Topping out the first wall specimen
Dear Friends,

Welcome once again to CEAE Update. This past year has been truly extraordinary, and the coming year looks to be even more promising.

Of special significance is the completion of the new engineering complex on main campus. As described in the article on More New Spaces, we will have access to four new laboratory facilities in the new Engineering building, known as LEEP2 (for Learned Engineering Expansion Phase 2), including three Architectural Engineering teaching laboratories, the Illumination Instructional Laboratory, the Building Thermal Science Laboratory, and the Building Mechanical and Electrical Systems Laboratory, and the long-anticipated Environmental Engineering Teaching Facility. A fifth lab, housing a state-of-the-art Driving Simulator will be added this academic year. LEEP2 also houses cutting-edge classrooms that emphasize student engagement. I’m proud to say that the CEAE Department serves as a leader in innovative teaching.

LEEP2 joins the Structural Testing Facility and the new Concrete Lab in Learned Hall, highlighted in last year’s issue. Our faculty and students are making excellent use of these key additions to the Department and School of Engineering. In addition, we are celebrating the opening of our new Asphalt Laboratory and an updated computer lab in Learned Hall.

We are pleased to include a profile of alumnus Bill Zahner, who leads the A. Zahner Company in developing innovative solutions for building construction and architectural cladding. Our student spotlight is placed on Roberta (Bobbie) Wells, who as you will see has an extraordinary story.

We are especially pleased to be adding five new outstanding faculty members to the CEAE family: assistant professors William Collins, Ph.D., Matthew Fadden, Ph.D., and Elaina J. Sutley, Ph.D., each with specialties in structural engineering. Assistant professor Joshua Roundy, Ph.D., will focus on water resources, and Professor of Practice Michael Panethiere will focus on building power and construction management. Please be sure to read their bios on pages 8-9.

Our Ph.D. enrollment has reached 52—setting a record for the second year running. At 98, our Master’s enrollment has also been strong, and we are looking forward to the increased enrollment for the coming semester.

All this is happening as we celebrate KU’s 150th Anniversary.

It is both an honor and a pleasure to be associated with the CEAE family, our students, alumni, faculty, and friends. Thank you for your continued support to the KU Civil, Environmental & Architectural Engineering Department.

Sincerely,

Dave Darwin
Deane E. Ackers Distinguished Professor
and Department Chair

FAST FACT

Civil engineering is the oldest engineering program at KU. The first graduating class in 1873 included a civil engineer.
CEAE Update is published annually by:
The Department of Civil, Environmental & Architectural Engineering at
The University of Kansas

Department Chair
David Darwin, Ph.D., P.E.

Editor
Susan B. Scott

Art Direction and Design
Chris Millspaugh Design

Comments, suggestions, or address changes may be emailed to sbscott@ku.edu or sent to our address below.

2150 Learned Hall
1530 W. 15th St.
Lawrence, KS 66045

ceae.ku.edu

CEAE Update is published annually by:
The Department of Civil, Environmental & Architectural Engineering at
The University of Kansas

Department Chair
David Darwin, Ph.D., P.E.

Editor
Susan B. Scott

Art Direction and Design
Chris Millspaugh Design

Comments, suggestions, or address changes may be emailed to sbscott@ku.edu or sent to our address below.

2150 Learned Hall
1530 W. 15th St.
Lawrence, KS 66045

ceae.ku.edu

ON THE COVER
Topping out the first wall specimen in the West Campus Structural Testing Facility
Students (l to r) Shahedreen Ameen, Alex Weber-Kamin, Drew Hagin, Amin Najvani, Sajed Huq (team leader)

Photo by Andres Lepage

CONTENTS

2 News & Notes
4 More New Spaces
7 Student Spotlight
8 Faculty Feature
10 Alumni Profile

Celebrate 150 Years of KU
**FACULTY UPDATES**

**Jie Han** was named an American Society of Engineers (ASCE) Fellow. The honor is held by fewer than 4 percent of ASCE members. Han’s design methods and research results have been widely adopted or cited in the field of geosynthetics, ground improvement, and roadway design. Professor Jie Han was also awarded the Fumio Tatsuoka Best Paper Award by the Transportation Infrastructure Geotechnology Journal, at the Geosynthetics 2015 Conference in Portland, Oregon and he was selected to receive the 2014 Associate Editor of the Year Award for the *JGGE*. (Journal of Geotechnical and Geoenvironmental Engineering). His textbook Principles and Practice of Ground Improvement was published in June 2015.

A research project from Associate Professor **Steve Schrock** that evaluated traffic safety in short-term work zones was recognized in 2014 with the “High Value Research” designation by the American Association of State Highway and Transportation Officials. Schrock was invited to highlight the research during a special poster session at the 94th Annual Meeting of the Transportation Research Board, in Jan. 2015 in Washington D.C. The objective of Schrock’s research was to investigate and evaluate the usage and effectiveness of innovative traffic control devices that can be used in short-term work zones.

**Belinda Sturm**, Associate Professor in Environmental Engineering receives recognition in the KU Chancellor’s Report on her study of the connection of algae and biofuels.

**Bob Lyon**, Professor Practice received the 2015 Henry E. Gould Award for distinguished service in undergraduate engineering advising.

Distinguished Professor **Dave Darwin** released the 15th edition of the text, Design of Concrete Structures.

**Mario Medina** published in the December, 2014 issue of the Construction Specifier Magazine. This magazine is the only peer-reviewed U.S. publication targeted to those professionals who select, recommend and influence buying decisions. It is the official magazine of the Construction Specifications Institute. (CSI)

Dr. Medina was invited to serve as a judge at this year’s KIPP Endeavor Academy’s Science Fair. He was assigned to judge science projects from the Academy’s 6th grade class. KIPP Endeavor Academy is a network of free, open-enrollment, college-preparatory charter schools with a track record of preparing students in underserved communities for success in college and in life.

**Jie Han** was recognized for a high number of manuscripts handled and very low average turnaround time for over 12 years. He was presented with the award during the G-I (Geo-Institute) business meeting in San Antonio in March, 2015.

Professors **Remy Lequesne, Andres Lepage, Robert Parsons and Belinda Sturm** were selected as the 2015 Miller Scholars, and Professors **Caroline Bennett** and **Jie Han** were selected as the new 2015 Bellows Scholars by the School of Engineering.

The Foundation for Electrical Construction Inc., ELECTRI International, has named a fellowship in honor of a long-time educator in KU’s Civil Environmental and Architectural Engineering Department who passed away in 2014. The recipient of the annual ELECTRI Early Career Award will be known as the **Thomas E. Glavinich Fellow**. Rogelio Palomera-Arias of the University of Texas-San Antonio was named the first Thomas E. Glavinich Fellow in 2014. Glavinich died in April 2014, of cancer. He was 62. He had been a full-time faculty member at KU since 1992.

**STUDENT UPDATES**

**Mehari Weldu**, an MS student was selected as one of three winners of the Araquari prediction event. This international event attracted 72 worldwide participants, including many famous professors and engineers. The scientific committee was formed by the most famous professors and engineers in the area of pile foundation research and practice.

**PCI (Precast/Prestressed Concrete Institute)** announced the 2015 Engineering Student Design Competition, also known as the Big Beam contest results. The KU team of **Allie Wagner, Cheng Chen, Jie Wu, Andrew Haase, Ali Abdul Baki, and Madan Neupane** placed 2nd overall with an award of $1500. Fifth place team winners were **Michael Whitten, Kevin Garrett, Mohammad Bazzaz, Michael Sang, Mona Khosh, and Parisa Asadollahi**, with an award of $1000. A $500 Award went to the 12th place team of **Abdulaziz Almarshad, Yaseen Ameen, Jessica Galvis, Xiangxiong Kong, Donald Spradling, and Madison Stratman**. Professor Robert Lyon was the faculty advisor for all three KU teams.

**Shaymaa Kadhim**, a Ph.D. student co-advised by Drs. Parsons and Han, won 3rd place for the student poster competition at the Kansas City Geotechnical Conference on April 23.

**Xiaohui Sun** and **Jun Guo** took 2nd Place in GeoVideo along with **Shaymaa Kadhim** and **Rand Khalil** who took 2nd Place in GeoPrediction at the 2015 IFCEE in San Antonio.

The KU GeoWall team formed by **Yan Jiang, Jamal Kakrasul, Greg Overmhole**, and **Rand Khalil** was selected as No. 6 among 28 teams this year with $1000 travel grant. They attended the 2015 National GeoWall Competition. This is the 8th time for our KU team to be invited to this competition.
Ph.D candidate Yan Jiang was awarded a $5,000 GSI fellowship grant for the 2015-16 academic year, for his research proposal “Evaluating the Performance of Hybrid Geosynthetic Reinforced Earth Walls.”

Payam Poorsolhjouy, a Ph.D. student of Prof. Anil Misra, won 3rd Place for competing in the Dr. Masao Satake Memorial Symposium on Granular Mechanics student poster competition at the ASCE Engineering Mechanics Institute conference held at Stanford University in June 2015.

Undergraduate ARCE students Audrey Danser (UG) and Jeehwan Lee (G) won awards from the National 2015-2016 Robert J. Besal Fund Scholarships in the amount of $5000 and $2000 respectively.

McNair Scholars Award was given to PhD candidate Donald Spradling and undergrad Theresa Amante.

2015 Ph.D. graduate, Lindsey Yasarer was awarded 1st prize in KU GIS Day 2014 Student Competition. The title of her presentation was: Using ArcGIS to Extrapolate Greenhouse Gas Emissions on the Pengxi River, a Tributary of the Three Gorges Reservoir in China”. She was awarded with a certificate and $300.

Hemin Jalal Mohammed, Ph.D. student in transportation, was awarded 3rd place for “Student Competition and 3rd Annual Best of ITS Project Award” at the 2015 ITS (Intelligent Transportation Systems) Heartland Annual Meeting which was held in Omaha/La Vista, Nebraska.

Rachel Swezy and Hyun Jung Lee (M.S. students in Env. Engr.) were awarded the Ross McKinney Scholarship, established in honor of Professor Ross McKinney upon his retirement from KU in 1993.

The Tolaney Family Scholarship, was awarded to Roopa Matole and Babak Mardan-Doost (2015 M.S. graduates in Env. Engr.) The scholarship was established by Murli Tolaney (B.S.C.E., 1969; M.S., Env. Engr., 1971; Chairman Emeritus, MWH Global, Inc.) and his family.

The Stoltenberg Scholarship, established by his children in honor of former KU professor Howard A. Stoltenberg on his 90th birthday, was awarded to Jennifer Warren and Duncan MacLachlan (B.S. students with an environmental engineering concentration).

James Coll (M.S. student in Env. Sci.) was awarded The Leaman D. Harris Scholarship, established by Mr. Leaman D. Harris (B.S. Geol. Eng., 1960; M.S. Geology, 1963) and his wife, Dr. Judith L. Harris, to support meritorious CEAE graduate students with preference given to students who participate in interdisciplinary research to advance or sustain biodiversity.

The Bruce W. Long Scholarship, sponsored by WesTech, Inc., to commemorate the outstanding career of Bruce Long upon his retirement from Black & Veatch in May of 2013 (awarded each year to a full-time graduate student who has demonstrated leadership and caring for the welfare of others) was awarded to Matt Herynk (M.S. student in Env. Sci.).

The Shirley Coles Memorial Scholarship, established by the Kansas Water Environment Association to honor the memory of Shirley Coles was awarded to Brett Wagner (2015 scholarship) and to Emily Cook (2014 scholarship). Both were B.S. students with an environmental engineering concentration.

The American Council of Engineering Companies (ACEC) selected Cody Porter to receive one of its eight national scholarships at the 2014 ACEC Fall Conference in Hawaii. The $5000 scholarship also included an all-expense-paid trip to the Hawaii conference.

American Public Works Association, Kansas section awarded Tom Vance (UG) and Michael Kopper (UG) each a $1000 scholarship.

The KU Student Chapter of ASCE has been selected by the Committee on Student Members to receive a Letter of Honorable Mention for its outstanding activities as recorded in the 2014 Chapter annual report. This is recognition received by only the top third of all Student Organizations.

Xiangxiong Kong, Structural Engineering PhD student who is advised by Prof. Jian Li, received a $2000 scholarship from NSF to attend the 2015 Asia-Pacific Summer School (APSS) on Smart Structures Technology in University of Illinois at Urbana-Champaign this summer.

Kim Jackson had her presentation proposal accepted to the 11th KUPD (KU Professionals for Disability) Graduate Student Research Conference held on March 6th, 2015.

Tom Vance (Civil BS) and Michael Kopper (Civil BS) each received a scholarship award of $1000 from the Kansas Section of the American Public Works Association.

Jeff Neemann was selected by the KU faculty at the KU Environmental Engineering Conference to receive this year’s J. Lloyd Barron Award in recognition for outstanding student in the Environmental Engineering and Science graduate program.

KU Concrete Canoe finished 4th of 13 teams, and took trophies for 1st in design paper and 3rd in men’s endurance.

KU Steel Bridge competed and won overall 2nd place at the KU hosted ASCE Conference. They finished in 44th place at Nationals.
MORE NEW SPACES

State-of-the-art equipment combined with sophisticated labs and functional work spaces are now a reality at the University of Kansas School of Engineering. With the opening this fall of our newest building, Learned Engineering Expansion Phase 2 (LEEP2), and the employment of the West Campus Structural Facility, we have what we hoped for: stronger research, engaging workspaces and high visibility on the academic and professional stage. These are now the benchmarks of the Civil, Environmental & Architectural Engineering Department.

By Emily Mulligan

Photo by Susan B. Scott
LEEP2
The School of Engineering’s newest building is home to five new labs for the Civil, Environmental & Architectural Engineering (CEAE) department. The labs, for transportation, lighting, architectural, electrical and environmental engineering, will provide instructional and research space for undergraduates and graduate students.

**Transportation**
Using a new Driving Simulator, researchers will now be able to re-create traffic and road conditions in a virtual driving environment. The simulator looks like an actual car. It has large, high-resolution screens in front and behind.

“We can replicate driving in a virtual environment. Before, we didn’t have a way to simulate the driving experience,” said Alexandra Kondyli, an assistant professor in Transportation Engineering. Kondyli said that the simulator can help researchers study how driving varies within the population; test different geometries of intersections and ramps; and test different driving technologies, such as message boards and signs – to name a few.

“We need something that allows drivers to feel like they are actually driving a car and not just playing a game. Having the car and the big screens, that is going to generate good, valuable research,” Kondyli said. The simulator was funded by the department and private donations.

“Not many schools have something similar. This will increase our visibility and increase collaborations with other universities and lead to big projects,” Kondyli said.

**Lighting**
The Illumination Instructional Laboratory expands lighting education for CEAE students. Most notably, the lab has large glass windows that provide natural lighting, allowing for illumination testing with any combination of electric and natural light. Prior to the opening of this lab, Hongyi Cai, an assistant professor in architectural engineering, often rigged up his office or a temporary space for student research, or he built lighting structures and took them outside. “I can now actually show them instead of relying on a computer simulation,” Cai said. “I think I can teach better, and the students can learn better.”

Curtains divide the space into smaller areas that have features such as adjustable-height ceilings and power tracks on the ceiling for mounting lighting fixtures. The lab will be used for both teaching and research and will allow students to investigate real-time lighting effects.

**Building Mechanical & Electrical Systems**
The Building Mechanical & Electrical Systems Laboratory is approximately three times larger than the previous laboratory space and will accommodate bigger classes as well as close-up inspection of actual building systems at work. It will allow for teaching HVAC, energy, solar, plumbing/piping, controls, fire protection and power courses using multimedia electronics and electrical components. “The lab ceiling was intentionally left exposed for teaching purposes,” said Brian Rock associate professor in architectural engineering. “The lab will allow students to apply their classroom training to actual power distribution systems,” said Michael Panethiere, Professor of Practice in architectural engineering.

**Thermal**
For the first time, students in the new Building Thermal Science Laboratory will have experiments to accompany each module of the course.

Mario Medina, associate professor in architectural engineering and department associate chair, said KU is one of the few programs in the country that provides firsthand experience in similar courses. The 700 square foot teaching lab has controls to bring heat in and out, as well as overhead power. “Students will study how energy in the form of heat enters and leaves a building through the building enclosure. They will do experiments that measure conduction, convection and radiation heat transfer using both steady state systems and transient systems. These experiments really help bridge the gap between the theory, as presented in textbooks, and real experience,” Medina said.

**Environmental**
The new flexibly designed Environmental Engineering Teaching Facility will allow for broader collaboration among all students who study environmental engineering. “It will help us to break down departmental barriers to have space that we share with Chemical Engineering,” said Belinda Sturm, associate professor in environmental engineering. “We plan to have several bio reactors operating and demonstrations in permanent settings. The lab, with a flexible wet laboratory setup that includes chemical hoods, absorption columns and six group lab
stations, will be home to coursework in wastewater engineering, air pollution, biological principles and water chemistry. Sturm said that the new space will allow for long-term experiments in the lab, as well as demonstrations for classes that do not have lab components.

**WEST CAMPUS STRUCTURAL TESTING AND STUDENT PROJECTS FACILITY**

The Structural Testing and Student Projects Facility enters its second year of operation this fall. Engineering faculty and students are experiencing the full benefits of the building and research opportunities have expanded.

With a strong floor that can support 100,000 pounds every three feet and a 40-foot-high L-shaped strong wall as two of its prominent, state-of-the-art features, research has never loomed so large – literally – in the CEAE department. “The 10,000 square foot structural floor became available last fall and we started filling it up right away,” said Distinguished Professor and CEAE Department Chair Dave Darwin. Several major projects are underway, capitalizing on the availability of space and the advanced instrumentation of the facility.

Darwin is in the fourth year of a project for the Electric Power Research Institute and other industry sponsors, investigating anchorage of high-strength reinforcing steel in concrete.

Industry members of the Concrete Reinforcing Steel Institute are providing monetary as well as significant material support for the project, which has investigated hooked and headed bars as ways to anchor high-strength reinforcing bars to concrete, as well as reducing concrete congestion by using less reinforcement. “This research represents a significant contribution to the field. One of the long-term goals of this research is to create new code provisions that reflect the behavior of newer higher strength materials”, said Matt O’Reilly, assistant professor in CEAE. The next part of the project, to be completed by August 2017, will involve shear reinforcement.

Darwin said he appreciated the funding that has led to so many CEAE projects in the facility right out of the gate and the opportunity to involve so many students in large-scale research. “Forty percent of undergrads in the department participate in research during their career at KU. In a typical year, just on my projects, we employ 40 undergraduates,” Darwin said.

As part of the Charles Pankow Foundation’s targeted research to update the American Concrete Institute’s Building Code Requirements for Structural Concrete, CEAE Associate Professor Andres Lepage and CEAE Assistant Professor Remy Lequesne are testing the effects of reducing concrete reinforcement in flanged walls with the use of high strength steel reinforcing bars. Two 30-foot tall, 10-inch thick flanged concrete walls are under construction. They have replaced conventional-strength steel with high-strength, allowing them to use one-half the amount.

The walls will be subjected to simulated earthquake loading using up to 400,000 pounds of force, applied using the facility’s strong wall. The force will be applied at a height of 25 feet, while the base footing is anchored to the facility’s strong floor. “The potential applications of the research will benefit the construction industry,” Lepage said. “There is less rebar to cut, bend, deliver, and install, reducing rebar congestion and speeding construction.”

A group of industry sponsors led by the Charles Pankow Foundation is funding the project. Their commitment demonstrates the value of the new Structural Testing Facility. “We would not have even been able to compete for this project if not for this facility. It is exciting, because this scale of testing gives a realistic sense of how structures behave. It’s also a great opportunity to get more students involved and exposed to how structures are built,” Lequesne said.

Shake tables, which measure how structures perform under seismic loading, are the tools for Assistant Professor Jian Li’s research into how to use wireless-sensor technology immediately after an earthquake to monitor structural integrity and aftershocks.

The research involves using an academic prototype of a wireless sensor, for which Li helped develop the software. Li is employing the facility’s strong floor to secure the Department’s shake table and is taking advantage of the facility’s centralized pump system to support multiple actuators.

The wireless-sensor technology allows an engineering team to immediately deploy sensors after an earthquake. Engineers are then able to determine the condition of the structure as it weathers aftershocks.
Non-Traditional Perseverance
By Susan B. Scott

After three colleges and eight years, 2015 civil engineering graduate Bobbie Wells is a shining example of how hard work and dedication can pay dividends.

Bobbie Wells possesses a drive to succeed like few others. As a first generation college student, her unique path to a civil engineering degree from the University of Kansas School of Engineering is a source of pride for her and inspiration to others.

Wells, a native of Ethete, Wyo., and a member of the Northern Arapahoe tribe, is a 2007 high school graduate—and the first person in her class to earn a college degree. In the eight years since, she managed her life with two goals: become an engineer and give back to the Native American people.

Wells is the oldest of 11 children, raised by an inspiring grandmother. Growing up on the Wind River Indian Reservation, she was a good student and an avid basketball player. “The whole community looks forward to basketball,” Wells said—and basketball is how she first heard about KU. This soon became a desire to become a student but she was unsure how to make it become a reality. Wells began formulating a plan to reach her goal. Her desire was strengthened later in her high school career while serving on a student panel interested in Native American education. A recruiter from KU took the time to speak with her, which Wells said made becoming a Jayhawk seem achievable.

With KU as the ultimate goal, Wells began her college career at nearby Central Wyoming College, in Riverton, Wyo. In 2009, having been told by her high school counselor that her academic strengths would make engineering a good fit, she transferred to Haskell Indian Nations University (HINU) in Lawrence, Kan.

Her biggest challenge, however, was the year she took off between Haskell and returning to Lawrence to go to KU. Wells was accepted into KU’s College of Liberal Arts & Sciences for pre-engineering studies in the fall of 2010. With no financial support, she made the decision to return to Wyoming to work full time. “For two years I saved every paycheck, until I could come back to KU,” Wells said.

Miller stayed in contact with Wells via Facebook while she was back in Wyoming and encouraged her return to KU to pursue her degree in engineering.

“Haskell to KU engineering is a big transition, but Haskell to the reservation and back to KU engineering is an even bigger one,” Miller said.

Having put herself through Central Wyoming College and Haskell, Wells’ ambition pushed her to find ways to fund her KU education. Finances, time pressures and supporting her family back home were a source of fear and stress for Wells, but she remained undaunted.

While at Haskell, Miller sparked an interest in green technology with an introduction to wind energy. This led Wells to land an NSF Renewable Energy Scholarship at KU. She was also fortunate to receive a Pell Grant, a KU Comprehensive Grant and a Tribal Scholarship. The constant worry about finances began to disappear.

During her time at Haskell and KU, she joined the Haskell/KU Boxing Club—which provided her with a “family away from family.” The club provided a great emotional support system. Miller helped give her direction while at Haskell and KU furnished her with the skills and experience to become an engineer.

“Bobbie was a resourceful and hard-working student with a sincere interest in water, energy and the environment,” said Bruce McEnroe, professor of civil, environmental and architectural engineering. “She was a pleasure to teach. She received excellent mentoring and preparation in mathematics from her instructors at HINU. We are proud to claim her as a KU CEAE graduate. As she works with Native American tribes on renewable energy issues, she will be a wonderful ambassador for KU CEAE.”

“There are many downsides to being a first-generation college student, but the one upside was that Bobbie was and still is driven to succeed in a way that only a first-generation student can be. Bobbie knew she would be given no second chances and worked hard to make sure she wouldn’t need one,” Miller said.

When she returns home to Wind River Indian Reservation, in Ethete, Wyo., and speaks to current high school students, she will remind them that they share a similar background and spread the message that “if I can do it, you can do it. You don’t have to be scared.”

Wells earned her degree in civil engineering in spring 2015, and landed a job in Denver with the Department of the Interior in the Division of Energy & Mining Development.

Wells has proven to be a direct, athletic, energetic and determined young woman who has faced roadblocks and persevered. As the first in her family to go to college, and the only student from the 2007 high school class to earn a college degree, Wells has all the qualities to make valuable contributions to the civil engineering profession and to her Native American community.
The CEAE Department has hired five outstanding new faculty members, including three in structural engineering, and one each in water resources and building electrical systems. William Collins is a rising star in the area of fracture mechanics and steel design, with great experience in teaching and research. Elaina Sutley’s expertise is in the areas of seismic design, timber structures, and societal impacts of natural disasters. She also brings experience in the classroom. Matt Fadden has considerable teaching experience, is an expert in the area of steel buildings, and has been awarded for his excellence in research. Josh Roundy is joining our water resources group and brings much-needed expertise in the areas of hydrologic prediction and land surface interaction modeling. And Michael Panethiere brings 28 years of experience in building electrical systems and construction management to the department.

We are excited to welcome the new engineering faculty, and look forward to many research collaborations and the energy that they will bring to the classroom!

WILLIAM COLLINS
William Collins received his doctorate in civil engineering from Virginia Tech in 2014, and has spent the past year working as a research engineer in the Bowen Laboratory at Purdue University. Prior to this, he earned master’s and bachelor’s degrees in civil and environmental engineering, also from Virginia Tech (2006, 2010).

His doctoral research focused on the fracture behavior of conventional and high performance steels, and laid the groundwork for the development of a performance-based material toughness specification for bridge construction. He also has research experience involving field testing and structural health monitoring of bridges, non-destructive methods to evaluate weld quality, behavior of unbonded post-tensioned continuous concrete slabs, and concrete batching and mixing specifications for use in developing countries.

Prior to his graduate studies William worked in various roles within the construction industry. This experience on both commercial and residential projects has helped him to understand the building process, which has proved to be invaluable in his work as a structural engineer. It is within this context that he has taught Structural Analysis in the past, and he plans to provide a practical approach to both graduate and undergraduate courses at KU.

Understanding that the role of an engineer comes with great responsibility, William strives for his work to have a positive impact on others at the local, national, and international level. He has been involved in numerous educational outreach programs, and his work with Bridges to Prosperity has led to the construction of multiple footbridges in Haiti.

ELAINA J. SUTLEY
Elaina Sutley is excited to be joining the faculty this fall at KU. Her research experience only began a short time ago, but in that time she has had the opportunity to study a range of topics from concrete infrastructure rehabilitation using carbon fiber reinforced plates to the evolution in seismic risk for wood-frame structures. During this time she has had the opportunity to collaborate with some excellent researchers and industry professionals across fields of study in both theoretical and experimental investigations.

In 2012, Dr. Sutley managed the full-scale testing of a three-story soft-story wood-frame building over a six month time period where seven seismic retrofit strategies were investigated via hybrid testing. This included a performance-based seismic retrofit which she personally designed, and concluding with an exhilarating collapse test. More recently, she developed and applied a framework for optimizing a community-level seismic retrofit plan for improving resiliency by quantifying the effect that several social, economic, and engineering variables have on resiliency measures such as injury and fatality rates, PTSD diagnoses, economic loss, and recovery. This work has opened doors for collaboration including a role on the buildings, social science, and field investigation teams in the NIST-funded Center of Excellence for Risk-Based Community Resilience Planning. Additionally, she was awarded the Civil Engineering Risk and Reliability Association’s (CERRA) student recognition award in Vancouver for her community-level resiliency framework. The framework application was for a seismic hazard. However, she plans to extend the application to include other hazards including hurricanes and tornadoes.

“I look forward to developing a research program and new courses centered on my passions for community resiliency and natural hazard mitigation, and opening new doors through the collaboration with the great faculty at KU. Go Jayhawks!”
that involved both large-scale experimental testing and finite element modeling studies to improve the performance of steel structural systems. This research program was one of the first studies to consider the use of hollow structural sections (HSS) in earthquake resistant moment frame systems and provides significant insight to the use of HSS in cyclic bending applications. After graduating, Dr. Fadden was hired as an Assistant Professor at the University of Louisiana at Lafayette where he taught undergraduate and graduate courses in structures, advised the ASCE student chapter and concrete canoe team, and carried out sponsored research. His research projects included: optimization of offshore structures, development of novel steel slip-critical connection coatings, and the study of a carbon nanofiber high performance fiber reinforced cementitious composite.

Dr. Fadden’s research focuses on innovative steel frame systems, novel fabrication practices, and high performance materials for sustainable and resilient structural systems through material processing and development, experimental testing, and finite element modeling. Recently, Dr. Fadden was named the 2015 American Institute of Steel Construction Milek Faculty Fellow for his proposed work on Thin Composite Two-Way Flooring Systems for Steel Structures. This fellowship is given annually to one promising tenure track faculty member who specializes in steel structures research.

Matthew Fadden is excited to join CEAE and looks forward to collaboration with other faculty, working with graduate and undergraduate students, meeting alumni, and taking advantage of the extensive structural and materials laboratories at KU.

**MATTHEW FADDEN**

Dr. Matthew Fadden received his Ph.D. from the University of Michigan in 2013 after conducting research that involved both large-scale experimental testing and finite element modeling studies to improve the performance of steel structural systems. This research program was one of the first studies to consider the use of hollow structural sections (HSS) in earthquake resistant moment frame systems and provides significant insight to the use of HSS in cyclic bending applications. After graduating, Dr. Fadden was hired as an Assistant Professor at the University of Louisiana at Lafayette where he taught undergraduate and graduate courses in structures, advised the ASCE student chapter and concrete canoe team, and carried out sponsored research. His research projects included: optimization of offshore structures, development of novel steel slip-critical connection coatings, and the study of a carbon nanofiber high performance fiber reinforced cementitious composite.

Dr. Fadden’s research focuses on innovative steel frame systems, novel fabrication practices, and high performance materials for sustainable and resilient structural systems through material processing and development, experimental testing, and finite element modeling. Recently, Dr. Fadden was named the 2015 American Institute of Steel Construction Milek Faculty Fellow for his proposed work on Thin Composite Two-Way Flooring Systems for Steel Structures. This fellowship is given annually to one promising tenure track faculty member who specializes in steel structures research.

Matthew Fadden is excited to join CEAE and looks forward to collaboration with other faculty, working with graduate and undergraduate students, meeting alumni, and taking advantage of the extensive structural and materials laboratories at KU.

**MICHAEL PANETHIERE**

Michael Panethiere completed his B.S. and Master’s Degree in Electrical Engineering from Kansas State University. He also completed post-graduate work at the Massachusetts Institute of Technology.

Michael has over 28 years of experience in the electrical engineering, consulting and construction fields. He has served as an engineering department head and Principal in charge. He is a registered engineer in 14 states. Michael has had the opportunity to engineer and design electrical systems for various architectural and industrial projects. He has also appeared as an expert witness in numerous legal cases, working with some of the top law firms in the country. He is considered a subject matter expert in interpretation and application of the National Electrical Code.

As an Adjunct Professor of electrical technology at Johnson County Community College in Overland Park, KS from 1995 to 2006 Michael was nominated for the Lieberman Award for Teaching Excellence during his tenure. He is also an avid lecturer and has presented seminars on the National Electrical Code for Black & Veatch Power Engineers Group, Kiewit Power Engineers and Wolf Creek Nuclear Power Plant. He is currently authoring a textbook; Design and Construction with the National Electrical Code. Michael has research interests in electrical grounding, arc-flash analysis and electrical construction safety.

“**My mission is to motivate students to think critically and to develop confidence in both themselves and their engineering and ethical decisions. I strive to choose course content and exercises that are both significant and challenging. I want to stimulate them to think outside the box, and solve problems for themselves or as a team. I look forward to being a part of the academic team at the University of Kansas that prepares the next generation of engineers.”**

**JOSH ROUNDY**

Josh Roundy received a Bachelors and Masters degree from Utah State University in Civil and Environmental Engineering, followed by a Ph.D. in Civil and Environmental Engineering from Princeton University.

After his PhD, he was a NASA Postdoctoral Program Fellow in Hydrological Sciences at NASA Goddard Space Flight Center in Greenbelt, Maryland. Josh is an active member of the American Geophysical Union (AGU), the European Geophysical Union (EGU), and the American Meteorological Society (AMS) where he currently serves on the Hydrology committee. Josh is also involved with the Hydrological Ensemble Prediction Experiment (HEPEX) and the Global Energy and Water Cycle Exchanges Project (GEWEX).

His research interests include land-atmosphere interactions, seasonal prediction, land surface modeling, streamflow routing, parameter uncertainty and optimization and the application of prediction for water resource management.

Josh is excited to be joining the KU community!
L. William (Bill) Zahner

By Emily Mulligan

Shortly after his graduation from KU’s School of Engineering in 1979, Bill Zahner found himself standing on the damaged roof of then-five-year-old Kemper Arena, surrounded by some of Kansas City’s most experienced civil engineers, after a portion of the building’s roof caved in. There was nothing quite like a structural collapse to provide a brand-new civil engineer with a real-world application of his education.

“We were all looking at the parts and figuring out what happened,” says Zahner, now CEO/president of A. Zahner Company. “I got to see really in-depth research into materials and learned then how important it is to have redundancies built in. It turned out to be a bolt that had fatigued—fortunately, no one was hurt in the collapse.”

The Kemper Arena disaster was certainly an interesting indoctrination for Zahner. As a professional engineer, his roots in construction and particularly his interest in materials and metallurgy, trace all the way back to when he was 7 years old, painting scaffolding at his great-grandfather’s building/construction company, A. Zahner Company.

The company, which was run by his grandfather and father before him, is an engineering and fabrication firm that now specializes in the use of metal in art and architecture. After World War II, Zahner says, the company started focusing on manufacturing and shaping thin metal surfaces to be used as siding and deck for buildings. Unique building facades on the 9/11 Memorial Museum in New York City, the Pritzker Pavilion in Chicago, and AT&T Stadium, where the Dallas Cowboys play, and many more, are just a part of what the company produces.

Based in Leawood, Kansas the privately owned company employs 170 people, including 40 engineers. With seven trademarked surfaces and eight trademarked specialized systems, A. Zahner Company is widely regarded in the world as one of the best at its specialties. It is not just its physical output that Zahner is known for, but also the methods by which those products and surfaces are manufactured: The company recently made news in Forbes magazine for its use of robotics in its manufacturing processes. Bill Zahner continuously forges ahead of the industry with his state-of-the-art ideas and innovations.

This summer, Bill Zahner was named Ernst & Young’s 2015 Entrepreneur of the Year in Engineering Services for the Central Midwest Region. He is in contention for the national Entrepreneur of the Year, which will be announced in November.

“Engineering is the ability to think about and question the materials themselves, why they are what they are. I’ve never stopped learning. I am constantly researching things.”
“My entire approach to my career can be traced to my education at KU”

That definitely boils down to my education in engineering at KU,” Zahner says.

He remembers a balsa-wood bridge that he built for a contest for Bogdan Kuzmanović, the professor he calls his biggest influence. The contest only permitted balsa and Elmer’s glue in the construction of the bridges, and Zahner removed material near the neutral axis of many of the members of his K-truss bridge. Kuzmanovic was dubious as to how the bridge would perform, and although Zahner recalls placing second in the competition, more importantly, he retains and applies the lessons and processes that led him to creating the bridge.

“The whole point of it was to investigate materials and why they work—a pipe as a structural member versus a structural I-beam, for example. I was taught to look at why a beam or a column can carry a particular load. My entire approach to my career can be traced to my education at KU,” he says.

In addition to his current involvement on the Advisory Board for the School of Engineering, Bill Zahner, who is also an artist, has left a visible mark with the installation of a metal sculpture in the atrium of LEEP2. “I hope the sculpture will lead to the influence of engineers in the School—to thinking about how things can look attractive and interesting. I think there’s a need for that other side of the brain in engineering, to make them more creative in their solution sets. If they are more creative, they can reduce risks and costs,” he says.

Engineering and art are not mutually exclusive, Zahner says, and he enjoys exploring the relationship between the two in the company’s work and in his own research. He also points out that many artists, are actually engineers.

Bill Zahner wants A. Zahner Co. to continue to be a place where engineering combines cutting-edge ways with art and design. The company’s ShopFloor® software platform, launched in 2014, allows architects to design and customize metal-fin building facades and perforated metal wall designs that are then manufactured by A. Zahner Co. This summer, Zahner engineers collaborated with designer Jonathan Olivares to allow architects to configure metal seating arrangements with the “Aluminum Bench” app of the ShopFloor® platform. “The idea is to allow someone else to design what they want, but we integrate the engineering components,” Zahner says. “ShopFloor® presents algorithm-based designs on Internet storefronts, so we integrate the old processes of casting and slumping by tying them with robotics and computer-aided design.”

Bill Zahner appreciates working with the engineers at A. Zahner Co., and he has advice for up-and-coming engineers at his alma mater.

“I wouldn’t be coming in here to work every day if I didn’t have the passion to learn. Don’t quit learning,” he says. “It is good to ask, ‘What if we do it this way?’ There is too much in the world that is not known.”

---

Where in the World

We have been overwhelmed with response to our request for alumni whereabouts in what was to be the Where in the World feature. It has helped us to track down some of our many alumni. We were so overwhelmed, in fact, that we are unable to include the responses in this forum. Instead, we have decided to add this as a special CEAE website feature. If you would like to add your name to the list of alumni, please contact ceae.ku.edu/where-in-the-world and join others who are sharing their place in the world.

We thank you and want you to know we value these relationships, and are so pleased that so many of you wish to share your accomplishments throughout your career.
Funding Our Future

Innovative research. State-of-the-art facilities. Talented and dedicated faculty. Distinguished alumni. All part of the fabric that makes the KU Civil, Environmental and Architectural Engineering (CEAE) Department experience one of the best a student will have. Our success is due in large part to the philanthropic contributions from our alumni and friends. From one’s first donation to the department’s unrestricted fund, to the creation of a new endowed scholarship, the passion that our alumni have for the department makes the difference for our students and faculty.

Thank you to our donors below who have made a contribution to the CEAE department from July 1, 2014 - June 30, 2015. You are helping encourage and guide our future generations of leaders in engineering and beyond. And you have truly helped take our department to new heights by participating in Far Above: The Campaign for Kansas, which seeks support to educate future leaders, advance medicine, accelerate discovery, and drive economic growth to seize the opportunities of the future.

To discuss opportunities for investing in the department, such as creating a named endowment, helping us build and equip our new spaces, or to learn more about how to include the department in your estate plans, please contact Molly Paugh, 785-832-7319 or mpaugh@kuendowment.org.

You can also donate to the CEAE department online by visiting kuendowment.org/engineering (be sure to specify that your gift is to the CEAE department).

Or you can send a contribution by mail to:
KU Endowment
Attn: Engineering
PO Box 928
Lawrence, KS 66044-0928


Deans Club Ambassadors: Individuals who have given $10,000 to $24,999
Frank J. Becker and Barbara A. Becker
J. Robert Benz and Janet B. Benz
Mary Kindsvater Jones
James M. Kring Jr. and Donna M. Kring
Harold A. Phelps and
Donna R. Brady-Phelps
Gerald A. Stoltenberg
Tito Tiberti
Geldard H. Woerner
Richard A. Worrel and Susan M. Worrel

Deans Club Benefactors: Individuals who have given $5,000 to $9,999
Diane M. Darwin and David Darwin, PhD
Don R. Landeck
Ross E. McKinney and
Margaret C. McKinney
Lucille J. Smith

Deans Club Patrons: Individuals who have given $3,000 to $4,999
James R. Bess
Brian A. Falconer and
Virginia Lamb Falconer
Gregory P. Pasley, PhD and
Sonia Martinez Pasley
James L. Patton and Marilyn S. Patton
John H. Robinson Jr. and
Kyle Simmons Robinson

Deans Club Donors: Individuals who have given $1,000 to $2,999
Robert W. Agnew, PhD and
Margaret Rose Agnew
E. J. Allison and Marjorie Allison
Jon B. Ardahl
Paul D. Barber and Diane M. Barber
Brian J. Burke and Helen Burke
Theodore J. Cambern Jr., DE and
Marcia Alexander Cambern
Stephen R. Cathey and Vicki E. Cathey
William Clawson, PhD and
Marnie Clawson
Kenneth F. Conrad and
Leslie Sauder Conrad

Warren Corman and Mary Corman
Glen E. Davis and Catherine A. Davis
Craig K. Denny, PhD
John P. Fowler II and Doris M. Fowler
Philip D. Gibbs and Kathleen G. Gibbs
William J. Hall, PhD and
Elaine Thalman Hall
Fred C. Hamilton and Nancy L. Hamilton
Leaman D. Harris and Judith L. Harris, PhD
Steven C. Hughes
Thomas L. Jenkins and
Judith Gripton Jenkins
Les K. Lampe, DE and
Karen Craft Lampe
Bruce F. McColloM, DE and
E. Irene McColloM
John L. Meyer and Marilyn A. Meyer
Thomas E. Mulinazzi, PhD and
Kathryn J. Mulinazzi
Ted K. Pendleton and
Marlene McGregor Pendleton
Ernest C. Pogge, PhD and
*Emma E. Pogge
Stanley T. Rolfe, PhD and Phyllis W. Rolfe
Edwin C. Rossillon
Dave G. Ruf Jr. and Mary Ruf
LtCol Zachary T. Schmidt and Nicole Mehring Schmidt
Vicki J. Secrest
Gayle Slagell and Curtis W. Slagell, PE
Jeffrey A. Smith, PhD
Richard E. Smith and Carol E. Smith
Alan D. Soelter and Susan E. Soelter
Burton S. Stewart and Jane Stewart
Kenneth J. Vaughn and Marilyn L. Vaughn
Daniel E. Welch

Deans Club Rising Star: Alumni ages 35 and younger who have given $500 to $999
Jelindo A. Tiberti II and Sandee Tiberti

Campanile Club: Individuals who have given $500 to $999
Carlis J. Callahan and Sandra P. Callahan
Deena Goodman and Philip J. Goodman
Jeffrey A. Lanaghan
Steven M. Long
Thomas H. McCrackin III
M. Luke Schuler
Pedro M. Vargas, PhD
Heather J. Vrabac and Thomas A. Vrabac

Crimson and Blue Club: Individuals who have given $300 to $499
Theresa C. Browning and Keith A. Browning
Joel A. Crown and Deborah A. English
Colin P. Davidson and Mary Adams Davidson
Jessie L. Randtke and Stephen J. Randtke
John W. Richardson Jr.
Lowell D. Seaton
Deborah L. Smith-Wright, MD and David I. Wright, PhD
RADM James T. Taylor, Navy, Retired and Rosa Lea Taylor
Dean M. Testa and Karen L. Testa

1865 Club: Individuals who have given $100 to $299
Craig D. Adams, PhD
Susan M. Adams
K. David Anderson and Elizabeth Ann Anderson
Creg S. Bishop, PhD
Jeffrey A. Boos
Elizabeth S. Brewer
Marcus A. Brewer
Carla Rabb Bukalski, PE
Amanda M. Carter
Tracy A. Clinton
Cynthia A. Cogil

Donors: Individuals who have given up to $99
Carla P. Anderson
Laurence E. Benander and Beth Cook Benander
John C. Bocox
Donald N. Booth and Kim Chi Thi Booth
Jennifer Kepler Briggs
Craig A. Buhr and Ellen K. Buhr
George E. Butler Jr.
William W. Dobbs and Coe M. Dobbs
Elizabeth S. Duvall
James F. Hall
Mary J. Harp

*Indicates that a donor is deceased