MSU Students Excel at the Associated Schools of Construction Region 6 Competition

Montana State continued its excellent performance record at the Associated Schools of Construction Region 6 competition again this year, winning the Heavy Civil team competition for the second time in three years. Through a combination of extensive academic preparation, practical experience gained through summer internships, and plain old hard work, they have established Montana State as the team to beat in the Region 6 competition. Region 6 encompasses the Rocky Mountain States, and participating teams in the Heavy Civil competition included Colorado State, Arizona State, Boise State, BYU, and eight other universities. As the Heavy Civil team proved in 2008 when they took second at the AGC National Competition - this team has the potential to be the best Heavy Civil team in the nation. Unfortunately, they will not have the opportunity to demonstrate their talent since there will not be an AGC National Competition this year due to financial constraints.

Nineteen MSU Construction Engineering Technology and Civil Engineering students met at 7:00 AM every Wednesday morning during Fall Semester. They also participated in three full-day weekend workshops as part of their preparation for the ASC Region 6 competition. This is the first year that MSU has conducted a formal class to prepare for the Region 6 competition. Extensive classroom and weekend workshop support was offered by Scott Keller, Montana Department of Transportation; Ron Holden and Phil Martin, Barnard Construction; Archer Western Constructors; Kiewit Construction; and Bob Heberly and Marty Schuma, Dick Anderson Construction.

Montana State fielded three teams in the Region 6 competition. All three teams received a set of plans and specifications at 6:00 AM and had to submit their detailed bids/proposals by 10:30 that night. The following day the team had to make a 20-minute presentation explaining their approach to the project, followed by a 15-minute question-and-answer session.

The Heavy Civil Team consisted of Bryant Robbins (Co-Captain), Sam Hensler (Co-Captain), Nik Grout, David Anderson, Chelsea Hutten, and Kyle Laborda. Their problem was presented by Kiewit Northwest, and consisted of $20 million modifications to an in-service remote Alaskan airport runway.

The Marine Construction team consisted of Brandon Nowlan (Captain), Justin Whitworth, Isaac Flemmer, Greg Yperman, Kirstyn Young, Steve Bakker, and Brett Aune. Their problem was presented by Kiewit Bridge and Marine, and consisted of a $40 million concrete flow diversion wall downstream of The Dalles lock and dam on the Columbia River.

The Commercial Construction team consisted of Ashley Lippincott (Captain), Jason Arrowsmith, Duane Hansen, Riley Bennett, Kyle Boyd, and Bryce McLaren. Their problem was presented by Mortenson Construction, and consisted of an $80 million twenty-two story, luxury condominium project in downtown Denver.

All three teams performed extremely well during the competition.

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Sanderson stays connected to the school he loves

When Michael Sanderson was a civil engineering student at Montana State University in the early 1990s, he didn't have a lot of spare time for extracurriculars. In addition to the demands of academic life, he had a trombone scholarship to maintain. Thanks to classes and his musical obligations, most of Sanderson's time was spent either studying or practicing.

In the years since graduation, Sanderson has more than made up for any lack of campus involvement. Between his responsibilities as principal and managing director of Billings-based engineering firm Sanderson Stewart, he serves on boards and committees across the university, including the Museum of the Rockies and College of Engineering's Advisory Board. Most recently, he was named to the board of the MSU Alumni Association.

"When you go to school, you're pretty focused on passing your classes and being a successful student," said the 38-year-old businessman. "I don't know if I really realized the connection I was building with this place."

A native of Billings, Sanderson has always had some connection to MSU. His father, Robert, mother, Pamela Powell Sanderson, and brother, Mark, all hold degrees from MSU. Even his wife, Sara Sherman Sanderson, holds an MSU degree, a master's in chemical engineering. Even with all that Bobcat spirit floating around the house, it was less MSU fervor and more a desire to build the foundation for a solid career that brought Sanderson to Bozeman.

"I can't go back and say I was strong in math and science and that engineering really appealed to me," he said. "I was drawn toward engineering because, for me, it seemed like a viable career."

After earning his bachelor's degree, Sanderson wasn't sure that he wanted to pursue engineering and even considered law school in Missoula. But Ted Lang, head of the civil engineering department at the time, convinced Sanderson to stay at MSU and earn his master's. Two years later with his second degree in hand, Sanderson went back to Billings to work for Engineering Inc., the company his father helped start in 1969. Years later, his father semi-retired, and Sanderson took over the business, which was renamed Sanderson Stewart in February. The new name reflects a new approach to the industry while embracing the company's heritage, and Sanderson said he's excited to take the business in new directions.

"It's more than just engineering now," Sanderson said, noting that over the past few years, the company has expanded into areas such as landscape architecture, community planning and sustainable design. "We're really retooling for the future," he said.

MSU alumnus Michael Sanderson poses in Bobcat Stadium on the new turf his company, Sanderson Stewart, helped to make a reality. (MSU photo by Kelly Gorham)

Along with his service on committees, Sanderson has found other ways to give back to MSU. His company provided engineering expertise to help MSU install new turf at Bobcat Stadium, and two years ago the company helped install a global positioning satellite station on campus. The station lets students, researchers and even the public find very precise coordinates for almost any spot in the valley.

"It was a great opportunity to partner with the university," Sanderson said.

"Michael is a great asset to the university," said Robert Marley, dean of the College of Engineering. "You get a sense that not only is he engaged in the technical aspects of what's going on in engineering, but he also wants to see MSU succeed."

Sanderson Stewart also benefits from its partnerships with the university. All but three of the company's engineers graduated from MSU, and Sanderson said the company is actively recruiting more MSU grads. Sanderson Stewart also funds an annual scholarship for civil engineering students. Sanderson has no plans to slow down his involvement with MSU, so long as he can find the time for it. Staying involved, he said, helps him feel connected to MSU and Bozeman, and those are connections he cherishes.

"I've been able to maintain a connection to MSU and this place I love," he said. "I've been able to enjoy this place at another level than when I was just going to school here."
Dear Alumni and Friends,

Hello from Cobleigh Hall.

I just completed senior exit interviews with graduating Civil Engineering and Construction Engineering Technology majors. In past years, this meant meeting with enthusiastic groups of young men and women who were excited about embarking on their careers. This year, unfortunately, the tone of the conversation was more subdued. The state of the economy has made it much more challenging for our graduates to find the jobs that will launch their careers. Obviously, the state of the job market will not surprise the readers of this newsletter. I know that some of you have lost jobs. I also know that many are struggling to maintain work volume. While the recovery seems to have occurred for the executives at Goldman Sachs, most of the rest of us are waiting for better times.

Higher education has been impacted by the weak economy too. State revenues are down, budgets are being cut; higher education is not exempt from the pain. Curiously, during economic hard times, demand for higher education increases. More students pursue bachelor and master degrees in order to make them more competitive in a tight job market. Laid-off workers return to school to pursue degrees that will prepare them for new careers. Thus, universities are asked to produce more and better quality graduates with fewer resources. Again, I recognize that all of you face similar challenges.

So let’s shift this glass from half empty to half full. What positive advice can we provide students in this job market? What positive things can we do as a department to enhance student competitiveness in this job market? First, I recall a discussion I had with a student recently. This student was a member of the MSU team that placed first in the Heavy/Civil competition in Reno (see the article on the front page of this newsletter). While generally excited about the experience, the student stated that the work effort was disproportionate to the amount of academic credit received (1 credit hour). I asked the student how many of the students on the team had job opportunities. The answer was, “all of us,” and I responded that it looks like the effort has been rewarded. So a piece of positive advice to all our students is to look for opportunities to extend their education beyond the required curriculum, as doing so will allow you to be better prepared to enter the workforce and more attractive to potential employers. With respect to the department, the current economic climate behooves us to develop these opportunities for students and also to look for ways to improve our curriculum in a fashion that results in students who are more competitive, more “shovel ready”, more able to quickly make a positive contribution as part of an employer’s team.

This will be challenging, especially since we are called to do so with a diminishing resource base. I believe that the Civil Engineering department is up for the challenge. If you are interested in contributing to the team, please call me, we’ll talk.

Signed,

Heavy civil team (cont.)

Although neither the Marine team nor the Commercial team were fortunate enough to place this year, the Heavy Civil team realizes that they will now be the team to beat at future competitions. When the Kiewit judging team leader presented the traveling trophy that goes with winning first place, he stated, “There is only one team that has won this trophy three times before - and now they have won it for the fourth time - Montana State!”

In conjunction with winning the Region 6 Heavy Civil competition this year, the Beavers Charitable Trust (the Beavers are an association of Heavy Civil construction companies primarily located in the western United States) presented the Montana State Construction Engineering Technology program with a $12,500 scholarship endowment. These funds will be used to provide scholarships to deserving MSU CET and CE students who participate in the Region 6 competition.

One factor that contributed significantly to the potency of the Heavy Civil team was the fact that all six members had participated in at least one Summer Internship during their college career. These Summer Internships give them a “Real World Application” when they sit down cold with a brand new set of plans and specs, and contributes immensely to their success. The experience gained during the Summer Internships enables them to visualize the project, to determine the major challenges and risks associated with the project, and to develop a solid approach to getting the project completed.

Post this link in your web browser to watch a video of the Glulam Beam breaking at -40°C!

http://www.youtube.com/watch?v=KFtmU0oaBa4
Ross Tichota, a PhD student in the Applied Mechanics option of Civil Engineering, is studying snow's dynamic response to explosive charges. Frequently, explosives are used to control avalanches over public transportation corridors and within ski area boundaries. There has been little research into explosive effects on snow and there are currently no analytical tools to help practitioners enhance their effectiveness. Ross and his advisor, Dr. Dan Miller, are building a comprehensive test and analysis program to better understand snow dynamics and quantify the phenomenology. During the 2010 winter, they conducted several experiments at Bridger Bowl Ski Area, measuring snow's acceleration and the explosive blast pressure at various locations using multiple explosive charges.

Coupling field experiments with computational modeling, Ross seeks to understand what is happening “inside” the snow and use that knowledge to enhance avalanche control results. Using an explicit dynamic computer code, the complex interactions of solids and gases in a nonlinear explosive environment can be simulated and snow responses predicted. By optimizing the charge placement to the particular snow and topography, ski patrollers and highway/transportation crews will be better equipped to control dangerous slopes.