building the bridge using Accelerated Bridge Construction (ABC) eliminated the need for as many as 10 full freeway closures," said Dal Hawks, I-15 CORE project director. "This reduced traffic delays and benefited the state's economy by keeping people, goods and services moving while the bridge was being constructed."

PRC, the consortium of expert local, regional and national contractors and engineers acting as the project's design-build contractor, constructed the 354-ft, 1,900-ton structure on falsework in a "bridge farm" along the east side of I-15. A steel-plate girder design was chosen for the Sam White Bridge due to its relatively light weight and its ability to follow the profile grade line. AISC and NSBA member Utah Pacific Bridge & Steel Corporation, Lindon, Utah, fabricated the steel for the bridge, which was designed by the Moon Township, Pa.-based Michael Baker Jr., a member of the PRC consortium.

Moving the bridge perched 21 ft in the air involved precise coordination. The two-span structure was raised off the falsework, then moved simultaneously using four lines of SPMTs, which are hydraulic jacks on wheels, controlled by a single joystick.

To accommodate the bridge move, I-15 was closed in both directions between the American Fork Main Street and Pleasant Grove Boulevard interchanges on Saturday, March 26, starting at 11 p.m. until Sunday, March 27, at 10 a.m. Approximately 1,000 people came out to witness the operation. In addition, state elected officials, more than 100 delegates from other Departments of Transportation and the Federal Highway Administration (FHWA), and transportation industry professionals from as far away as China also watched the move.

After raising the structure off its falsework, crews moved the bridge approximately 500 ft across eight freeway lanes—which included rotating it to the crossing's final 48° skew—and lowered into place. To see a two-minute preview and animated simulation of the move sequence, go to **http://bit.ly/euZizx**. UDOT's five-minute time lapse video of the actual move is also available at **http://bit.ly/eAvSaP**.

Located 30 miles south of Salt Lake City, the Sam White Bridge is one of 59 new, modified or rebuilt structures on the 24-mile Interstate reconstruction project. The state-funded project is reconstructing the highway from Lehi to Spanish Fork which connects the northern and southern halves of the state. The I-15 CORE project is scheduled for completion by December 2012. To learn more about the bridge-related aspects of the project, visit **http://bit.ly/fcHc8c**.

The state has been using SPMT technology for nearly four years. Its first move was on October 28, 2007, when the 172-ft-long 4500 South Bridge was moved over I-215. The Sam White Bridge is UDOT's 23rd ABC bridge move—nearly double the number moved by all other states combined. The FHWA designated UDOT's move as a "Showcase" event for leaders to learn more about ABC technology and how it can be applied to other transportation systems in the country.

Utah DOT

AWARDS

ACSA and AISC Celebrate 10-Year Collaboration

At its 99th annual meeting, held March 3-6 in Montreal, the Association of Collegiate Schools of Architecture presented AISC with a plaque in recognition of AISC's 10 years of continued sponsorship support of the Steel Design Student Competition. Nancy Gavlin, AISC director of education, and AISC president Roger Ferch accepted the plaque from ACSA president Daniel S. Friedman, Ph.D., AIA. For more information, visit **http://bit.ly/i8lwfk**.

OBITUARY

Larry Don Pope, 67, Past President of NISD

Larry Don Pope died Sunday, January 16, 2011, in Lewisville, Texas. He was 67. Pope was a longtime resident of Arlington, Texas. A graduate of Mineral Wells High School and the University of Texas at Arlington, he was a professional architect and steel designer for 40 years. Pope was named the National Institute of Steel Detailers' man of the year in 1985, and served as NISD president from 1995 to 1999. Memorials can be made to Hope Lodge of American Cancer Society, Lubbock, Texas.

EDUCATION

2011 Engineering Seminar Series Offered

CMC Steel Products, in cooperation with the American Institute of Steel Construction and Bentley Systems, Inc., presents its 2011 Structural Engineering Seminar Series, "Working Smarter in Today's Marketplace," in 16 cities nationwide. This half-day seminar consists of industry experts presenting the following topics:

- A rapid-fire look at what the new challenges and opportunities will be for structural engineers as the construction economy recovers. Topics will include economic conditions, material costs and availability, changing expectations in the marketplace, 3D modeling, sustainability, collaboration, specifications, codes, standards, delivery systems, modularization, off-site fabrication, innovative systems and robotics—and where structural steel fits into this changing environment.
- Smartbeam System—a review of the castellated and cellular beam product that has revolutionized the structural steel industry. Topics will include the design of the Smartbeam, introduction of new design software, case studies, and applications in floor and roof construction.
- Bentley Systems will present the aspects of the latest RAM Structural System version 14.03.02 showcasing steel building design in a completely integrated environment including foundations, connections, CAD drawings, and BIM based on current codes and standards.

Each attendee will receive informative AISC handouts and new CMC Smartbeam structural design software. CMC and Bentley will provide a certificate for 4.0 PDHs for each engineer who attends. Breakfast is provided. There is no cost for the seminar, but registration is required. To register, go to **www.cmcsteelproducts.com**. Seating is limited and attendance is on a first-come, first-served basis.

STANDARDS

Nuclear Spec Available for Public Review

A draft of the 2011 AISC *Specification for Safety-Related Steel Structures for Nuclear Facilities* (AISC N690) is now available for public review on the AISC website. This document is written as a supplement to the 2010 AISC *Specification for Structural Steel Buildings*; therefore, the primary revisions are related to revisions in that standard.

The document and public review form are available on the AISC website at **www.aisc.org**. Please submit your comments electronically to duncan@aisc.org using the review comment form, or mail to Cynthia Duncan, AISC, 1 East Wacker Drive, Suite 700, Chicago, IL 60601-1802 by May 30, 2011. A hard copy is also available for a nominal fee of $15 by calling 312.670.5411 or by emailing cummins@aisc.org.