

BRIDGES

Building an Award-Winning Steel Structure

A new educational video by the Department of Construction Science and Management at Clemson University shows the story behind the creation of a steel structure, from idea to reality.

The 30-minute video focuses on the structural design of Lee Hall III, a 55,000-sq.-ft LEED-certified educational building on Clemson's campus in Clemson, S.C. The project is also a Merit Award winner in this year's AISC IDEAS² Awards program (see the May issue for photos and a detailed description of the project at www.modernsteel.com).

The story begins with building de-

sign and continues through project engineering, building information modeling and shop drawing development. It then transitions to the life cycle of steel from the recycling of scrap to the production, fabrication and erection of the steel at the building site.

The video is available as a free download in MP4 format at www.aisc.org/teachingaids as part of AISC's Teaching Aids, which assist universities in preparing students to become professionals knowledgeable in the use of structural steel. Click on any of the three links on the page (under "Disciplines") to access the video.

IN MEMORIAM

Mobil Steel Executive Richard Friel Dies

Richard Friel, senior vice president of Mobil Steel International, Inc. (AISC Member and Certified Fabricator), passed away in July, surrounded by family. Friel, who was 76 years old, had been on medical leave from Mobil Steel for the past several months.

Friel achieved an outstanding track record of facility, project and capital improvement management in the steel industry. He used his industry knowledge and contacts to help Mobil Steel build a high-quality steel fabrication operation with the capacity to handle more than 1,000 tons of steel per month at its 80,000-sq.-ft Houston facility. Friel also was noted for team-building skills and mentoring of employees in the industry. He had been an active member of AISC and the Associated Builders and Contractors (ABC).

Friel started his management career with Northwestern Steel and Wire Co. in Sterling, Ill., in 1968. During his 26-year stint with Northwestern, he was promoted to various assignments in which he was responsible for all aspects of steel operations and supervised hundreds of employees. He moved to Houston with Northwestern in 1990 as the company liaison working with an international construction and engineering firm on a \$60-million project to refurbish and restart an Armco mill.

Friel took early retirement in 1994 and joined Mobil Steel Corporation in

1995 as plant manager and shipping and logistics manager. Following management changes, he continued with Mobil Steel International as senior vice president.

"Our hearts are very heavy at Mobil Steel today over this loss of a great friend, mentor and senior executive of our company," said Leonard A. Bedell, president and CEO of Mobil Steel International. "Richard's amazing knack for our industry, his many contacts and his passion for steel fabrication improved our company. While we will miss Richard—especially the spark in his eyes and his ever-constant smile—we are very thankful for and strengthened by how he mentored our employees and the impressive legacy he leaves at Mobil Steel and in the steel industry."

Friel is survived by his wife, Dianne Gunderson Friel, two daughters, a son and five grandchildren.



People and Firms

- **Modjeski and Masters** has appointed **Barney Martin**, the firm's president since 2007, to CEO. **John Kulicki** formerly filled the role of CEO and will continue to guide the firm's strategic direction in his role as Chairman of the Board.
- **Raaf F. Stevens** and **Scott A. Toelle** have been elected to the Board of Directors of **Project Associates**; the two engineers were formerly senior associates. In addition, senior engineer **James E. Hutchins** was named a senior associate.
- Philadelphia-headquartered structural engineering firm **O'Donnell and Naccarato** has opened an office in Mountainside, N.J., to serve clients and projects in the New York metropolitan region. **Paul Panzarino**, P.E., was hired as principal to lead the new office and its initial team.
 
- Bridge design and construction engineering firm **Finley Engineering Group** has hired **Jason Hatcher** as a project manager.
- The **Short Span Steel Bridge Alliance (SSSBA)** has added six new Canadian organizations to its membership ranks: **Canadian Institute of Steel Construction**, **Cherubini Metal Works Limited**, **Corrugated Steel Pipe Institute (CSPI)**, **M&G Steel, Ltd.**, **Rapid-Span** and **Supreme Steel Bridge Division**.

STEELDAY

Fifth Annual SteelDay Takes Place October 4

Where will you be on SteelDay this year?

Whether you visit a structural steel facility, tour a job site or attend a seminar, you can be part of the structural steel industry's largest educational and networking event on October 4. Hosted by AISC and its members and partners, SteelDay is an opportunity to see firsthand how the structural steel industry contributes to building America.

Now in its fifth year, SteelDay is a great opportunity for architects, engineers, contractors, owners, university faculty and students, government officials and others to see the structural steel industry's latest technologies and construction processes in action, learn directly from the industry experts and build new relationships.

"There is no other single day in the nation where so much valuable information is exchanged across all disciplines of the structural steel industry," said Ross Allbritton, AISC's industry mobilization manager.

New to SteelDay this year is a free "Innovations in Steel" webinar that will be shown at select SteelDay events. The presentation will demonstrate how recent steel industry innovations allow engineers and architects to easily express their design concepts and overcome client serviceability concerns. Attendees will gain knowledge on how steel can provide cost-effective and time-saving project solutions, and can also receive continuing education credit (1.0 Contact Hour/1.0 PDH/0.1 CEU/1.0 AIA CES LU) for viewing the presentation and taking a quiz. The presentation will be delivered by Tabitha Stine, S.E., P.E., LEED AP, AISC's director of technical marketing, who will be available to answer questions on SteelDay via Twitter (@TabySu1). Those who join the conversation by using hashtag #Steelovation or Tweet AISC (@AISC) using hashtag #SteelDay will be entered into a drawing to win a Google Nexus 7 tablet.

Year after year, SteelDay has proven to be an invaluable experience for

AEC professionals as well as students who are considering careers in the industry. Last year on SteelDay, Rose Milavitz, a civil engineering student at Northwestern University toured the Chicago area's first Girder-Slab project, an eight-story apartment building in Evanston, Ill. "I've never been in a building that was in the process of being built, so that was really cool to see," she said. "I think opportunities like SteelDay are important for students so that we're able to see things that we learn about in the classroom. We don't get a lot of chances to see things for real."

Even if you've attended a SteelDay event in the past, you haven't seen it all. Here's a glimpse of what you can expect to see at some of this year's events:

- **Structural steel fabricators:** Learn how structural steel is prepared for a building or bridge using off-site, controlled conditions, which ensure a consistently high-quality product while reducing errors and costly fixes at the job site. Also learn why most steel fabricators use 3D models/BIM to streamline production and increase efficiency.
- **Steel mills/producers:** Witness steel recycling capabilities and procedures at scrap metal recycling and steel production facilities, and develop an understanding of rolling schedules and steel availability.
- **Steel service centers:** Learn about the crucial role these facilities play in the industry.
- **HSS producers:** Watch the fascinating process of manufacturing top-quality hollow structural sections (HSS) and learn about shape availability.
- **Bender-rollers:** Curved steel doesn't just happen. Observe the very specialized and skilled process of bending and rolling steel shapes.
- **Galvanizers:** See the galvanizing process, from material staging to hot-dipping.

In addition to connecting with local structural steel representatives at various facilities across the U.S., this year's SteelDay will feature live webinars and special events in major metropolitan

areas, including New York City, Chicago, Washington, D.C., and others.

If you're in New York City, you can experience SteelDay in conjunction with the *Architectural Record* Innovation Conference on SteelDay Eve, October 3. The Innovation Conference explores new trends in design, fabrication and construction for the architectural community, and AISC invites you to be the guest of the structural steel industry at this conference. Register for this event on the SteelDay website at www.SteelDay.org/innovation-conf and receive a \$200 discount off the \$545 conference fee.

In Chicago, AISC invites you to a full day of free events on SteelDay, which includes breakfast and a morning shop drawing seminar (from 7:30 a.m. to noon) titled "Shop Model Review and Approval," as well as an afternoon tour (from noon to 3 p.m.) of the city's new Northwestern Outpatient Care Pavilion project, which features a 90-ft steel pedestrian bridge currently under construction. You can choose to attend either event or both; however, space for both is limited. For details on each session and to register, go to www.SteelDay.org/BIMChicago.

And in special recognition of SteelDay's fifth anniversary, music will be part of the celebration with "STEEL-a-palooza." AISC is accepting original, previously unpublished music to be compiled (if selected) onto a CD collection for distribution at SteelDay events all around the country. Enter your music for a chance to be a part of the STEEL-a-palooza music series and have your music distributed nationally for free. You'll be helping promote SteelDay, steel workers and the arts. For more information on how to enter, visit www.steelday.org/steelpalooza.

To learn more about SteelDay and sign up for or host an event, visit www.steelday.org. You can also keep up with SteelDay updates and discussions via AISC's social media channels at www.facebook.com/AISCdotORG, www.twitter.com/aisc and www.youtube.com/AISCsteelTV.

BRIDGES

2014 Prize Bridge Competition Call for Entries

Entries for the 2014 NSBA Prize Bridge Awards are now being accepted through December 31. The 85-year-old Prize Bridge competition honors significant and innovative steel bridges constructed in the U.S., and the winners will be announced at the 2014 World Steel Bridge Symposium (www.steelbridges.org/wsbs) collocated

with NASCC: The Steel Conference (www.aisc.org/nascc) in Toronto.

To qualify, bridges must be constructed of structural steel and be located in the U.S. (defined as the 50 states, the District of Columbia and all U.S. territories). Eligible bridges must have been completed and open to traffic between May 1, 2011

and September 30, 2013.

An independent panel of industry experts will judge entries on the following criteria: innovation, aesthetics, economics and design solutions. Entries may be judged in more than one category, but each entry can only receive one award. *cont.* ►

letters to the editor

Safety First



I received my copy of the July issue and found the articles entertaining and informative. However, when I went back to the cover page something disturbing caught my eye. The gentleman with his hand on the suspended steel load in the foreground of the photo is committing three obvious safety violations. First, he is traversing uneven ground while handling a suspended load with no obvious hand rails or attention to his footing or body positioning to prevent a fall. Second, his hard hat has numerous stickers on it; placing numerous stickers on hard hats has known to degrade the plastic over time due to the chemicals in the adhesives, and most manufacturers do not warranty the material if numerous stickers are applied. The

third and most egregious offense is that his foot is underneath a suspended load. Anyone who has worked with or around suspended loads knows that one of the most fundamental safety rules is that in no case should anyone or any part of a person's body be located underneath a suspended load. I only ask that the staff keep safety in mind when choosing the photos to place on the cover or inside the publication. Disregard for the fundamentals of safety in construction sends a poor message to the readers and tarnishes the image of the publication.

—*Josua S. Obotto, P.E.*
Xcel Energy
Monticello, Minn.

Tom Schlafly, AISC director of research, responds and gives a look into MSC's safety policy for photos:

Thank you for your observation of safety issues in the cover photo of the July *MSC*. AISC does have a goal of promoting safe work and in pursuit of that goal, we do review photos in *MSC* for safety violations. Our policy is to not include photographs showing clear safety violations. When we see an image that may or may not indicate a violation, we give the subject in the image the benefit of the doubt. Occasionally we use an image that we judge to be of enough value to the article and the message we are trying to convey that it overrides the negative impact of a violation. In this case we did not determine that the photo showed clear violations.

In response to your observations we

agree that personal protective equipment is not to be modified in a fashion that impairs its function. Stickers are common and in many projects they are used to indicate the wearer has passed project safety training. There are adhesives that may be detrimental to hats but there are many that are not. Too many stickers can also impair inspection of the hat. But stickers are not regarded as a safety violation by many safety professionals, and we did not recognize the stickers on the cover as such.

A reason we chose this photograph was that the connection to the girder and the tag line indicated that a lift was planned. The ground was not clear as is often the case. The surface does not seem to be uneven enough to violate written rules requiring handrail or other protection. (Whether the walking surface is usable is subject to some judgment.) It is not a clear walking working surface but it is flat in front of and behind the man, and he does have the ability to move to either side. The condition is not optimal but we do not think it was enough to reject the photograph.

Determination of the man's position in relation to the girder is hindered by the perspective of the photograph. We agree his foot should not be under the load but it is possible that, given the perspective of the photograph and the orientation of the girder, it is not under the load.

We do appreciate your attention to safety and the opportunity it gives us to describe our goals and thoughts on these observations.

Award categories include:

- Major Span: One or more spans greater than or equal to 400 ft
 - Long Span: Longest span equal to or greater than 250 ft but less than 400 ft
 - Medium Span: Longest span equal to or greater than 140 ft but less than 250 ft
 - Short Span: No single span greater than 140 ft
- Movable Span
 - Reconstructed: Having undergone major reconstruction, rehabilitation, or widening
 - Special Purpose: Bridge not identifiable in one of the above categories, including pedestrian, pipeline and airplane

In addition, NSBA will offer special recognition to one project that best ex-

emplifies accelerated bridge construction (ABC) and one project that best exemplifies a full range of sustainable attributes.

For more information about the competition and to submit your steel bridge project for consideration, visit www.steelbridges.org/PrizeBridgeAwards.

For detailed descriptions and photos of last year's Prize Bridge winners, see the June 2012 issue of *MSC*.

letters to the editor

More Cars, Bigger Bridge

Several of your bridge articles—e.g., the one on the I-90 Innerbelt Bridge in the June issue (“Going Big in Ohio”)—touch upon the practice of replacing a bridge in response to population and traffic growth. As bridge engineers in the Bay Area, we’ve long recognized the need for an additional crossing over San Francisco Bay. By 1990, daily bridge traffic over the San Francisco—Oakland Bay Bridge reached nearly 280,000 vehicles, creating heavy congestion at commute hours. After the 1989 Loma Prieta earthquake damaged a section of the bridge, replacement of the eastern span was deemed necessary. This year, after 12 years of construction, this new replacement span will be operational; the full costs of the improvements to the Bay Bridge are over \$7 billion.

There remains, however, a significant problem: The resulting bridge will not add a single additional lane of traffic capacity, and the increase in Bay Area population is only making congestion worse. We believe there is only one immediately viable solution to this vexing congestion problem: to build a second crossing. Ideally, this second crossing should be in harmony with the current suspension bridge, with similar spans. The same is possible also for the truss-framed eastern span. However, for this part, it would be far more efficient to retrofit and relocate the soon-to-be demolished, historic structures onto new foundations on piles near the bridge’s current alignment, somewhat parallel to the existing bridge.

This reuse of an historic bridge is a rare opportunity to create a second

trans-Bay crossing, and our feasibility study proves that this concept is perfectly achievable. In addition to using most of the current bridge superstructure for the eastern span (Oakland to Yerba Buena Island), the western portion of the bridge (Yerba Buena Island to San Francisco) could be a double-decker suspension or cable-stayed bridge.

The main achievement of the second crossing would be a significant increase in traffic capacity between San Francisco and Oakland. Four new lanes in each direction would increase the current capacity by 80%. A second crossing would also have other major benefits:

- Reusing portions of the historic span could save more than 54,000 tons of steel structure—over a third of the estimated 152,000 tons needed for a new crossing. This is a significant savings in materials, overall cost and the environment.
- This project can be designed and built in less than five years, even with

a design competition—and much more economically than the current project.

- Also possible is the addition of a pedestrian/bicycle lane that could link Oakland and San Francisco (the new span will only allow bikes to go from East Bay to Yerba Buena Island).

The biggest challenge is to persuade the federal and state transportation authorities to start work immediately on the planning and design of this new crossing. We hope others will be interested in lending their enthusiasm and influence to this idea, but it is critical that this idea be moved forward immediately—before the existing span is demolished. (For more information go to www.savethebaybridge.com.)

—Ronald F. Middlebrook, S.E.
Middlebrook + Louie (retired)
San Francisco

—Roumen V. Mladjov, S.E.
Louie International
San Francisco

