

CONNECTING STEEL ERECTORS, FABRICATORS AND CONTRACTORS

WINTER EDITION 2017

# connector

## PROJECTS

### of the YEAR

Overcoming **TIGHT** Sites & Schedules

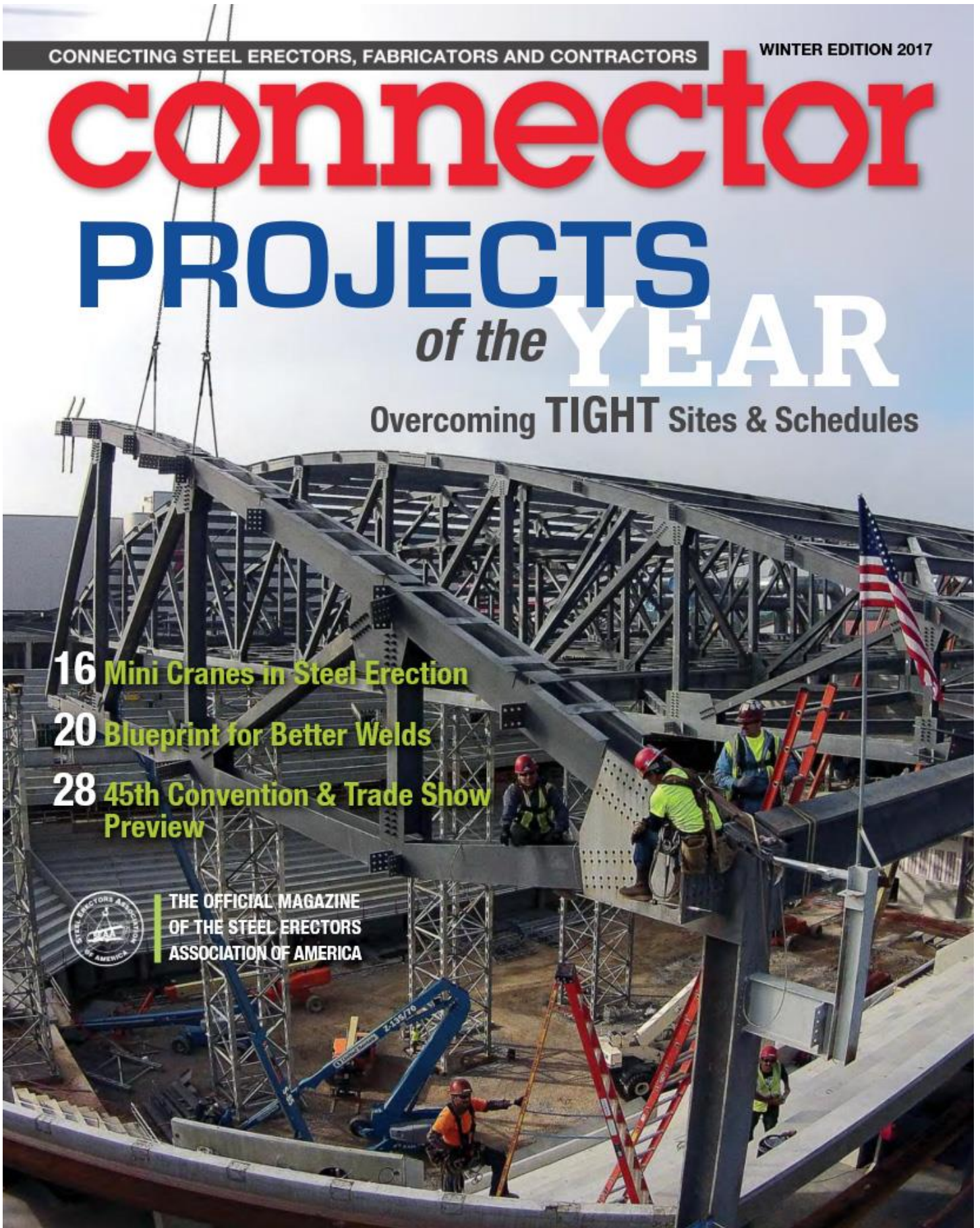
**16** Mini Cranes in Steel Erection

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ASSOCIATION OF AMERICA





**COVER STORY** By Tina Cauller

# University Projects Selected for PROJECT OF THE YEAR

Contractors overcome tight sites, tight schedule

Each year, the Steel Erectors Association of America (SEAA) selects stand-out projects to recognize at its annual convention. Projects are recognized for their complexity, and companies are awarded the Project of the Year for overcoming challenges while maintaining safe work standards. Four steel erectors were

recognized at SEAA's 43rd Annual National Convention in Charlotte, N.C., for jobs that were topped out in 2015. Featured here are the Class III and Class IV winners. (See the Summer and Fall 2016 Editions for coverage of Class I and Class II Projects of the Year.)

## ■ Near Perfect Precision Required

When Liberty University, Lynchburg, Va., committed \$500 million to rebuilding its campus, the showpiece was a new center to house the Music, Performing Arts and Worship departments. The school boasts the 7th largest music program in the U.S. The 141,000

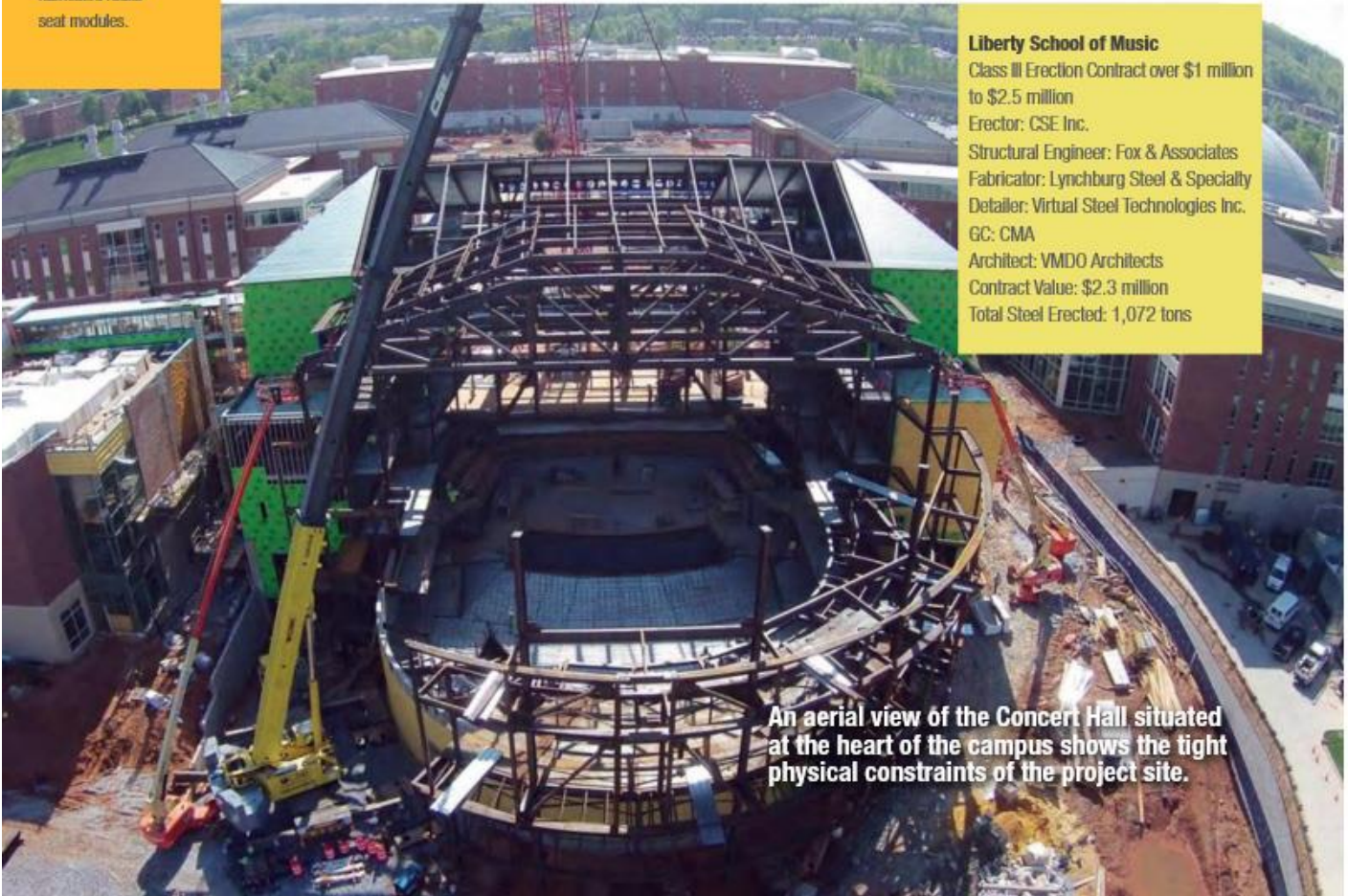
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Installation of shop-fabricated radial seat modules.

### Liberty School of Music

Class III Erection Contract over \$1 million to \$2.5 million  
Erector: CSE Inc.  
Structural Engineer: Fox & Associates  
Fabricator: Lynchburg Steel & Specialty  
Detailer: Virtual Steel Technologies Inc.  
GC: CMA  
Architect: VMDO Architects  
Contract Value: \$2.3 million  
Total Steel Erected: 1,072 tons

An aerial view of the Concert Hall situated at the heart of the campus shows the tight physical constraints of the project site.





**The ability to work with a local fabricator was the only way to cost-effectively accommodate the complicated steel schedule.**

Catwalk framing suspended from roof trusses provided a safe and efficient work platform.

sq. ft. center includes a concert hall with double exterior walls for optimum acoustic isolation. It is connected to a four-story building with education space, recording and practice areas, and offices.

Unusually tight physical constraints of the job site meant that intensive planning and close collaboration between contractors was critically important. The jobsite was flanked on one side by train tracks, and on the other by an access road. In addition, the facility had to dovetail neatly with existing buildings, which left a snug space for the construction team to work. The typical approach of dedicating adjacent space for staging iron for steel erection was out of the question – there was simply no room.

In erecting the steel for the new School of Music in 2015, CSE Inc., Madison Heights, Va., delivered a virtuoso performance under pressure and was recognized with SEAA's Project of the Year Award for Class III Erection Contract (\$1 million - \$2.5 million).

### A coordinated effort

"There was barely enough room to set up a crane," recalls Ronnie Ranson, Vice President of Steel Erection at CSE. While the cramped jobsite could have caused the project's schedule and budget to run aground, CSE coordinated with a local fabricator to have small sequences of steel delivered and keep construction progressing smoothly. "With Lynchburg Steel just 10 miles or so from the jobsite, we were able to have them deliver just one or two truckloads at a time. We brought the columns in first, then the header beams, and finally the fill-in beams."

Pre-fabricating the seating at the fab shop rather than erecting separate pieces on site shaved off months of erection time. "We

used  $\frac{1}{8}$ -inch bent plate to form the seats and risers as a single piece instead of loose deck, so the seats and risers came in as a unit. It allowed us to set the seat-riser units right on the Raker beams."

### Cranes and catwalks

Two other interesting aspects of the project included the design of the roof connection and the practical use of catwalk frames. Designed for virtually perfect acoustics, the concert hall roof is a semi-circle with a step-down conical shape. Structural framing consisted of four 100-ft. long trusses arranged in a spoke formation. The 20-ton trusses were attached at a single connection point with more than 120 bolts. A scheme for placing the trusses with a 350-ton Grove all-terrain crane and Manitowoc 888 crawler crane was designed using 3D Lift Plan.

The dimensions of the truss sections required nighttime delivery due to travel restrictions. Because there was limited floor access and no easy way to access the roof,



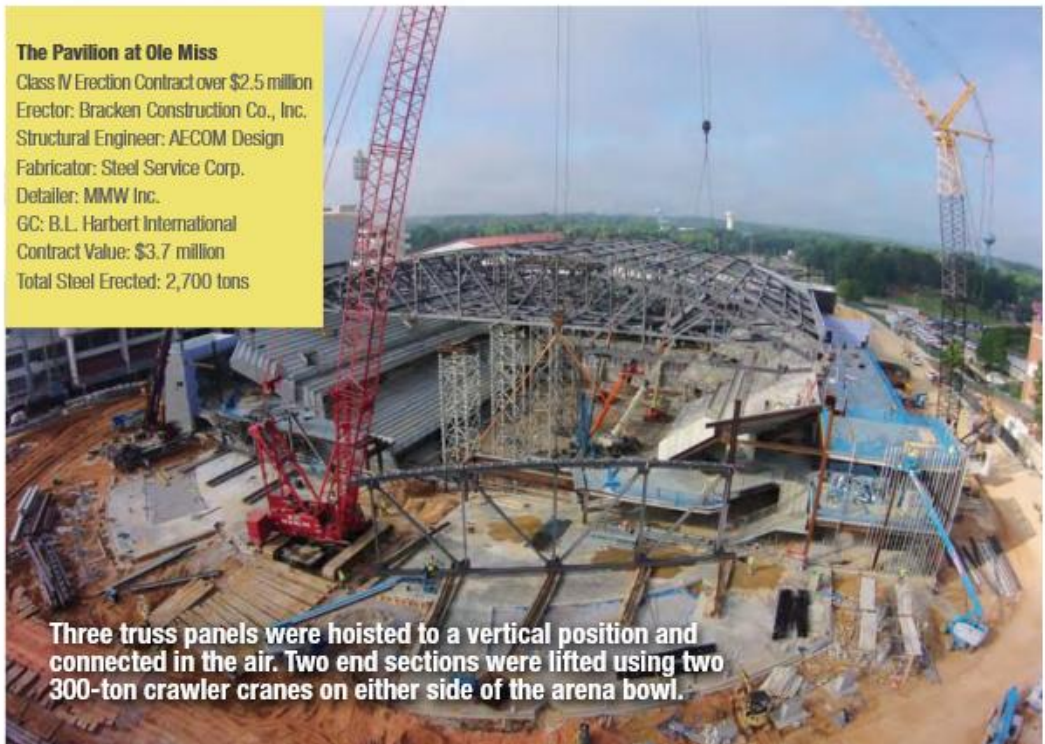
The Concert Hall's roof is supported by six 20-ton trusses arranged in a spoke formation, attached at a single connection point with more than 120 bolts. This is a close up of the connection of radial trusses to truss T9.

aerial work platforms could not be used to install hundreds of feet of catwalks used to house the performance hall's audio/visual equipment. So, before the roof trusses were set, hangers were installed so the catwalk system could be attached. CSE coordinated with the fabricator to prefabricate the catwalk frames, complete with the grating in place, so each catwalk could be lifted into place as a complete unit and attached to the hangers.

This practical solution provided an important advantage. Ranson explains: "We were able to use the catwalks as a work platform, with the workers safely tied off. Later, the

### The Pavilion at Ole Miss

Class IV Erection Contract over \$2.5 million  
Erector: Bracken Construction Co., Inc.  
Structural Engineer: AECOM Design  
Fabricator: Steel Service Corp.  
Detailer: MMW Inc.  
GC: B.L. Harbert International  
Contract Value: \$3.7 million  
Total Steel Erected: 2,700 tons



Three truss panels were hoisted to a vertical position and connected in the air. Two end sections were lifted using two 300-ton crawler cranes on either side of the arena bowl.