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A Career in Innovation | College of Engineering

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Civil Engineering Alum Keeps Industry, University Connected

Oct. 10, 2016 – If you want to see Bruce Brothersen's portfolio, just look up. His life's work is built into the structures that make up our communities, spanning the schools, office buildings and aircraft hangars that keep the economy ticking.

The Layton, Utah, native came to USU for an undergraduate degree in the 1980s and quickly decided that engineering was a good fit.



Colton Kilmer, left, and Bruce Brotherson at the Vulcraft plant in Brigham City, Utah.

"I've always been fascinated by buildings and the construction process," he said. "After my first quarter I knew civil engineering was the right choice for me."

Brotherson earned a bachelor's degree in civil engineering in 1986 and has since kept close ties with USU and the Department of Civil and Environmental Engineering (CEE). Today, he's the Engineering Manager for Vulcraft in Brigham

City, Utah. Vulcraft is the largest open-web steel joist and joist girder manufacturer in the country and a strong supporter of USU's College of Engineering.

The company is a division of Nucor and operates seven Vulcraft plants from upstate New York to Utah with hundreds of employees including seven USU engineering alumni at the Brigham City plant and interns in Nebraska and Indiana. Brothersen has been with the company for 29 years. His innovative drive has led to several new products and given Vulcraft a competitive edge.

"The thing I do best is develop new products," he said in a recent interview. "It takes a number of people with various areas of expertise; it takes research and development, and it takes a customer willing to buy the finished product."

Brothersen and his associates have developed several variations of truss designs including a new truss system called *TrussFrame* that spanned 360 feet – wide enough to accommodate a football field. That system was installed at a new SkyWest Airlines maintenance hangar in Boise, Idaho, that opened last year. The impressive structure can accommodate several regional jets. Next, the Nucor companies have developed and sold a *TrussFrame* system that spans an unimaginable 400 feet for a soon-to-be-built indoor practice facility for Real Salt Lake.

Brothersen also designed the scissor truss system in the Jim & Carol Laub Indoor Training Center, and Vulcraft has supplied products in several USU buildings including the new Aggie Recreation Center, the Wayne Estes Center, and more.



Tysen Johnson, left, and CEE alumnus and Vulcraft Engineering Manager Bruce Brothersen. Johnson joined Nucor's Vulcraft division after interning with the company as a USU Engineering student.

As part of his ongoing commitment to Utah State University, Brothersen also works with CEE researchers to develop new designs and products. He's currently working with CEE Assistant Professor Dr. Marc Maguire on a study that will help Vulcraft launch a new truss and decking system.

"We do the actual physical testing here at our plant, and Dr. Maguire and his students do the number crunching," he explained. "It's a great partnership for us and for the engineering students who are part of the research."

Vulcraft also employs several interns from the College of Engineering including Colton Kilmer who came to USU after attending Engineering State – an engineering summer camp for high school students hosted by USU and sponsored by Nucor.

Brothersen says keeping in touch with his alma mater helps him inspire future engineers and creates new opportunities for his industry.

“It always comes down to people,” he said. “The faculty and staff at USU are good people who care about students and who want to help others. That’s the reason I’ve stayed connected through the years. And being involved with E-State and hiring interns has given us the opportunity to hire good people. Every company needs good people.”

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