



Cal-Berkeley's steel bridge team wins the 21st annual NSSBC.

Golden Moment for Golden Bears

BY GEOFF WEISENBERGER

Photos: Courtesy of Clemson University

THEY TRAVELED FROM ONE COAST to the other for the win.

The University of California, Berkeley took first place in the 21st annual ASCE/AISC National Student Steel Bridge Competition (NSSBC), held Memorial Day weekend at Clemson University, S.C. The team of structural engineering students won with their entry, ApoCALypse. The Massachusetts Institute of Technology team took second place, and third place went to California Polytechnic State University, San Luis Obispo. (Full results, both overall and for each category, are available at www.nssbc.info/History/2012NSSBCResults.pdf.)

The win, the second in UC Berkeley's history of competing in the NSSBC, was a miraculous turnaround from their performance last year, when their bridge failed the lateral load test.

"Everyone was motivated and resilient this year after what happened last year," said Sabrina Odah, bridge project manager

for the UC Berkeley team. "We didn't let that failure break us. We all had the sense that this was our year."

"I'm proud of this team of hard-working, enthusiastic students who designed and constructed their bridge very smartly and efficiently and had an excellent preparation for the national competition," said Marios Panagiotou, an assistant professor of structural engineering in UC Berkeley's Civil and Environmental Engineering (CEE) department and faculty advisor for the team. "They deserved the best and I am happy they got it."

NSSBC, a joint effort between AISC and the American Society of Civil Engineers, started as a regional competition in the upper Midwest in the mid-1980s and grew into a national competition by 1992. The teams—there were 47 this year, compiled of more than 550 students—are narrowed down from nearly 200 teams.

To reach Clemson, these teams had to be among the best in 18 conference competitions around the country—and even the world, as teams from Canada, Mexico and for the first time, China, were selected for the national competition. They were judged in six categories: construction speed, stiffness, lightness, economy, display and efficiency; the best combined score across all six categories wins. (UC Berkeley took the top spot in two categories: construction speed and economy.) Every year, the design parameters change slightly to meet the Problem Statement, which this year was to design and build a new bridge to provide vehicle access to a lodge, as well as to support utilities under the deck; clearance under the bridge was necessary to prevent damage by flash floods. This year's entries were required to be 23 ft long and capable of carrying 2,500 lb.

On Friday afternoon, the teams participated in the display portion of the competition, and all of the bridges were assem-



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▲ University of Akron team members race against the clock.

▲ The University of Illinois at Urbana-Champaign (top) and University of Louisiana, Lafayette (bottom) teams, during the assembly portion.

◀ The University of California, Berkeley team, overall winners, at the awards banquet.

bled for public display and judging. This segment provided a chance for student teams to display and share their innovations, as well as learn how other teams approached the design and fabrication of their bridges.

“I was surprised that even though all teams are using the same set of rules, each team had a unique solution to the problem,” said Scott D. Schiff, Ph.D., professor of civil engineering at Clemson and the faculty advisor for the Clemson team and Clemson Chapter of SEA of South Carolina.

On Friday evening, the National Rules Committee (which develops and modifies the competition rules each year) hosted a captains’ meeting to provide one last opportunity for teams to get clarifications on the rules related to the assembly or load testing of their bridges. In parallel with the meeting, the other members of the steel bridge teams had the opportunity to showcase their “Fe” knowledge in a quiz bowl sponsored by the National Council of Examiners for Engineering and Surveying. After both, the teams had a little time to relax and enjoy a BBQ dinner and ice cream sundaes.

“Saturday’s competition is always a bit nerve-racking for the teams,” said Schiff. “They’ve spent many months preparing for this event and any mistakes by the builders in the ‘one-chance’ assembly of their bridge during the timed competition, or issues in the design or performance of their bridge, can be very costly.”

This year, streaming video cameras were set up so that spectators could watch the competition over the Internet. Over 2,000 people watched and commented on Saturday’s competition, and more than 100 representatives from the steel industry or the structural and civil engineering design communities were also in attendance as either national or local sponsors of the competition, volunteer judges to oversee the competition activity or members of the National Rules Committee. Many of these industry representatives have been involved with the competition for years.

“This year was my return back to judging after an enjoyable four-year term on the rules committee,” said judge Renee Carter Whittenberger, P.E., a bridge engineer in Akron, Ohio and a former NSSBC team captain herself. “I noticed that my judging experience was much different this year as compared to my previous years judging, having now participated in the writing of the rules. As it turns out, by 10 a.m. I had earned the reputation as the toughest enforcer of the rules on the floor!”

The planning efforts of the Clemson University host committee, in cooperation with the National Rules Committee, resulted in Saturday’s competition being completed in record time. By 4:00 p.m., all teams were back at their hotels and getting ready for the NSSBC Banquet and Awards Ceremony.

The banquet provided an opportunity to recognize the sponsors of the event and the staff and volunteers that organized the competition. There were two keynote presentations, one focused on the structural steel design of the Boeing Facility in Charleston, S.C. and the other focused on the use of structural steel in accelerated bridge construction. Following these presentations, the awards for both the individual categories and the overall competition were announced.

“It’s exciting to watch the next generation of structural engineers come together and work with such passion and enthusiasm,” said Nancy Gavlin, AISC director of education. “This year’s bridge posed difficult challenges that the students faced with ingenuity and professionalism.”

“All of the competitors brought their best to Clemson, and represented themselves well,” said Matthew Cataleta, principal laboratory mechanician for UC Berkeley’s CEE department lab and the lab staff advisor for the team. “At the same time that they competed with each other, they also all seemed very open to the sharing of their ideas and proud of the individual efforts that they made to meet the challenges of the competition.”

For more information on the NSSBC, visit www.aisc.org/steelbridge or www.nssbc.info. MSC