

Engineering students bridge a design gap

Cal State Northridge hosts the finals of a riveting national college competition.

By Myron Levin, Times Staff Writer

May 27, 2007

Vying to build the best bridge to nowhere, engineering students from across the U.S. and Canada on Saturday joined trusses to struts and abutments to beams, creating sturdy 20-foot spans as they raced against the clock in the finals of the National Student Steel Bridge Competition at Cal State Northridge.

The 16th annual contest drew teams from 43 schools that had drilled and pounded their way through regional contests to reach the finals, held for the first time at the campus' main athletics building, Redwood Hall.

Wearing hard hats and T-shirts emblazoned with school names and colors, the collegiate engineers used mallets, wrenches and battery-powered screwdrivers to erect their designs from prefabricated parts, in one of the most unusual matches to be staged in a college gym.

"I think this is really an amazing competition," S.K. Ramesh, dean of the college of engineering and computer science at Cal State Northridge, said as teams raced like pit crews. "It gives new meaning to 'the two-minute drill.' "

Sponsored by the American Society of Civil Engineers and the American Institute of Steel Construction Inc., the contest requires months of preparation for undergraduate engineering students. Typically, design activities start in the fall, followed by weeks of fabricating steel parts and weeks more of practice. In order to improve their time and cut down on mistakes, teams may erect their bridges 50 times or more.

The complex scoring system, organizers said, involves the principle that less is more. Teams get points for building the lightest bridge, with the smallest crew, in the shortest time. There are penalties for such mistakes as dropping tools or bridge parts into the mythical river swirling beneath each bridge.

"Nut in the water!" shouted a judge after a bobble by the team from Louisiana State University.

Once assembled, each bridge undergoes a deflection test, in which it is loaded with weights to see how much it bends. If it can't support a load of 2,500 pounds, it is disqualified.

Entering the competition with four national titles, North Dakota State University is the closest thing to a dynasty, no other school having been crowned more than once. This year, the North Dakota squad designed a feather-light 108-pound bridge and put it

together in about 5 minutes. The bridge included an aesthetic touch: two images of the school's bison mascot in laser-cut steel.

Team co-captain Scott Harpole, from Green Bay, Wis., said the team's success stemmed partly from "the knowledge transfer from the alumni. "They're sure to give us all the tricks and tips they learned in their time," he said. "We're able to use what we want from their ideas and use our own ingenuity."

Members of the Cal State Northridge team said that to harmonize conflicting schedules, they held some practices from 10 p.m. until 3 a.m. They wore black shirts with a Superman logo on the chest and the words "Men of Steel" on the back — despite having a female co-captain, Nallely Olguin.

The competition, like the engineering profession itself, was male-dominated, but Olguin, of Reseda, said the women have proved "we're just as good as the guys."

After Cal State Northridge completed its bridge in its best time ever, 8 minutes and 5 seconds, team members Paul Mendoza and Jose Sanchez hugged and whooped for joy.

The competition continued throughout the day, and when results were announced at an awards banquet Saturday night, North Dakota State claimed its fifth national title.

UC Davis finished second and the University of Wisconsin at Madison came in third. Cal State Northridge came in 28th.

The team from the New York City College of Technology was the victim of a cruel foul-up when a shipping company managed to lose one of four cases of parts the squad had sent from New York.

Allowed the use of Cal State Northridge's engineering lab, the New Yorkers were able to fabricate an emergency replacement for a lost abutment but not a missing truss. As a result, the bridge could not support the 2,500-pound load.

Team member Stacy Cruikshank, tears splashing down her cheeks, was crushed by the result.

"We put so much effort into it, and we really gave it our best, but it's beyond our control," Cruikshank said.

As she tried to console Cruikshank, faculty advisor Gerarda Shields said the team still had "made a very proud showing.... We took an adverse situation, and we turned it into a positive."

<http://www.latimes.com/news/local/valley/la-me-bridge27may27,1,5068337.story?coll=la-editions-valley&ctrack=1&cset=true>