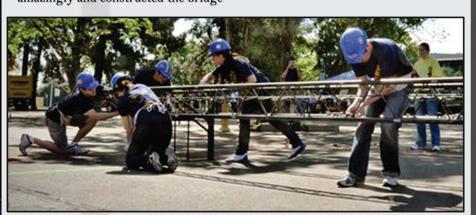## UPDATE ON LAST YEAR - by Forrest Zhang

It is a new year, and along with a new year comes a new bridge. However, before focusing on the year ahead, it is important to look back on a year's efforts and evaluate what went right and what went wrong.

We will first begin with the good: last year we experimented with a couple of innovative design concepts that worked out extremely well for us at our Regional Competition. One such change was a new bridge design unexplored by the UCB Steel Bridge Team. We made the switch from our typical 'underach' bridge to what we called a 'superdeck' bridge, and were quite pleased with the results. At the Regional Competition held in April, we took first place in five out of the seven categories: Construction Speed, Efficiency, Economy, Display, and Overall. This advanced us to compete in the National Competition held at Texas A&M University in College Station, Texas this past summer.

At the National Competition, everything started off very hopeful. Our construction team performed amazingly and constructed the bridge

a blazing 3:56 – a full 45 seconds ahead of the next fastest team in the competition. However, we ran into an unfortunate (and somewhat inexplicable) complication during the lateral load test: the sway of the bridge when loaded laterally exceeded that which was considered adequate by the rules. We were disqualified; without the aforementioned disqualification, we would have certainly been one of the top three universities in the nation.

It is important that we learn from last year's failure in addition to its successes. Our superdeck design worked out fairly well, and this year we have employed many of its elements in a similar design to be considered for the final bridge design. Furthermore, we are enforcing a stricter factor of safety on the lateral load test in order to increase the quality of our bridge and better control its behavior given unsatisfactory site conditions. And although our performance at nationals last year was disappointing, we will come back stronger than ever: we will make up for it this year!

IMPORTANT FACTORS IN DESIGN

1. Lightness: Weight is an incredibly important factor in the overall efficiency of our bridge. This year, each pound is worth $10,000 – essentially weight is 2.5 times as important as it has been in previous years.

2. Stiffness: Both lateral sway and vertical deflection play a key role in the success of the structural integrity and efficiency of each bridge. Lateral sway cannot exceed ½" and each inch of vertical deflection is worth $1,000,000.

3. Construction Speed: The most variable part of the competition is usually the construction speed. Time is Money, literally: each minute of construction is multiplied by the number of builders (counted as a 'builder-minute'), and each builder-minute costs us $50,000. Yikes! This year, as always, our construction team will rock it. We're going for the Gold.

HOSTING MIDPAC AT CAL
- by Zak Habash

UC Berkeley will be hosting ASCE's Mid-Pacific Conference March 22-24, 2012. Mid-Pac has been held annually since the 1940's and has grown to include fifteen schools in the Pacific Northwest. At Mid-Pac, Civil & Environmental Engineering students demonstrate their leadership and technical knowledge in a number of areas. Competitive teams include Concrete Canoe, Geo-Challenge, Steel Bridge, Transportation, and Water Treatment.

For the Steel Bridge Competition, each school will display their bridge for aesthetics judging along South Hall Road - directly west of UC Berkeley's historic Sather Tower. The main segment of the competition will take place in front of the Doe Memorial Library.

In addition to the competitions, there will also be opportunities to mingle with fellow civil engineering students. Some of these activities will include volleyball games, concrete bowling, and ultimate frisbee. For those of us who are out of shape, let's hope this will not be hosted on the slope of Memorial Glade!

NEW MEMBER PERSPECTIVE - by Henry Sweat

Like all rooms of the civil engineering building, the room I entered smelled a little funny and barely contained the basic essentials of a classroom. I walked in early and sat down near the back, waiting for the Steel Bridge Team to enter so that the first meeting of the year could commence. When the meeting started, the team immediately jumped into talking about building a 23 foot-long bridge made of steel. For me, this was weird. Generally when I talk about bridges, my friends roll their eyes and change the subject to the latest drama between Brad Pitt and Angelina Jolie. Now, I was surrounded by people who not only wanted to listen to what I had to say, but were

excited by it. Inspired, I signed up. Less than a week later, I was taught how to build a simple bridge in AutoCAD. The day after, I learned how to cut steel in the morning and how to draw a part in SolidWorks in the evening. One week afterward, I became acquainted with the program SAP2000, and tested the bridge I had built in AutoCad the week before. It was a whirlwind of learning that took place at a breakneck speed that could only be fueled by enthusiasm. To date, I feel like I have learned more useful skills and information in Steel Bridge than in all of my liberal arts classes combined, and the craziest part is that it has only been a month.

The Student Steel Bridge Competition is an annual contest that challenges engineering students to design and fabricate the most structurally efficient, economic, stiff, and light bridge. This important competition offers future civil and structural engineers the opportunity to show their skills in steel design, steel fabrication, and teamwork. For years, the Cal Steel Bridge Team has shown excellence, commitment, and achievement. Go Bears!

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