



Memorial Bridge designer amazed by reaction

Innovative project required willingness to take risks, Ted Zoli says

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PORTSMOUTH — Memorial Bridge designer Ted Zoli of HNTB Inc. said the accolades keep coming for the innovative bridge connecting Portsmouth and Kittery over the Piscataqua River — but he admitted to a group of industry professionals Monday it was a challenging venture that had to be pulled off perfectly.

Fortunately, it worked, but not without some nervous moments for all parties involved, he said.

Zoli was the keynote speaker Monday at the conference of the Northeast Association of State Transportation Officials, which is holding meetings at

the Sheraton in Portsmouth.

Zoli designed a bridge of firsts: the first truss bridge without gussets, the first use of cold-bent steel and the first use of a zinc coating that is expected to prolong the life of the bridge. He added that the entire bridge was built in 20 months.

“The riskiest thing was the five months it took to float in three spans with one barge. There was no back-up plan, so blowing it was going to be bad,” he said of the spans built on a barge at the Port of New Hampshire. “There were three 300-foot spans built every month and a half.”

When HNTB and Archer Western Contractors submitted the design/build proposal for the bridge, “We had the highest price, but the best value.” However, he said, when he heard that the team agreed to build the bridge five months ahead of any other competitor, “it made me a little sick. Why were we taking this on?” he said.

The fabricating of the steel had never been done before and the project had such a tight schedule that nothing could go awry, he said. Driving the bridge design was the collapse of one gusset plate on the Interstate 35 bridge in Minneapolis.

“How could we as an industry be allowed to design such a thing?” he asked. “The whole idea of a new truss got us into interesting conversations with the fabricators, too. It had to be easier to erect. And if we could fabricate it so that each of the pieces nested, we would minimize waste.”

He gave the state Department of Transportation great credit for agreeing to some of the innovations and taking a chance.

“Moveable bridges are the hardest part of what we do” as bridge engineers, he said. “Given the schedule, we were probably too aggressive. But everyone was engaged. The owners understood what we were doing was innovative but well within the guidelines for best industry practices.”

Archer Western, too, he said, was able to take a design that was totally outside of the norm and still bring in the project on time.

“In terms of a moveable bridge project, it's the most successful we've ever done. What it demonstrates is that design/build can really offer some ability for innovation,” he said.

Since its opening in 2013, the bridge has received many accolades, including an award for engineering excellence by the American Council of Engineering Companies; 2013 Top 10 Bridges in the United States by Roads & Bridges magazine; a gold award by the Design-Build Institute of America, New England chapter.

Zoli said that in all the years he's been an engineer he's never been asked to speak about a bridge more often, and he has designed numerous bridges including the Leonard P. Zakim Bunker Hill Memorial Bridge in Boston.

“I've never seen anything like this,” he said.

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