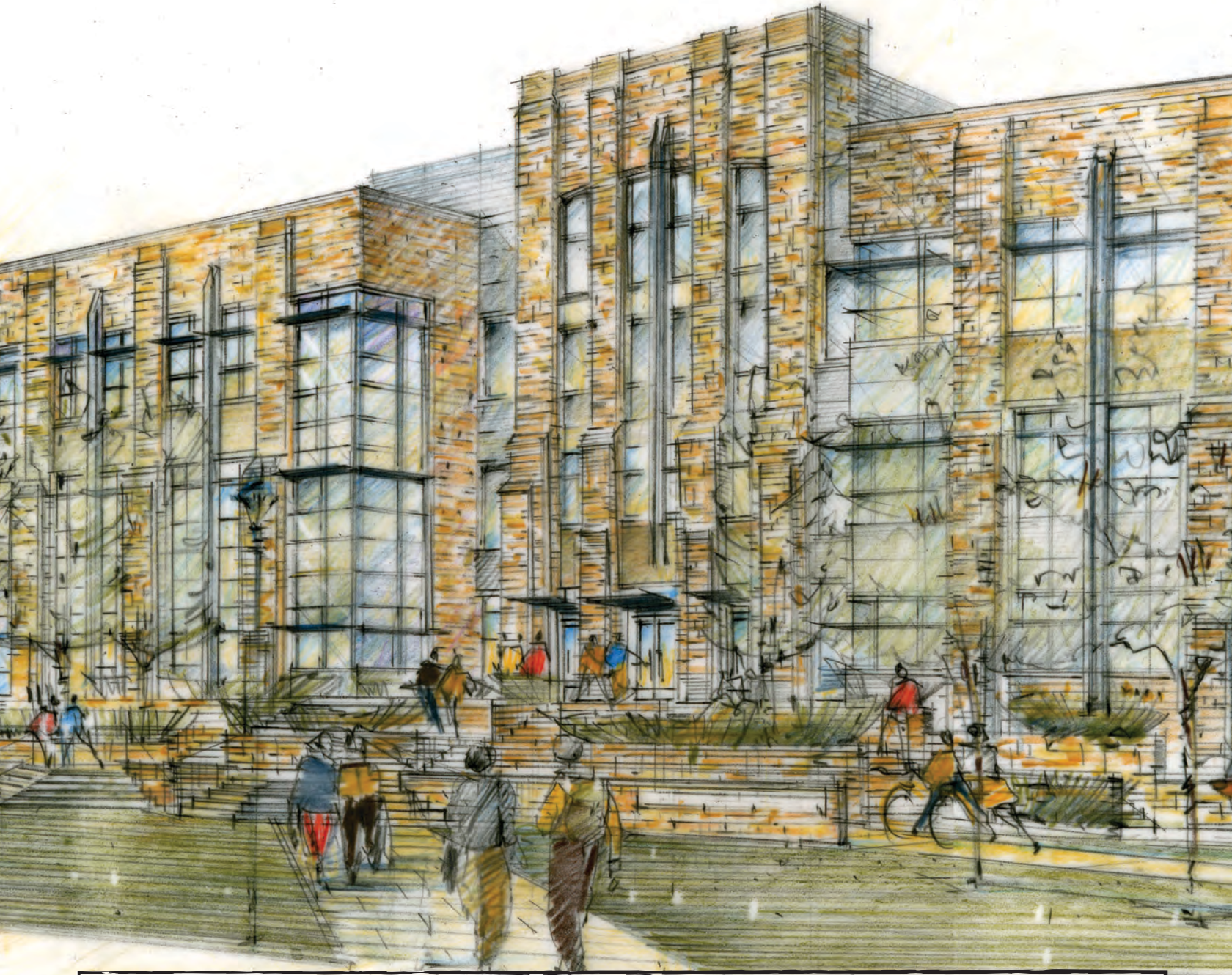


# FORESIGHT

UW COLLEGE OF ENGINEERING AND APPLIED SCIENCE

Fall 2016, Volume 41, No. 2



## FROM THE GROUND UP

EXPERIENCE MEETS EDUCATION • TURNING ENGINEERS INTO ENTREPRENEURS





COLLEGE OF  
**ENGINEERING &  
APPLIED SCIENCE**

UNIVERSITY OF WYOMING

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“ I felt the education and experience I had at UW were really beneficial for my career path. I had sufficient training and good interaction to prepare me for the real world. It wasn't just out of the textbook. I gained the design experience and applied that in my first and subsequent jobs. ”

—Carla Hansen, Architectural Engineering '01

## WHAT CAN A DEGREE FROM UW DO FOR YOU?

The **College of Engineering and Applied Science** is a nationally recognized institution of academic excellence and **world-class research**. Rewarding and dynamic careers await individuals who graduate from one of our areas of study. Find opportunities to learn alongside industry professionals and renowned faculty by developing real-world projects.

**54%** of UW students graduate with little to no debt.

**\$59,000** – Average starting salary for our graduates.



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On the cover: A rendering of the new Engineering Education and Research Building (EERB) shows the new look of the College of Engineering and Applied Science at the University of Wyoming. (Illustrator = Anita Lehmann, ZGF)



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## The New Look of Engineering At UW

Some welcome changes are on the way for the College of Engineering and Applied Science (CEAS).

The University of Wyoming campus landscape will look very different in the coming months thanks to efforts of the CEAS. Ground has been broken on the Engineering Education and Research Building (EERB), which is featured prominently later in this issue. The High Bay Research Facility has made significant progress and is slated to open in early 2017. These state-of-the-art spaces will offer unprecedented research and learning opportunities for students and faculty, and will help vault UW Engineering into the upper echelon.

CEAS Dean Michael Pishko and his team of administrators have not been shy about making their intentions known nationwide. The Tier-1 mission allows the CEAS to aggressively recruit the best students and faculty around the country and our researchers and teachers to make contributions on a worldwide scale.

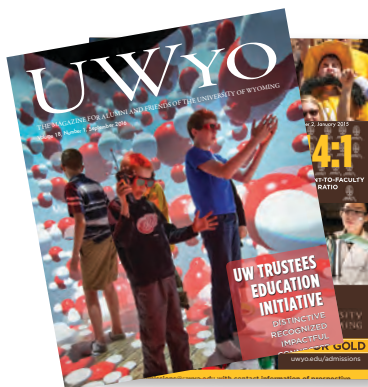
All this comes at a time when the great state of Wyoming is actively exploring new areas for revenue generation and economic strength. There's little doubt the groundbreaking research and educational efforts of the CEAS will help provide answers to these crucial concerns.

Despite some uncertainty, there are several tangible reasons for optimism moving forward. Those are changes everyone in the college, university and state can get behind.

Sincerely,



Andy Chapman  
Editor, *Foresight Magazine*



**Stay tuned** for the January issue of ***UWyo Magazine*** with a special section devoted to UW's outreach across the state!

**Subscribe today!**  
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## Message from Dean Michael Pishko

This issue of *Foresight Magazine* features our efforts in innovation and entrepreneurship, two areas in which I feel the college is strongly positioned. The bottom line is if we can make real progress in these fields, the CEAS will be among the pre-eminent engineering colleges in the West and in the nation.

The concept of innovation was a crucial component in the design process of the Engineering Education and Research Building (EERB). We set up multi-use spaces specifically to encourage students to approach problems facing the world differently, which will lead to critical thinking and unique solutions.

Entrepreneurship is an area ripe for exploration in engineering. Our partnership with the Wyoming Technology Business Center helps

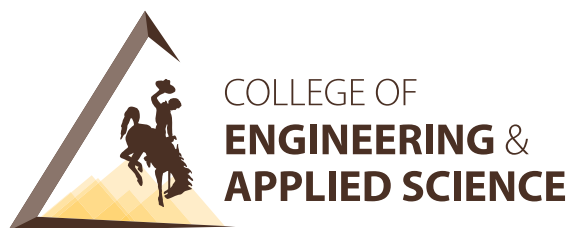
bind together the vision of our talented young engineers with the acumen of business professionals right here on campus. It opens up so many possibilities for startups and economic drivers, which will prove to be critical to the residents of Wyoming in the years to come.

We are in a unique position as we observe what issues are facing the state and nation, and how we can directly affect change. We have the faculty and administrators in place to realize the vision of the Tier-1 Engineering Initiative, and our students continue to excel in the classroom and research laboratories.

Our new spaces will be available soon, and I'm eagerly working toward advancing the CEAS in all its missions. I hope you'll come aboard to help us realize our vision.



Dean  
Michael Pishko



UNIVERSITY OF WYOMING

## CEAS Logo Update

Along with many other updates in the college, the branding of the CEAS received an update in summer 2016. Reflecting the direction and leadership of the college moving forward, the college unveiled a new

logo for use in fall 2016 and beyond. It exemplifies the dynamic nature of our students, faculty and staff.

It features the unique brown and gold color scheme with clean, sharp lines and bold lettering. Within the strong

pyramid design, there's a definitive UW stamp with the unmistakable Steamboat bucking horse and rider logo, along with a nod to the natural beauty of Wyoming with a mountain landscape in the background.



# NEWS & NOTES

## Blog Post Showcases Triumphs of CEAS Student

**By Andy Chapman**

Catherine Clennan's decision to speak up has allowed her to excel in computer science at the University of Wyoming. The decision to document her journey has given her a nationwide voice.

Clennan, a freshman in the College of Engineering and Applied Science, has gained notoriety for a blog she began in March 2016 (<https://rewritingthecode.com/2016/03/27/hello-world/>). The heartfelt entry outlines her early struggles and challenges in the demanding field of computer science. The title has raised some eyebrows—"Being A 'Dumb'

Girl In Computer Science"—but that's kind of the point. The Laramie, Wyo., native has more than 50,000 hits to the site, which has been featured in the Huffington Post.

"I am painfully shy and extremely introverted, so when the essay went viral all I wanted to do was hide under a rock," Clennan says. "The only thing that has prevented me from taking the blog down is all the support I'm getting from the folks in the Computer Science Department and throughout the college."

After switching majors to computer science, she found

difficulties. She admits to failing her first computer science class "miserably." She made the decision to raise her hand in class and admit that she was completely lost.

"I thought about how many opportunities I lost just by not wanting to look like the 'dumb' girl," Clennan says. "Before raising my hand, I felt like I was drowning. All I could think was, 'I don't belong here.' After I finally exposed just how little I knew about what we were doing everything changed. That's when things turned around and all I could think was, 'Yes, I do belong here!'"

Clennan has made an impression on Jim Caldwell, who heads up the department.

"The fear of appearing 'dumb' is a problem we've all faced—I know I have," Caldwell says. "I think the reason Catherine's message has had such an impact is that this resonates with everyone trying to learn something new. Her message is an important one for every student and teacher across every discipline."

Clennan wants to use her experiences, insecurities and most importantly, her triumphs, as a way to break through barriers and spur people to explore computer science.

"I want to encourage the people who are typically the exact opposite of what you would expect to find in the field," she says. "I want to help those underdogs who have the odds against them, because in my heart I believe that those are individuals who have the potential to be incredibly successful in computer science."



Catherine Clennan assists a Laramie Robotics Club student in fall 2016.



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## King Air Soars Above Wildfire For Research

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**By Andy Chapman**

A massive wildfire in Idaho was studied from a new vantage point thanks to the University of Wyoming research aircraft.

San Jose State University's Fire Weather Research Laboratory tracked the Pioneer Fire in central Idaho from UW's King Air research aircraft (N2UW). The King Air conducted research operations for nearly 11 hours over a two-day period, Aug. 29-30, between 16,000 and 27,000 feet for the RaDFIRE (Rapid Deployments to Wildfires) project.

Large wildfires modify the surrounding atmosphere, and a handful of studies have looked at these changes from the ground, but no data has been gathered in close proximity from the air until now. The UW research aircraft is outfitted with instruments including the Wyoming

Cloud Radar (WCR) and Wyoming Cloud Lidar (WCL), cutting-edge remote sensing instruments that complement in-situ observations at aircraft flight level.

"Wildfires present a unique challenge, with only limited understanding of when and where they will flare up and for this reason, a rapid deployment mode of operation is important," says Nick Guy, associate research scientist in the Department of Atmospheric Science at UW.

"The UW Flight Facility provides the flexibility to respond quickly, in addition to having a fully integrated

suite of instruments on board. The WCR transmits microwave energy that is scattered back by the cloud and ash particles, allowing measurements of the strength and air motions of the plume. Understanding these dynamics will provide firefighters a better understanding of these fires as well as allow more accurate forecasting in the future."

The project is sponsored by the National Science Foundation and is being led by Craig Clements at San Jose State University and David Kingsmill at the University of Colorado-Boulder.



UW's aircraft King Air conducted research on a large wildfire in August 2016. (Photo courtesy Nick Guy)

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## New 3D Scanner Offers Students Advanced Education

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**By Andy Chapman**

Starting in the fall of 2016, students in the College of Engineering and Applied Science will have access to versatile and useful technology for design and mapping purposes.

The CEAS at the University of

Wyoming recently acquired a Topcon 3D laser scanner. It is an apparatus that photographs and scans fixed points for mobile mapping applications. In a recent demonstration with a sales representative, the scanner was able to scan 1,000,000 points on the front of the Engineering Building in just 15 minutes.

Assistant Lecturer in the Department of Civil and Architectural Mark Rehwaldt says this kind of equipment is what

modern survey crews use for small- and large-scale design projects. UW graduate students will use it to monitor landslides, while architectural engineering students will be able to scan rooms and other areas for design projects.

On an industry scale, the scanners have a wide variety of capabilities, including applications in geopositioning, construction, agriculture, forestry and mining.



# NEWS & NOTES

## UW Selected To Be Part of \$20 Million Energy Coalition

By Andy Chapman

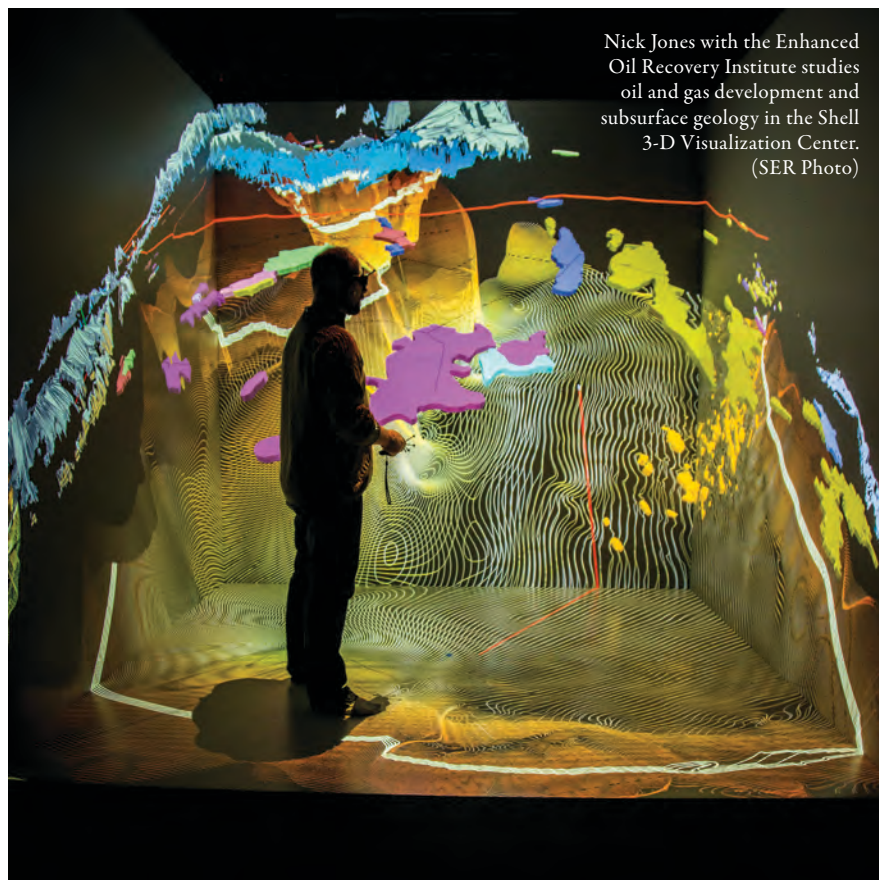
The University of Wyoming was selected by the National Energy Technology Laboratory (NETL)—part of the U.S. Department of Energy (DOE) laboratory system—to be part of a prestigious nationwide energy coalition.

The “University Coalition for Fossil Energy Research (UCFER)” was established by the DOE through an open competitive process to advance basic and applied research that supports continued use of fossil energy. Many UCFER universities have Tier-1 status in energy and engineering research. The award to UCFER includes \$20 million in initial funding over six years.

Pennsylvania State University is the lead institution, and the group includes Massachusetts Institute of Technology, Princeton University, Texas A&M University, University of Kentucky, University of Southern California, University of Tulsa and Virginia Polytechnic and State University.

College of Engineering and Applied Science (CEAS) Dean Michael Pishko says the announcement is welcome news for Wyoming’s oil, gas and coal industries.

“This award demonstrates UW’s continued leadership in research of clean and efficient use of fossil fuels,” Pishko says. “Leveraging investments made by the state in energy research has allowed the CEAS to build strength in critical research and



Nick Jones with the Enhanced Oil Recovery Institute studies oil and gas development and subsurface geology in the Shell 3-D Visualization Center. (SER Photo)

technology areas required by the coal, oil and gas industries.

“We are grateful for this support from the Legislature and the confidence placed in our researchers working on clean-energy solutions, as these investments are now paying dividends by placing us in a strong position to gain external grant awards demonstrated by UCFER.”

Coalition members will research areas that support the Office of Fossil Energy’s coal, oil and gas strategic priorities, which embrace five core competency areas: geological and environmental systems, materials engineering and manufacturing,

energy conversion engineering and development of transformational technologies, systems engineering and analysis for advanced energy systems, computational science and engineering integration of experimental data and engineering analyses.

UW School of Energy Resources Deputy Director of Emerging Projects and Technology Richard Horner believes UW faculty are well positioned.

“UCFER is a fantastic opportunity for the brightest faculty and researchers of the CEAS to work alongside recognized scientists and researchers at NETL and other leading universities,” Horner says.

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## Scholarship Program in Place for Displaced Energy Workers

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**By Andy Chapman**

A new scholarship fund has been created by the University of Wyoming College of Engineering and Applied Science (CEAS) to assist displaced energy-industry employees around Wyoming.

The energy industry in the state has sustained significant layoffs and staff reductions. That has led to economic uncertainty for many Wyoming families. An option for displaced workers is to pursue continuing education at UW or one of Wyoming's seven community colleges.

In the early stages, the CEAS provided 10 scholarships at \$1,500 each for one academic year, but will actively raise money for additional awards. The scholarship is a one-time award, but it can be applied for and awarded again in subsequent years.

The scholarship will be available to former energy-industry employees to pursue an engineering degree at UW, or an engineering-related degree at one of Wyoming's community colleges. It also will be available to children of the displaced workers, but that award is restricted to those who plan to attend UW and seek an engineering degree only.

The scholarship helps serve UW's Tier-1 Engineering Initiative, which was

instituted in 2014.

"Part of the Tier-1 mission is to help serve our constituents in the state and provide mechanisms for economic diversification," CEAS Dean Michael Pishko says. "Retraining displaced workers is a great way to do that—give them other skills to help businesses in Wyoming. This is a way to give back to the workers who have given so much to the state."

For more information or to apply, contact CEAS Student Advising Coordinator Laurie Bonini at 307-766-4254 or [lbonini@uwyo.edu](mailto:lbonini@uwyo.edu). Persons interested in contributing to the fund should contact Craig Russow at the UW Foundation at 307-766-1803 or [crussow@uwyo.edu](mailto:crussow@uwyo.edu).

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## Design Group for UW Projects Named Best in Country

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**By Andy Chapman**

The architectural firm of some major University of Wyoming projects was named as the top design group in the nation recently.

ZGF Architects is the lead designer of the Engineering Education and Research Building (EERB) and High Bay Research Facility for the College of Engineering and Applied Science at UW. ZGF was tabbed as the top firm in America in the overall and sustainability categories by *Architect Magazine* in the 2016 Architect 50.

Lead designer Corinne Kerr is a UW architectural engineering graduate.

*Architect Magazine's* Amanda Kolson Hurley says ZGF earned the top spot thanks to "the firm's healthy financials (it posted a 17 percent increase in net revenue in 2015) and its relentless push for higher building performance." ZGF recently enlisted a chief financial officer and a new chief people officer to spearhead talent development, both of which have had a major impact.

"But the architecture is what counts, and ZGF has a knack for designing super-efficient buildings that don't skimp on aesthetics," Hurley writes.

She points to ZGF's design for a future expansion of Nike's world headquarters in Oregon is as kinetic

as a runner in motion, while a new cancer center at the University of Arizona echoes its desert surroundings with walls clad in copper metal sunscreens. ZGF also was tasked with designing a new office for the Rocky Mountain Institute in Colorado. Working with a client committed to energy efficiency, the architects designed a building that has no central heating to be net-energy-positive. The firm has received feedback that the thermal comfort of the occupants is very high and that the building is performing even better than it modeled.

The design firm for the UW Visual Arts Building, Hacker, was No. 13 overall, while HOK (Energy Innovation Center) was 16th.



# students **in** action

## NSBE Chapter Offers Opportunities, Networking

**By Andy Chapman**

Kalu Okonkwo is on a career path he never envisioned as a young man.

Originally from Nigeria, he grew up in Chicago. His journey seemed to be mapped out pretty well. Coming from a family of medical professionals, he attended college in Chicago for two years in preparation for a career in medicine. But with just one semester to go on the pre-med track, he left the program.

"I figured I wasn't cut out for it," he says. "My family was intensely into health, but I wanted to pursue something different. I wanted to pursue petroleum engineering and be the first engineer in my family."

That brought him to the University of Wyoming in 2014. Early on, he felt he needed a social and career network, but wasn't sure where to find it. Okonkwo credits his friend for the idea: What if UW established a chapter for the National Society of Black Engineers?

"I set the initiative and went looking for students," Okonkwo says. "It was really difficult. I had to literally go from apartment to apartment to try to talk to people about NSBE. Most were skeptical initially. The term 'black' scared everyone off. But that term has a historical connotation and doesn't really represent what NSBE is right now."

Okonkwo says the national and UW chapters are inclusive of all engineering students from underrepresented groups. The NSBE began in 1975, and the UW chapter



Kalu Okonkwo (center) talks with attendees of a recent NSBE outreach event on campus.

was established as a registered student organization at UW in fall 2015.

"Over the years, NSBE became something that focused more on all minorities," Okonkwo says. "That's what I tell people to get them to understand, to see how far we've come to help ourselves and others."

Bismarck Echegile, an engineering major, was one of the early members at UW.

"Being a member of NSBE has helped me in building relationships with other minority engineers," he says. "I am also given a platform in which I can give back to the community and develop leadership skills."

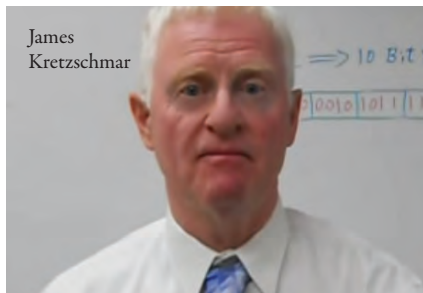
As a way to give back to the college

community, the UW chapter hosts free tutoring for CEAS students. The outreach efforts have had a positive impact. After starting with 10 members, membership is up to nearly 50 in 2016. Additionally, 11 members went to the NSBE national convention in March.

"It was an amazing experience being able to represent the University of Wyoming on a national level," says Ikechukwu Ezugwu, the newest chapter vice president. "It afforded me the opportunity to network and interact with other engineering students from other universities and institutions."

The chapter meets every Friday during the academic year in the Wyoming Union Room 202 from 2:30-4 p.m.

## CEAS Student Places In Innovation Challenge



### By Andy Chapman

James Kretzschmar wants to use color to help companies save thousands in costs and help the environment. A non-traditional student in the College of Engineering and Applied Science at the University of Wyoming, he won “Best Humanitarian Impact” project in the recent Texas Instruments (TI) Innovation Challenge in July. He is a retired Air Force colonel and dentist, and is a non-degree seeking student in

electrical engineering at UW.

His project, “Futuristic Energy Saving Lighting System (Color Influenced Temperature Perception),” stood out among the 180 competition entries.

Kretzschmar cited previous research that indicates 80-85 percent of perception, learning and cognition is mediated through vision. Humans also have the ability to perceive whether something in the environment is hot or cold. Red colors are perceived to be warm and blue colors to be cold. Studies have shown a room in which the lighting is a reddish hue will be perceived to be warm, while a room with bluish lighting will be considered to be cooler.

Kretzschmar built a temperature-regulated multi-color lighting system prototype that demonstrates how

lighting color can be controlled by temperature. The system adjusted an LED lighting panel according to the temperature around a sensor. The Futuristic Energy Saving Lighting System is focused on sensing temperatures in the 65-75 degree Fahrenheit range. At 65 degrees and below, the LED becomes more red, and at 75 degrees and above the light is more blue.

If a heating and air conditioning system in a large building could be 1 or 2 degrees warmer or cooler because of this effect, large-scale savings in energy usage and cost could be realized.

“Thank you to the entire department for being gracious in allowing an older student to have these wonderful learning opportunities,” Kretzschmar says.

## UW Chemical Engineering Standout Balances Competition & Academics



### By Andy Chapman

Audra DeStefano is used to pushing herself to reach the finish line.

As one of the top students in the University of Wyoming’s Department of Chemical Engineering, she excels with an extremely challenging course load. She’s also one of the region’s top competitors in steeplechase, a track and field event that combines distance running with a hurdle and water jump.

UW gained a top student when DeStefano began attending in 2012. In addition to being a four-year honor roll member, she was the valedictorian

of Campbell County High School in Gillette as a senior. She has earned Mountain West Academic All-Conference and Scholar Athlete honors every year since 2013. DeStefano also has earned all-academic honors from the United States Track & Field and Cross Country Coaches Association three-straight years.

“I considered a few other schools, but the biggest factor for me coming to UW was the financial aid for academics,” she says. “Also, I felt like you could control more of what happens in the classroom. I didn’t want to be stuck in a large place with no say in how I was being taught.”

DeStefano remembers the personal attention she received from the department faculty on her first visit to UW.

“No other school made the effort to reach out like that,” she says.

On the track, she’s one of the most

accomplished Cowgirl distance runners in history. She owns seven top-10 all-time marks in indoor and outdoor track, and is the all-time record holder in steeplechase in the UW women’s record book. Why would someone who competes from August to May want to take on an engineering degree?

“I took the hardest major I could think of,” DeStefano says with a laugh. “With chemical engineering, if I didn’t end up in the engineering field, it’s simple to turn that into a pre-med degree. There was flexibility. I really like the engineering part, and I think I’d like to stay in it.”

She’s beginning a QuickStart master’s program under UW Assistant Professor Dongmei “Katie” Li.

“Audra is a truly exceptional student and has earned her degree and high GPA without any ‘concession’ from faculty,” Li says.



# faculty **in** action

## UW Water Researcher Balances Needs of Industry and Environment

**By Andy Chapman**

The importance of Jonathan Brant's research is evident when you go to the sink, turn the knob and see the stream of water come pouring out.

An associate professor at the University of Wyoming, Brant's research is focused on developing efficient ways to use produced water, or water produced as a byproduct in the development of oil and gas wells. It has potential for Wyoming's economy, because if produced water can be filtered to separate precious metals, it can be leveraged to attract new business and a larger workforce.

"If you look at water out of a river, wastewater and produced water, it contains lots of things that are of value," Brant says. "These can be gold, lithium, salt or organics to make energy. What we do is focus on developing technologies and treatment schemes to separate those resources in a way that we can utilize them for beneficial purposes."

The sounds of water gurgling through pipes and drains are interrupted only by the whirr of gauges and agitators in Brant's lab. Several techniques for purifying water are on display here, most notably membrane technologies. Membranes come in many forms: pressure, electricity, chemical, osmotic gradient, temperature, functionalized nanoparticles and magnetism.

This research also has the potential

to conserve Wyoming's water, which can be in short supply as the fifth-most arid state in the U.S.

Undergraduate student Savannah Bachman performs solid-analysis tests in the lab by testing produced water to analyze it for rare-earth elements. If any are present, the next question becomes: Can they be extracted at an economically viable rate? The long-term goal is to install membrane technology on work sites to set aside minerals with no interruption to the rest of the process.

"There has not been any effort or money put toward extracting it from water," she says. "You take a ton of dirt, and only find a tiny amount, but

you end up tearing up a lot of land. If we can pull it out of water, where it already exists, we're not only cleaning the water, but we're also removing something we can use."

With news stories about California's drought entering its fifth year in 2016 and the Flint, Mich., water crisis, management of water resources has been brought into the limelight.

"You don't have to look very far to see the value of water," Brant says. "You can ask the folks in California and Michigan. When their water runs out, consider how that impacts their lives. To appreciate it, turn your faucets off completely, and see how you do."



Savannah Bachman, an undergraduate in civil engineering, replaces a filter in Jonathan Brant's water research lab.

## Industrial Affiliates Program Creates Connections



Katie Delaney (left) and Chad Peterson discuss a project in the Handel Information Technologies conference room.

**By Andy Chapman**

There's an interesting development in the southeast corner of Wyoming. Technology-based companies have popped up in the area, with startups located in places like Laramie and Cheyenne. With that comes a need for skilled workers, and that's where the University of Wyoming's Department of Computer Science and its Industrial Affiliates (IA) program converge.

Developed in 2012 by department head Jim Caldwell, IA was formed to link business partners with potential employees and faculty members.

According to IA, "forming these constructive relationships between industry and the department drastically reduces recruitment costs, while also developing a channel of communication between affiliate partners."

Small companies pay a yearly fee of \$500, with large corporations giving up to \$10,000 annually. Over a period of time, Caldwell lined up Microsoft and American Express. He added to the group with smaller companies from Colorado and Wyoming. There now are 14 partnerships, with more in the works.

"It costs a fortune to recruit one person to a job," Caldwell says. "If the company gets even one student out of the program per year, it really pays for itself."

The IA program uses funds from its membership fees for various projects, such as sending female computer science students to an annual meeting for

computing. The department has been able to install crucial lab equipment, and allow notable speakers and industry personnel to come in for seminars.

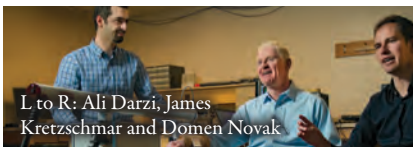
Even Brande, president and CEO of Handel Information Technologies, was the first affiliate member of IA. Handel has employed about 40 UW computer science students.

"Over the years, the department has been a great resource for us to recruit," Brande says.

Another success story of IA is the addition of Underwriters Laboratories. The department was a key player, among others, in attracting the global company to Laramie. UL now employs 10 graduates and is growing, building a new office space in the Cirrus Sky Park that opened in May.

"We certainly are looking to expand in a lot of ways," Caldwell says.

## Engineering Group Develops Technology For Medical Use



L to R: Ali Darzi, James Kretschmar and Domen Novak

**By Andy Chapman**

Domen Novak is counting on the help of robots to encourage rehabilitation for stroke survivors. Because motivation, or lack thereof, is often cited as one of the reasons someone quits or cuts back on rehabilitation efforts after a stroke or traumatic brain injury, Novak hopes the addition of assistive technology can add some entertainment value to the process.

An assistant professor in electrical and computer engineering at the University of Wyoming, he studies human-robot interaction with an emphasis in rehabilitation robotics.

"Let's say you've had a stroke, a brain injury or a spinal injury," Novak

says. "You can't move limbs, so you need to be doing a lot of exercise to regain those abilities. But you need physical support, motivation and feedback to know what you're doing right and wrong."

Novak has worked with local groups which deal with medical conditions that inhibit movement.

"We do a lot of work with some people and you really see they have a decreased quality of life," Novak says. "You have people coming in who haven't been able to unclench their hand for 5-10 years, and they are so hopeful that there will be something that can help."

Novak and his team have met with stroke-support groups in Cheyenne and Laramie. For all its charms, Wyoming does have a disadvantage for residents who reside in low-population centers. For these people, getting

rehabilitation might mean driving several hours.

Melissa Wheeler sees the potential in Novak's research. She is a case manager on the Acute Rehabilitation Unit and serves as a coordinator for a stroke survivors support group at Cheyenne Regional Medical Center (CRMC).

"People have more access to computers at home, and it's not such a reach for them to consider that technology to assist them in recovery or even after to keep them sharp," Wheeler says.

Ph.D. student Maja Gorsic also works with Novak, developing handheld paddles that help users improve hand-eye coordination.

"When you see that person with these conditions and see how eager they are to try new technologies to overcome it, you say to yourself, 'We really need to figure this out,'" she says.



# FROM THE GROUND UP

UW'S NEW ENGINEERING EDUCATION AND RESEARCH  
BUILDING WILL BE ONE OF THE NATION'S FINEST  
LEARNING AND RESEARCH FACILITIES



Left: EERB Innovation Center view  
Right: Exterior view of the EERB  
(Illustrator = Anita Lehmann, ZGF)







**By Andy Chapman**

Progress is evident for the University of Wyoming's most ambitious project to date. The Engineering Education and Research Building (EERB) has begun initial stages of construction. Here's what you need to know about this state-of-the-art project.

## THE CURRENT FACILITY

Adds-on and renovations throughout the years have kept the current building in use, but parts of the College of Engineering and Applied Science (CEAS) facility are nearly as old as the university itself. Researchers are outgrowing their labs, and student enrollment has increased nearly every year recently.

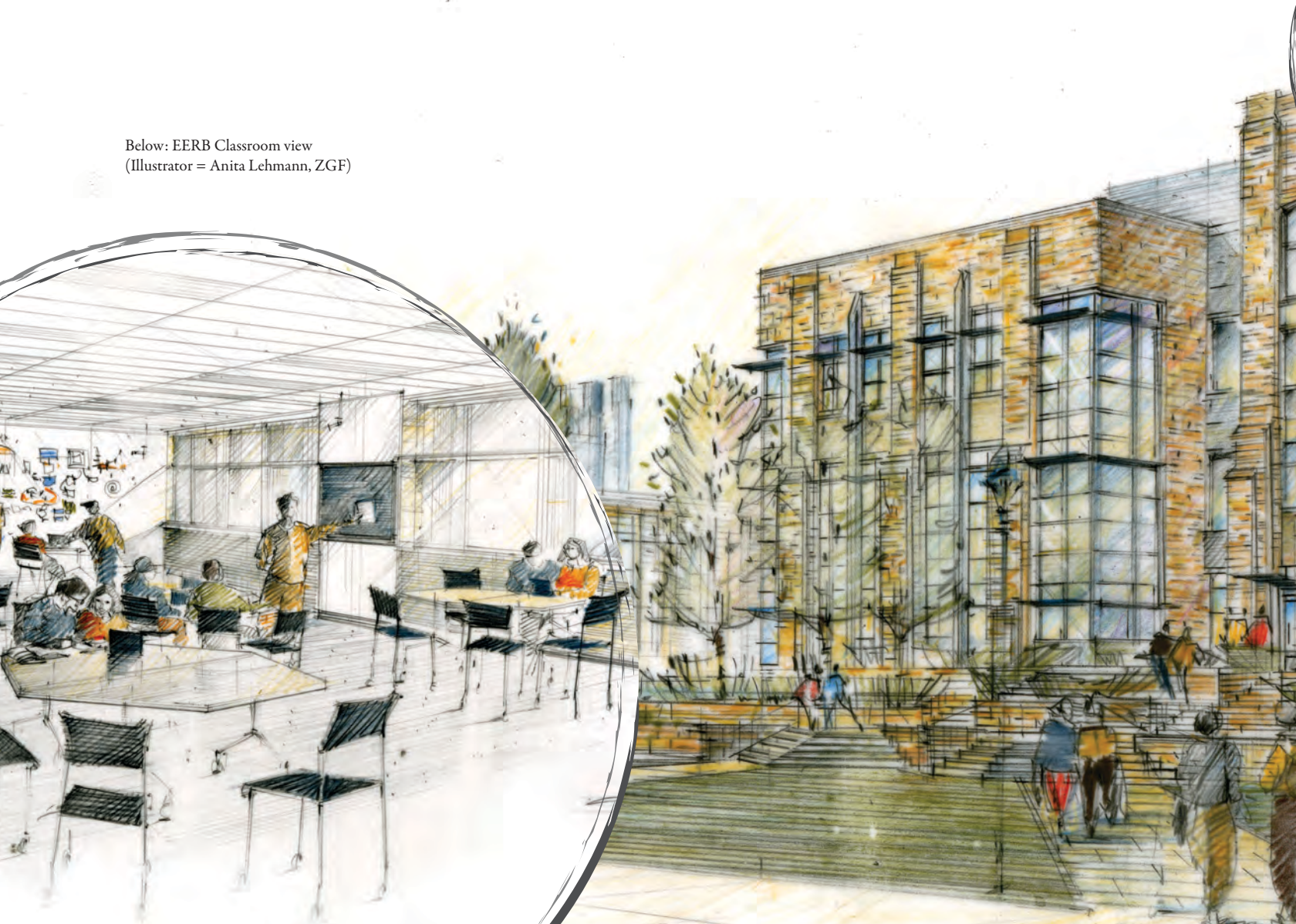
CURRENT ENGINEERING BUILDING SPECIFICATIONS	
Classrooms	28
Classroom labs	28
Computer labs	11
Open labs	8
Offices	254
Conference rooms	5
Research, non-class labs	108

## EERB OVERVIEW

The project includes construction of a new engineering facility north of Lewis Street between 11th and 12th streets. Part of UW's Tier-1 Engineering Initiative, the project is intended to provide new spaces for modern instruction and research, including a new shop and student project areas; teaching and computer labs in an active-learning configuration; reconfigurable research labs with associated office and collaborative spaces; meeting/conference rooms; and an expanded drilling simulator facility.

Designers and planners ensured this facility was very "student oriented," with a variety of learning spaces and collaborative work stations.

Below: EERB Classroom view  
(Illustrator = Anita Lehmann, ZGF)





## EERB STATS

**Square footage** 108,182

**Number of floors** 4  
(5 with mechanical penthouse)

**Number of spaces** 150

**Total cost** \$105M\*

*\*( \$75 million in state appropriations, \$15 million in projected private donations, and \$15 million in state-matching funds)*

## THE MAJOR PLAYERS

**Lead Design Firm:**  
ZGF Architects (Seattle)

**Other Design Partners:**  
Malone Belton Abel (MBA)  
and GSG Architecture

**Construction Manager At Risk (CMAR)/General Contractor:**  
GE Johnson  
(Colorado Springs, Colo.)

*Note: ZGF associate partner and lead designer/project manager Corinne Kerr is a UW architectural engineering graduate.*

## THE TIMELINE

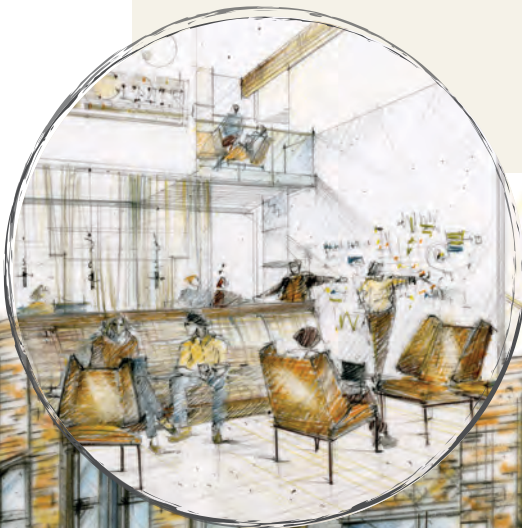
Prep work included earth moving, movement or removal of water, power, conduit lines and a lengthy process of acquiring property. Some environmental remediation was required, along with normal site preparation and clearing.

**Public groundbreaking:**  
Oct. 7

**Construction formally under way:** Oct. 17

**Construction period:**  
About 28 months

**Anticipated completion date:**  
Summer 2019, with classes and research beginning in fall 2019





## BUILDING DESIGN

From an aerial view, the capital H “dual-bar” structure design features a slightly off-kilter leg on the west side. Aesthetically, the building will have a similar feel to other buildings around Prexy’s Pasture.

“The architectural design committee wanted to maintain the traditional look and feel of the UW campus with the stone and columns,” says Krista Laursen, the UW project manager. “What’s unique is the west wing because it ‘activates’ the building. It’s a traditional look but when you walk inside, it’s dynamic and welcoming.”

Highlights include a Student Innovation Center, a student project area, active learning classrooms, Student Innovation Center, Student Entrepreneurship Center, and labs for advanced manufacturing, vibration,

drilling and completions, interdisciplinary fluids teaching, advance combustion, hydrocarbon, water, materials, computation and bioengineering.

## THE LEVELS

The design teams focused on building a space for engineering education and research. In particular, there’s a strong focus on active-learning environments. The first two levels of the building are focused on education. There’s the Student Innovation Center to bring ideas to life and build them. The Student Entrepreneurship Center challenges students to come up with ideas that can become marketable and turn into businesses.

On Levels 3-4, you find the research spaces. But there are no “legacy labs,” in which a single investigator moves in for the next 30 years. The idea

behind the labs was to design and build interdisciplinary spaces. Key selection criteria for the first tenants included finding individuals from the college who already engage in collaborative, multidisciplinary research in areas like water, combustion, reservoir technology and bioengineering. Office space for faculty and staff will be at a premium in the EERB, as the primary focus of the new building is the provision of modern research and learning spaces.

What’s the plan for the current engineering building?

The building will be utilized until fall 2019 to house staff, faculty and students for classes and research. A lot of those spaces will be used in some form or fashion after the EERB is completed. This summer, technology updates, including improved Wi-Fi and upgrade information technology upgrades, took place.

## THE DEAN’S INFLUENCE

**Keep three themes in mind for the EERB: flexibility, collaboration and innovation.**

### FLEXIBILITY

“We are looking for space that can be multipurpose and easily reprogrammed without tearing down the walls,” CEAS Dean Michael Pishko says. “We are looking at labs with drop-down utilities, classrooms that can be reconfigured to an active learning format, a lecture hall or to be cleared out completely for student workshops. Down the road, that saves a lot of costs for the building.”

### COLLABORATION

“This is space designed to foster student collaboration and forming teams in active learning and collaboration among faculty in the research space,” he adds.

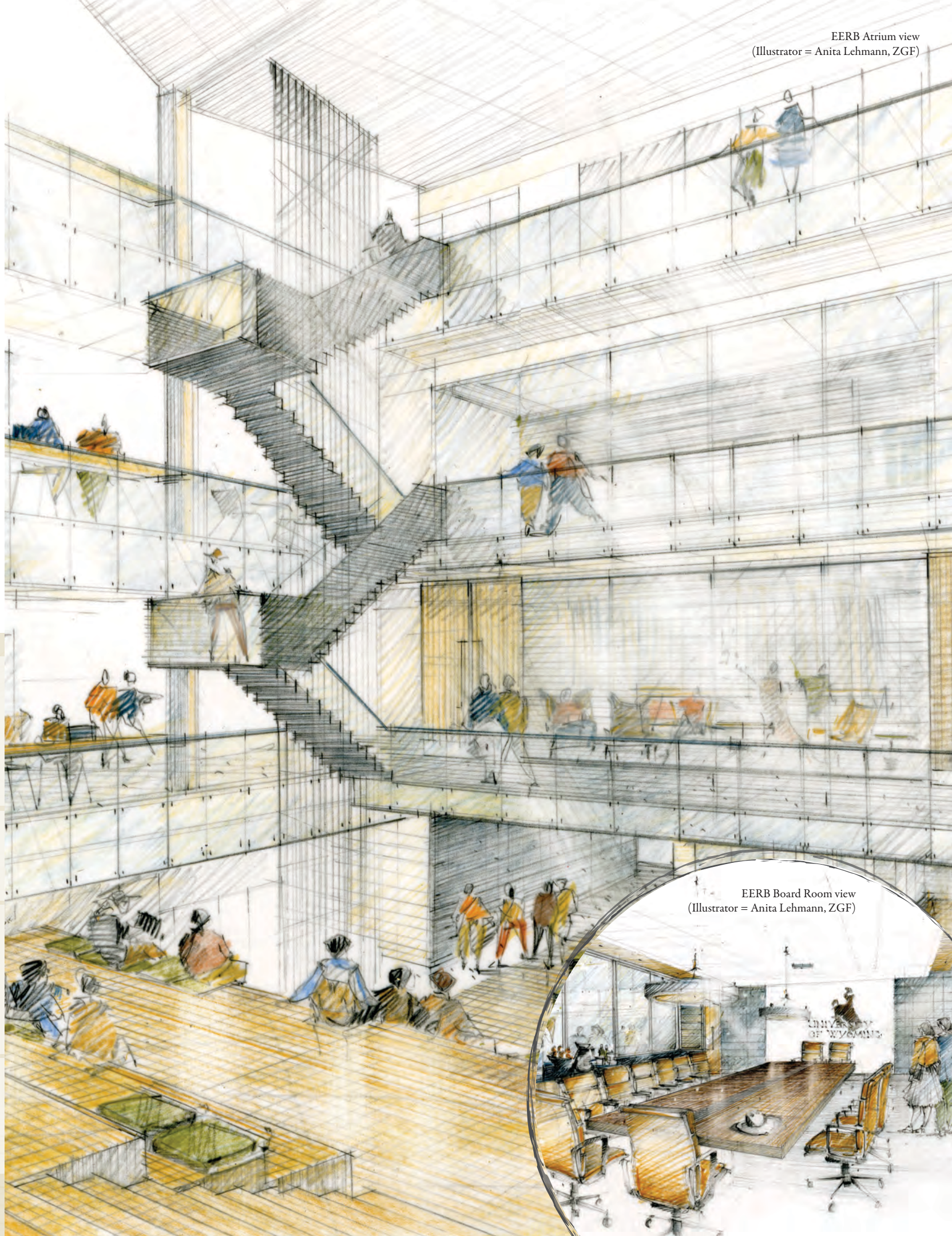
### INNOVATION

“We want to foster student innovation in a prototyping center to be used for senior design projects, clubs and organizations, freshmen engineering or K-12 programs,” Pishko says. “If you have students innovating, the next step is how do you turn that into something viable? We collaborate with the Wyoming Technology Business Center to develop and foster student entrepreneurship and collaboration on these ventures.”

### OVERALL IMPACT

There are not many facilities like this around the country. Pishko and his team traveled to other universities to see similar venues, including the Clark Center at Stanford University. They looked to find best practices among shared spaces in academia and industry.





EERB Board Room view  
(Illustrator = Anita Lehmann, ZGF)





Brian Toelle, a visiting professor in petroleum engineering, educates using experience after working in some of the world's biggest and most productive oil and gas fields.





# EXPERIENCE MEETS EDUCATION

PROFESSIONALS IN THE  
COLLEGE OF ENGINEERING  
PROVIDE PRACTICAL LEARNING





**By Andy Chapman**

WHEN BRIAN TOELLE TALKS ABOUT OVERCOMING CHALLENGES IN THE OIL AND GAS BUSINESS, HE DOESN'T JUST POINT TO AN EXAMPLE OUT OF A TEXTBOOK. THANKS TO MORE THAN 30 YEARS IN THE INDUSTRY, HE CAN ILLUSTRATE HOW HE AND HIS COWORKERS DEALT WITH PROBLEMS.

Toelle serves as a visiting professor in the Department of Petroleum Engineering at the University of Wyoming, but fits the bill of a “professor of practice” within the College of Engineering and Applied Science. He presents his lectures through PowerPoint, pacing a classroom, speaking and answering student questions. But he also shares his actual experience after working in some of the world’s biggest and most productive oil and gas fields.

“I enjoy staying busy. I’m not some super-intellect kind of guy,” he says. “I’m someone who keeps working on something he finds interesting. This is a way I can continue doing my research and to share it with young people who are getting ready to go into the industry.”

Toelle and Visiting Professor of Petroleum Engineering Doug Cuthbertson each offer anecdotal evidence of how things work in the real world, due to their unique careers. Bill Bellamy serves as a professor of practice in civil and architectural engineering and Ken Baum previously was a professor of practice in petroleum engineering.

In his lecture classes in fall 2016, Toelle recounts tales of drilling jobs that didn’t go the way they were projected. He discusses how to use geology, geophysics,

environmental engineering and reservoir engineering to evaluate current shale reservoirs. It’s based on sound theories as well as rooted in practical knowledge from Toelle’s own experience.

“I believe one of my strengths is I have a generalized background that helps me to recognize where industry integration can occur and I can teach cross-disciplinary activity,” he says.

He earned a bachelor’s degree at Texas A&M in geology in 1978 and master’s in structural geology in 1981 from Stephen F. Austin State University. After he was hired by Texaco in 1981, he began working various Rocky Mountain basins in 1984 as the company explored reservoirs in the western U.S. As a structural geologist for Texaco’s exploration department, he worked with seismic and became interested in geophysics.

In 1992, he worked for Saudi Aramco in Saudi Arabia, spending

five years exploring in the Eastern Province near Ghawar, the largest oilfield in the world. In the late ’90s, he returned to the U.S. to work for Schlumberger, a global oilfield services company. While working for Schlumberger he obtained his Ph.D., conducting research into applied geophysics. He retired in 2015 after working on projects on six different continents and looked for opportunities to teach, which led him to UW and the CEAS. While he stresses he’s not an engineer, he knows the industry ins and outs. That industry experience means visiting professors of practice provide a valuable service, encouraging new thinking, CEAS Dean Michael Pishko says.

“Professors of practice help bring in industry expertise in everyday activities at the college,” Pishko says. “They want to give back to the university. They give back through teaching courses that have heavy industry relevance versus just theory. They help bring in industry knowledge in what actually happens in the real world.”

Cuthbertson now teaches petroleum engineering classes and oversees drilling simulator operations in the Energy Innovation Center. He worked in the exploration and production industry since 1980 and traveled all around the world including South America and Asia. He attended Southern Alberta Institute of Technology from 1979-81, and UW from 1983-85, earning a degree in petroleum engineering.

“Application of the theory and technology is critical to what engineers do because that’s the expectation in the field,” says Cuthbertson, who came to UW in



Doug Cuthbertson

August 2016. “What I bring is an education that meshes theory with the practical aspect of how we apply the tools and techniques of the oil industry today.

“There are learning curves everywhere, so it’s valuable to have professors of practice. I don’t want to diminish the importance of my academic colleagues, who are all established and brilliant individuals who have worked very hard to get where they are.”

Mannan Qazi is a student in Toelle’s Tight Gas Sands/Coal Bed Methane class. A senior majoring in petroleum engineering and economics, Qazi is from India and grew up in the United Arab Emirates. He believes Toelle provides a valuable perspective to the students.

“I think (featuring professors of practice) is one of the greatest things the department can do,” Qazi says. “At some point in your academic career, you need to see the practical side of the field versus

just looking at papers and doing problems. That’s all great, but this gives you an idea of what goes on.

“For my senior design project, I feel like I’m a step ahead because he helped me out and I’ve got a better idea of what we were doing and talking about. It’s great to have him, especially for those projects.”

As innovation becomes more critical to jumpstart the economy of the nation, Toelle believes he can motivate his students to find creative solutions to problems.

“I can show how we did this and we discovered that and that led to us doing this. I can demonstrate how problem solving occurred,” he says. “Many students are imaginative and creative, and they’ll start to see that you can do this type of thing and will look for opportunities for integration.”

Moving forward, Pishko hopes more appointments can be made in the college for professors of practice

because of the myriad benefits.

“These are people who have actually gone out in the field and can tell you exactly what it’s like to work at these companies and how to advance,” he says. “That’s a key part for high school and college students. Getting an entry-level engineering position is great, but you need a clear career path. From faculty and traditional academic people, that’s not a perspective that we necessarily have.

“The other great thing about professors of practice is they help faculty connect with companies. They have industry contacts that allow faculty to connect with people they otherwise may not be able to reach. It helps us communicate more effectively. The world of academics and industry are different and have different goals and timelines and perspectives, and professors of practice help us understand how to communicate the benefit of what they do in industrial terms.”

Toelle speaks with Abdul Qazi of Kashmir, India, after a Tight Gas Sands/Coalbed Methane class.





# TURNING ENGINEERS



INTO

# ENTREPRENEURS



AN ON-CAMPUS PARTNERSHIP IS REAPING BENEFITS FOR ENGINEERING STUDENTS



Matthew Faryna (left), an electrical and computer engineering major, and Shuai Tan (right), a doctoral student in chemical engineering, explore innovative business concepts with personnel from the Wyoming Technology Business Center.



Below: Christine Langley  
(center), Wyoming Technology  
Business Center Chief  
Operating Officer, discusses  
small-business plans with Emily  
Beagle (right), a mechanical  
engineering Ph.D. student.





## By Andy Chapman

In 2006, engineer Jerad Stack didn't know much about market share, economics or what it took to have a successful business. What he did know was he had a product on his hands that could be profitable and help other businesses.

"At our core, engineers are problem solvers," says Stack, who earned a bachelor's and master's degree in mechanical engineering from the University of Wyoming. "A lot of us have great ideas involving technology. That's essentially what you're doing at a startup business—you're identifying a problem and solving it."

Stack and his team enlisted the help of the Wyoming Technology Business Center (WTBC) of the University of Wyoming. Together, the entities helped launch Firehole Composites into a new era. Firehole, which offers 3D, design and engineering software, was founded in 2001 and spent several years in the WTBC Incubator before moving to a permanent location in downtown Laramie in 2008. Firehole was acquired by Autodesk, a global software corporation, in 2013.

It's just one example of how the WTBC and the College of Engineering and Applied Science

can change the business landscape of Wyoming, ensuring engineering and entrepreneurship go hand-in-hand.

Jon Benson is the chief executive officer of the WTBC. Its mission is to support the growth and development of early-stage, entrepreneurial technology-based companies, not only in Laramie, but around the state. It was back in 2006 when the state Legislature set a goal to stimulate the state's economy and create diversified businesses so students wouldn't have to leave the state for employment.

The major program is a business incubator which combines space with access to shared services and business and management advice. The goal is to help businesses grow larger and faster than they would otherwise. The WTBC focuses on clients who can grow a \$3 to \$5 million business with a 10-20 percent net profit margin. Benson says the reason for this focus is that these types of businesses are building blocks in the economy and they stimulate other people to start businesses. The WTBC now runs business incubators in Laramie, Casper and Sheridan. From the beginning, students have been an important part of the program.

"We have always known that many of our companies would want to hire students or provide internships," Benson says. "Early on, we began to realize that students could be a source of some really interesting companies."

UW graduate Nate Storey grew Bright Agrotech to 20 employees before graduating from the WTBC Incubator. The Laramie-based company designs, manufactures and sells vertical hydroponic equipment for indoor and greenhouse growers. The business started in a garage, and after winning the College of Business \$10k competition in 2011, they earned office space at the WTBC for a year.

"We started before I had heard of the WTBC, but it was critical in helping us scale quickly, solve problems and provide mentoring to me and my staff," Storey says. "We certainly would not be where we are today without it. They have been an incredible asset. There's no way we could've grown as quickly without their help and advice."

CEAS Dean Michael Pishko is a major proponent of encouraging entrepreneurship and business within engineering's traditional avenues.

"What benefits do the students see from the partnership? One of the benefits is understanding engineering is all about translating science in practice," he says. "It can be improving existing technology or launching new technology."

"It's valuable to go through the process and ask questions like, 'Is my invention valuable to the outside world? How do I assess that value? How do I assess the competition? How do I get the money to move it out of the prototype stage and do a launch? How do I raise a salesforce?' Entrepreneurship programs, like the WTBC, help answer those questions."

Last summer, the WTBC received an expendable gift from Donne Fisher to initiate an entrepreneurship

## THERE ARE FOUR STAGES OF START-UP COMPANIES.

- 1 PRE-VENTURE:** Deciding whether to start a business
- 2 PRE-REVENUE:** Spending time putting together products or services
- 3 INITIAL SALES:** Working on getting one customer, and another, and another ...
- 4 FIRST GROWTH:** Building company with layer of middle management

competition targeting students who had a business idea related to technology or innovation. Consequently, the WTBC launched the Fisher Innovation Challenge, which accepted applications in May 2016. It provided the opportunity for new companies to apply for seed money to take the business past the concept stage and into real-world first article builds and initial sales. The competition identified 11 finalists eligible to apply for a slice of \$125,000 in seed funding. Of the 11 projects selected for the finals, nine had roots in the CEAS. The final pitch day will be Nov. 10.

"I was thrilled several finalists were from engineering," Pishko says. "Jon Benson and his team do a great job educating students and serving as mentors. It's a great organization, and we're lucky to tap into the interface between engineering technology and business."

Benson and CEAS Professor Denny Coon taught a course in spring 2016, Engineering Management. The goal is for each student to identify a business idea and then the WTBC assigns them a counselor to help them explore that business idea and put together a pitch that is presented to the class. This class will allow students to experience what it is like to create a business so when the time comes, they'll be familiar with the process, which actually is one of the harder elements of keeping a business going.

The Engineering Education and Research Building, slated to open in 2019, will have centers for technology and entrepreneurship, run by the WTBC.

"We're beginning a relationship with the College of Engineering that will evolve into lots of things and we're very excited about it," Benson says.

Stack, who is a Wyoming native, is no longer with Firehole. He remembers his time working with the

## NOTABLE WTBC GRADUATES

■ **FIREHOLE TECHNOLOGIES (AUTODESK)**

■ **POLLUTION CONTROLS**

■ **TIGER TREE**

■ **BRIGHT AGROTECH**

■ **HAPPY JACK SOFTWARE**

Note: The average wage among clients who have graduated from WTBC Incubator is about \$65,000 per year.

"AS THESE COMPANIES GROW, THERE'S THE POTENTIAL YOU CAN BRING MAJOR COMPANIES HERE AND THEY END UP STAYING. THEY CAN HAVE AN IMPACT ON AN AREA."

- Jonathan Benson, WTBC

WTBC fondly.

"I saw us go from two employees to a dozen or more," he says. "They had resources available and people who helped really shepherd us to being a handful of engineers who thought we had a good idea to having a business and building sales methodology. They guided us through that entire process, from a fledgling idea to an actual enterprise."





# alumni **in** action

## Statewide Engineering Firms Have Strong UW Roots

**By Andy Chapman**

Many large-scale engineering projects have made an impact in the towns and cities of Wyoming, and the University of Wyoming's College of Engineering and Applied Science (CEAS) played a large role in their development.

Two of the most notable firms in the state, Nelson Engineering and Martin/Martin, each have strong UW connections.

"I felt the UW education and experience were really beneficial for my career path," says Carla Hansen, a professional engineer and partner at Nelson Engineering. Hansen earned her degree in architectural engineering with a structural emphasis in 2001 from UW.

Nelson Engineering provides civil, structural and geotechnical engineering, along with surveying services. With offices located in Jackson and Buffalo, the firm is one of the largest and longest-tenured firms in Wyoming. UW graduate Bob Norton is the CEO, and the founder, Albert "Boots" Nelson, also is an alumnus. Nelson takes on projects in the areas of water resources, transportation, surveying, energy development, solid waste, structural, geotechnical, construction and land development.

Martin/Martin Wyoming (MMWyo), headquartered in Cheyenne, also has a UW affiliation. It has a focus on structural engineering services within the state and the



Employees of Martin/Martin Wyoming pose for a group portrait in the Enzi STEM Facility at UW. (Photo courtesy MMWyo)

university and various projects around campus come directly from that shop, including the Michael B. Enzi STEM Facility, Marian H. Rochelle Gateway Center, College of Business renovation, Energy Innovation Center and the High Bay Research Facility under construction.

"We, as a company, take great pride in our ability to have UW graduates designing UW projects," says MMWyo President John R. Shaffer, who graduated from UW in 1996 with a bachelor's degree in civil engineering. "We have been very fortunate over the years to be involved with numerous projects on campus, and I believe the success of these projects is directly related to the education our staff has received at the university."

Nelson Engineering and Martin/Martin aren't the only firms in Wyoming with UW ties, of course. But they serve as great examples of successful landing points for UW graduates, many of whom feel a real connection with the Cowboy State.

Hansen also likes to point to the fact that the state can employ homegrown engineers. The Lusk native worked in several states after graduation in various roles, but her ties to Wyoming made her strive to return home if possible. That opportunity came in 2007, when she was hired in the Jackson office.

"If I ever left Wyoming, I knew I wanted to come back," Hansen says. "For young Wyoming engineers, it's important to realize that you can do this job here."

## Bates Recalls Tales of Boeing's History

**By Andy Chapman**

Dwight Lee Bates has had some unique experiences in his professional life, and he hopes sharing them will inspire young engineers.

Bates, who graduated from UW in 1966 with degrees in mechanical and aeronautical engineering, worked as an engineer for 44 years in the aviation, ship building and automotive fields. He was employed as an engineer in the U.S. Department of Defense, U.S. Navy, Boeing and Warn Industries. In 2015, he published *Due Diligence—Memoirs of the Life of an Engineer and Outdoorsman*. Below are notable excerpts, which appeared on Boeing's website for its 100th anniversary in 2016.

### **The Best Engineering I Ever Did**

"In 1966, I had a good job working on the engines on Boeing's Supersonic Transport. However, due to problems, I decided to

transfer to the Boeing 747 program.

"The Boeing Company had bet the farm to build the 747, and the banks virtually owned Boeing. The 747 had to fly and sell or the company would go bankrupt. We heard arguing at a management meeting, so we put a 747 airplane model in through the doorway. The arguing stopped as my model airplane rolled down the floor, throwing sparks out of the engines.

"This brought laughter and much relief. I did not know if the chief engineer would fire me over my stunt, so I never retrieved my model airplane. He said that was a good thing I did because it broke the tension and people got along better.

"The 747 was certified on December 1969 by the FAA, in part due to the Certification of the Engines Document I mainly wrote."

### **Incredible Saga**

"Boeing Incredibles were those people

who built the Boeing 747 in 16 months. We assembled the first 747 in snowstorms as they were constructing the building around us.

"The Incredibles slept at their desks rather than to go home. I remember many times leaving to walk out to my car at midnight after working overtime. Boeing management had bet the company when they borrowed so much money that we needed to build, certify, sell and deliver the 747s to remain solvent.

"The engines were the problem. I flew 40 hours testing the engines for FAA certification on the No. 2 airplane. I wrote most of the 747 Engine Certification Document proving to the FAA that the engines functioned over the flight envelope. For example, we had the pilot go to full thrust reverse at 120 knots while landing at Boeing Field."



Dwight Lee Bates

## Small-town Wyoming Sisters Use UW Education to Reach Higher

**By Andy Chapman**

Growing up on a wheat farm in Albin, Wyo., the Sandberg sisters often looked to the big night sky and thought of the possibilities. Now, they don't have to wonder what's up there, because the graduates of the University of Wyoming have careers that allow them to see it.

### **Julie (Sandberg) Read**

As a NASA intern, Read remembers her time at UW as a valuable experience.

"UW is focused on teaching students," Read says. "It was a nice setting to know that your professors always had time for you, which is not necessarily true at a bigger university."

She also had the opportunity to participate in programs such as the national engineering society Tau Beta Pi and the UW Experimental Program to

Stimulate Competitive Research.

"Those experiences helped me get my first job, get into graduate school, and I hope will look strong on my resume to get my next job," she adds.

From UW, she earned a bachelor's degree in electrical and computer engineering in 2007. At Texas A&M, she earned a master's degree in aerospace engineering and is pursuing a Ph.D.

### **Lori Sandberg**

Despite being three years younger, Sandberg has made a name for herself. She graduated from UW with a bachelor's degree in mechanical engineering in 2010, and earned a master's from Texas A&M in 2013. She took a job with Boeing in Houston and now is working on the CST-100 Starliner, a commercial crew



L to R: Lori Sandberg and Julie (Sandberg) Read

transportation spacecraft.

"I can't say enough about UW and how much it helped me get to where I am today," she says. "I had excellent professors at Wyoming. They pushed me but they cared about the students and wanted us to learn and to succeed."

Sandberg watched her older sister as she grew up and wanted to emulate her in just about everything.

"I don't know if I would've considered engineering as a career if I didn't see Julie go through it," she says.



# alumni<sup>in</sup>. memoriam

Since our last issue, we regret to announce the passing of the following alumni. Our greatest sympathy is extended to the families of these valued friends.

**Mr. George Arkoosh**

BSME '42 – Tucson, Ariz.

**Mr. Kenneth Battisti**

BSME '83 – Laramie, Wyo.

**Rev. Daniel Colibraro**

BSME '44 – Casper, Wyo.

**Mr. Bruce Dodge**

BSME '60 – Cary, N.C.

**Mr. Donovan Dunn**

BSEE '50 – Orange, Calif.

**Mr. Per Duus**

BSME '67 – Plattsburgh, N.Y.

**Lt. Arthur Erickson, U.S. Navy (Ret.)**

BSCE '42, MS '52 – Los Altos, Calif.

**Mr. Garth Finley**

MS '95 – Albuquerque, N.M.

**Mr. Philip Furiosi**

BSCE '11 – Laramie, Wyo.

**Mr. Richard "Dick" Hartwell**

BSPE '58 – Riverton, Wyo.

**Mr. Donald Kennedy**

BSPE '73 – Katy, Texas

**Mr. Jack Meena**

BSCE '91, MS '93 – Cheyenne, Wyo.

**Mr. Donald Murray**

BSEE '65 – Colorado Springs, Colo.

**Mr. Leon Petersen**

BSEE '62 – Orlando, Fla.

**Mr. Carlos Romero**

BSEE '69 – Elkhart, Ind.

**Mr. Glenn Walker**

BSEE '60 – Grand Junction, Colo.

**Mr. Gerhard Wullink**


MS '72 – Loveland, Colo.

**Mr. Frank Zaversnik**

BS '68 – Roy, Utah

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*Thank you for your continued support!*

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Please call (307) 766-7000 or e-mail [wyoalumn@uwyo.edu](mailto:wyoalumn@uwyo.edu) if you have questions.



# IMPACT OF FORMER CEAS STAFFER STILL FELT TODAY

**By Andy Chapman**

Ryan Kobbe remembers the exact day his life took a turn for the better. The undeclared freshman walked into Susan McCormack's office in the College of Engineering and Applied Science (CEAS) in 1999. After an hour, he walked out as an engineering student.

It's that kind of interaction that earned McCormack her current honor. As of fall 2016, the title will be the Susan McCormack Center for Student Success and Career Services. The center houses employees dedicated to aspects of the CEAS educational mission, including K-12 outreach, recruiting, retention, diversity and career placement.

"You can be the valedictorian but you've never had classes like this in high school," McCormack says of the rigors of the CEAS. "You're here with the brightest and best. You can't get through it by yourself. When you need help, ask for help."

McCormack's roles included serving as a freshmen engineering advisor, high school recruiter, freshmen summer orientation coordinator, scholarship coordinator, degree-check monitor, commencement coordinator and Engineering Summer Program coordinator. She put in 16 years as the editor, writer and designer of *Foresight*, the college's magazine. She earned a Distinguished Service Award from the college in 2014 and retired from her position the same year.

Since 1988, McCormack helped students who came to her. They struggled with non-academic issues or were overwhelmed with the college experience. She would sit the student down in her office, offer some baked goodies and outline a plan for success. She struggles to accept the notion she

"deserves" the honor.

"I'm not the only person who ever threw my heart and soul into this college for the kids," she says. "You don't name things after people like me, just a staff person."

McCormack came to the college from UW Physics. Her first project was taking ownership of *Foresight*, and she also became the go-to staffer when students needed a helping hand. That led to the development of the student success center.

"It became noticeable I had a good touch with the students," she says. "If one of them had a problem, it became common to hear someone say, 'See Susan.'"

Kobbe, now an associate academic professional lecturer in the Department of Civil and Architectural Engineering, credits the influence of McCormack for his career in engineering.

"I try to adopt Susan's attitude and be positive and selfless like she was," he says. "I don't know anyone who worked more hours than she did. I constantly remind myself to live under the model she presented to me. Sometimes all students need is a smile and for you to know their name and that means the world."

College administrators planned to host her retirement ceremony in the Engineering Building but had to move it to the Wyoming Union to accommodate all the attendees. Alumnus Phil Hirst, who was 98 at the time, traveled all the way from Arizona to attend.

"You can sum her up by saying she loves students, simple as that," CEAS Associate Dean Steve Barrett says. "She took care of them on the college side, but she was part of their personal lives. She's kindness and service at its best."

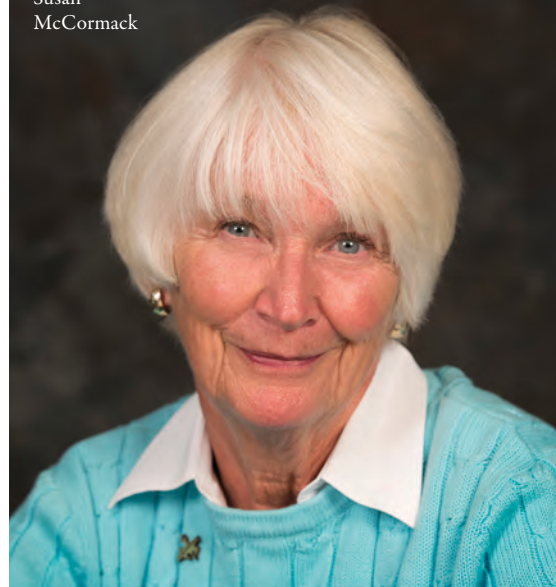
Now an energetic 73 years of age, she remains close to her former students and has attended more than 50 of their weddings.

"I really wanted to help those kids because they deserved it," McCormack says. "I had a job that I was blessed to come to every day because I loved it."

## SUSAN'S SERVICE

- Served 26 years in dean's office in student services under five deans and four associate deans
- Wrote and edited *Foresight* for 16 years
- Chief proctor for national engineering exam prior to computer-based tests
- Organized two commencements a year
- Planned and helped run ESP for 15 years
- Numerous Mortar Board Tip of the Cap awards, Thumbs UP! Award given by A&S senior (usually given to A&S staff members); ASUW Each Student a Person award; only staffer in CEAS to win outstanding staff award twice
- Offered dozens of baked goodies to students during December finals week
- Earned lighthearted nickname of "Brat" from former CEAS Dean Sam Hakes, which still serves her email address at the university (brat@uwyo.edu). She can also be found on Facebook.

Susan  
McCormack



# UW CALENDAR OF EVENTS

## OCTOBER

- Oct. 2:** Cowgirl Soccer vs. Nevada
- Oct. 8:** Cowboy Football vs. Air Force
- Oct. 21:** Midsemester
- Oct. 25:** Cowgirl Volleyball vs. Colorado State
- Oct. 28:** Cowgirl Soccer vs. Colorado State
- Oct. 29:** Cowboy Football vs. Boise State
- Oct. 31-Nov. 4:** Advising week for Spring 2017

## NOVEMBER

- Nov. 5:** Cowboy Football vs. Utah State
- Nov. 5:** Cowboy Wrestling hosts Cowboy Open
- Nov. 10:** Last day to withdraw from individual semester classes
- Nov. 11:** Cowgirl Basketball vs. Chadron State
- Nov. 11:** Cowboy Basketball vs. Western State
- Nov. 11-12:** Discovery Days
- Nov. 19:** Cowboy Football vs. San Diego State
- Nov. 23:** Last day for all-school withdrawal
- Nov. 23-25:** Thanksgiving Break

## DECEMBER

- Dec. 9:** Last day of classes
- Dec. 9:** Fall Commencement
- Dec. 12-16:** Finals Week

## JANUARY

- Jan. 16:** MLK/Equality Day holiday
- Jan. 23:** Spring Semester begins

## FEBRUARY

- Feb. 20:** President's Day

## MARCH

- March 13-17:** Spring Break

## APRIL/MAY

- May 5:** Last day of classes
- May 8-12:** Finals week
- May 13:** Spring Commencement
- May 29:** Memorial Day



For the latest events and information, visit  
[uwyo.edu/calendar](http://uwyo.edu/calendar).

UW Cowboys and Cowgirls:  
[gowyo.com](http://gowyo.com)

Fine arts:  
[uwyo.edu/finearts](http://uwyo.edu/finearts)



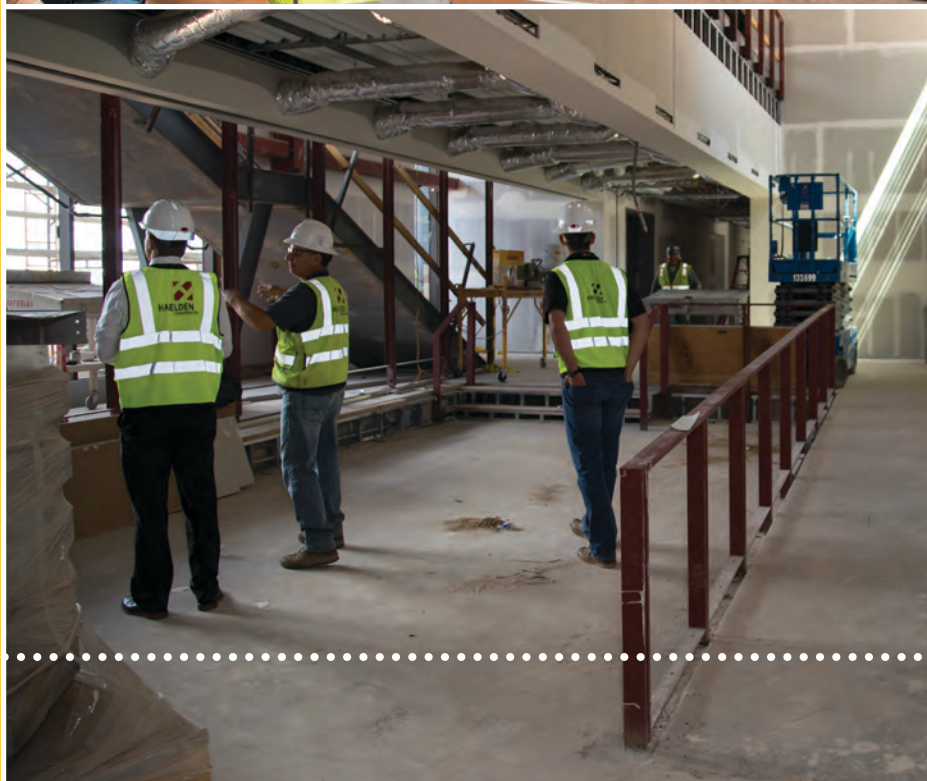
# HIGH BAY RESEARCH FACILITY

Substantial progress has been made on the High Bay Research Facility, which will elevate the profile of the University of Wyoming and the College of Engineering and Applied Science.

Construction began in March 2015 and is scheduled to be complete in January 2017. It will contain about 90,000 square feet of high-bay and traditional laboratory space, and affiliated office and meeting areas. The research spaces will be for research into unconventional oil and gas reservoirs, part of UW's Tier-1 Engineering Initiative, and will house the Center of Innovation for Flow in Porous Media, Improved Oil Recovery Laboratory, and Geomechanical/Petrology Laboratory. A Structures Research Laboratory also will be part of the new building.

The \$53.5 million building is funded by \$37.2 million in state dollars (pending final legislative action on the supplemental budget) and \$16.3 million in private contributions, with an additional \$9.2 million in private gifts for research equipment.

Photo credit: Adam Herrera, UW Foundation











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**“ I can’t say enough about UW and how much it helped me get to where I am today. I had excellent professors at Wyoming. They pushed me but they cared about the students and wanted us to learn and to succeed. Without that background and education, I couldn’t have accomplished what I have today. ”**

**– Bryce Fiore, Architectural Engineering '16**

