

## I-35W Bridge Collapse Investigation Continues

The National Transportation Safety Board (NTSB), Washington, D.C., recently issued a safety recommendation that addresses a design issue with the I-35W bridge that collapsed into the Mississippi River on August 1, 2007.

The recommendation is made to the Federal Highway Administration (FHWA) and states: "For all non-load-path-redundant steel truss bridges within the National Bridge Inventory, require that bridge owners conduct load capacity calculations to verify that the stress levels on all structural elements, including gusset plates, remain within applicable design requirements, whenever planned modifications or operational changes may significantly increase stresses."

"Although the board's investigation is still ongoing and no determination of probable cause has been reached, interim findings in the investigation have revealed a safety issue that warrants attention," said NTSB Chairman Mark V. Rosenker. "During the wreckage recovery, investigators discovered that gusset plates at eight different joint locations in the main center span were fractured. The board, with assistance from the FHWA, conducted a thorough review of the design of the bridge, with an emphasis on the design of the gusset plates. This review discovered that the original design process of the I-35W bridge led to a serious error in sizing some of the gusset plates in the main truss."

Undersized gusset plates were found at 8 of the 112 nodes (joints) on the main trusses of the bridge. These 16 gusset plates (2 at each node) were roughly half the thickness required and too thin to provide the margin of safety expected in a properly designed bridge.

Also, according to the Minnesota Department of Transportation's Web site, the new I-35W bridge is expected to be open by December 24 of this year. Among its features are as follows: structural enhancements, including the use of high-performance concrete and multiple levels of structural redundancy; a sensor and monitoring system built into the bridge; a 100-year life span; and ten lanes of traffic, five in each direction.

## Liberty University to Offer Welding Engineering

The School of Engineering and Computational Sciences at Liberty University, Lynchburg, Va., launched in fall 2007, is aiming to add mechanical and welding engineering majors to the current degrees available. The likeliest launch for its new degree programs will be in the fall of 2010. Both will be four-year degrees when they begin.

"Welding will be enormously important in our curriculum. We have two of the top nuclear engineering firms in the world located in Lynchburg. Both Babcock & Wilcox and AREVA require highly skilled welding engineers in their processes and will provide tremendous opportunities for research and internships for our students," said Dean Ron Sones. "Additionally, as Liberty launches a School of Aeronautics, students in the aircraft maintenance program will also require the development of welding skills. We also have a close relationship with NASA and would eventually hope to develop some research and training opportunities unique to their needs."

Liberty already has some mechanical engineering expertise on campus. These scholars are helping to craft a curriculum that will pass the ABET accreditation test. The school's hope is to attract a top scholar to develop the welding engineering program.

Liberty needs to raise about \$15 to \$20 million to build facilities with equipment and security systems. According to Sones, Chancellor Jerry Falwell Jr. has expressed a strong commitment to the engineering program and through his help, along with the support of local companies, the college hopes to raise the money within a year to begin construction. It will simultaneously pursue grant opportunities and corporate sponsorships.

## Samuel Manu-Tech Acquires Tubular Products

Samuel Manu-Tech Inc., Toronto, Canada, has acquired Tubular Products Co., Birmingham, Ala. Tubular designs, engineers, manufactures, and supplies laser cut carbon steel tubing, fabricated tubular components, and welded subassemblies. These components are used in outdoor and power transmission equipment; all-terrain, automotive, and other vehicles; and reusable coil carriers.

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