

THE BRIDGE

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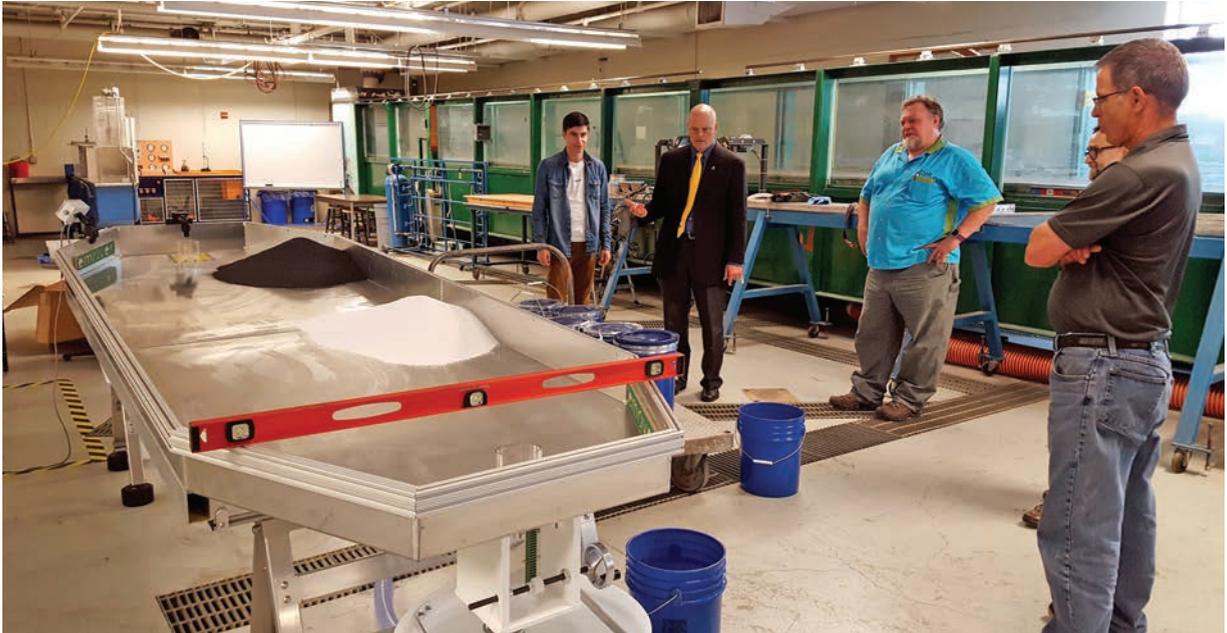
Civil, Architectural and Environmental Engineering

Bayless retired
after more than
50 years with S&T

page 4

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FROM THE CHAIR: Joel G. Burken, Ph.D., P.E., BCEE, F.AEESP



As we roll well into 2017, there are many changes and much progress from Rolla to note. We are happy to share some recent news on the development of the Advanced Construction and Materials Laboratory (ACML). With over half of the needed investment raised, we received a green light from the new University of Missouri System President **Mun Y. Choi** and interim Missouri S&T Chancellor **Christopher G. Maples** to move the project forward. We are looking to complete our fundraising over the next year and move into the ACML in 2019. The new state-of-the-art facilities, with 16,000 square foot of space, will propel our capabilities in infrastructure engineering education and research to be among the best in the nation (more on page 7).

In April, we celebrated the induction of seven new members into the Academy of Civil Engineers (page 12) — including **Dr. Shamsher Prakash**, who also initiated a new lecture series in geotechnical engineering after his long career at UMR/S&T (page 21). In other long-term career news, we also celebrated the legacy of “**Mr. UMR**” **Jerry Bayless**. Jerry arrived in Rolla at the Missouri School of Mines in 1955 and graduated in 1959. He immediately started teaching and changing the lives of numerous MSM/UMR/S&T students. Now — more than 57 years later — Jerry has decided to enjoy retirement, but still advises and works with students. His impact over time has been amazing (page 4), and we look forward to celebrating his career on October 26. Please see the

details on the back cover and join us during the celebration at Homecoming!

In the “THANK YOU” category, the first round of laboratory matching funds were successfully acquired for a new sediment hydrology table. The photo above shows the new table setup. Part of the funding also assisted in getting the large hydraulics flume up and running. Funding from several alumni and the Academy of Civil Engineers allowed us to receive matching funds from the College of Engineering and Computing (see note below). The 2017 matching competition will be closing soon and we look forward to continuing to enhance our capabilities.

In closing, I’m sad to have to share the news about the passing of **Dr. Timothy Philpot** during the spring 2017 semester (page 23). Tim made a tremendous impact through his textbooks and educational media. His award-winning work was used by over 41,000 students at over 340 institutions. Tim was always a positive colleague and he will be greatly missed.

NOTE: The College of Engineering and Computing (CEC) started a matching program for new equipment and instrumentation. The program was initiated to help make limited resources have a greater impact. Our department was fortunate to quickly pull in \$17,000 from members of the Academy of Civil Engineers and several alumni. We received the CEC matching funds to purchase a new hydrology experimental and sediment transport table and to rehabilitate the large-scale flume that is now functional again.



FACULTY EXCELLENCE

Congratulations to **Dr. Lesley Sneed**, associate professor of civil, architectural and environmental engineering, for receiving a Missouri S&T Faculty Excellence Award. This is the highest annual faculty award on campus. Sneed is pictured above with her husband, Mike.

ALUMNI MERIT AWARD

Dr. David Richardson, CE'71, MS CE'73, PhD CE'84, has been selected to receive the Miner Alumni Association's Alumni Merit Award for 2017. Acceptance will occur during the fall Homecoming festivities. The Alumni Merit Award is presented to faculty, friends of the campus or alumni for outstanding achievement or service to the campus or to the Miner Alumni Association.

DEPARTMENT ADMINISTRATION

Department Chair

Joel Burken, Ph.D., P.E., BCEE, FAEESP

Assistant Chairs

Civil: Eric Showalter, Ph.D., P.E.

Architectural: Stuart Baur, Ph.D., A.I.A.

Environmental: Mark Fitch, Ph.D.

Graduate Program: Cesar Mendoza, Ph.D.



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THE BRIDGE



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Lifesaving flood relief

Academy of Civil Engineers member **Dan Israel** evacuated his neighbors as the North Fork River in southern Missouri rose out of its banks. In all, he saved 17 lives during the flood.

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Asphalt expert joins S&T

Dr. Magdy Abdelrahman has been named the Missouri Asphalt Pavement Association (MAPA) Endowed Professor in Flexible Pavements at Missouri S&T. His appointment begins Aug. 1.

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First Prakash Lecture

Dr. Richard D. Woods, a member of the National Academy of Engineering and a professor emeritus of civil and environmental engineering at the University of Michigan, presented the inaugural lecture in the Shamsheer and Sally Prakash Distinguished Lecture Series in Geotechnical Engineering.

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'Mr. S&T'

HANGS UP HIS SLIDE RULE

by Joe McCune

No matter whether you call it the Missouri School of Mines and Metallurgy, the University of Missouri-Rolla or Missouri University of Science and Technology, Jerry Bayless has called it home.

Bayless, an associate professor emeritus of civil, architectural and environmental engineering at Missouri S&T, first came to the campus in 1955. He earned a bachelor of science degree in civil engineering in 1959 — the same year he joined the faculty — and added a master's degree in civil engineering in 1962.

Now, after more than 57 years, Bayless has retired. His last official day was Tuesday, Feb. 28.

Known as "Mr. S&T" for many years, Bayless has influenced thousands of students during his time at the school.

"There's nobody who has made such an impact on our students in our almost 150 years of civil engineering education in Rolla," says **Dr. Joel Burken**, Curators' Distinguished Professor and chair of civil, architectural and environmental engineering. "He has influenced so many students, encouraging them to find their passion or helping those who are struggling to stay in school and see it through. Jerry is dedicated to our students every day, not just on special occasions. That's just who he is."

In 2011, Bayless was asked what course was his favorite to teach.

"I can narrow it down to three," he said. "Fluid Mechanics, Reinforced Concrete Design and Structural Analysis. Slide Rule would rank high, also, but I haven't taught that in 35 years!"

Bayless has served as an assistant to the chair of civil engineering and as the assistant dean of engineering. In 1990, he became associate dean, and in 2004 he received the Chancellor Medal. Bayless is a recipient of the Alumni Merit Award, was an honorary St. Pat and parade marshal, and in 2011 he was named one of Missouri S&T's inaugural class of Alumni of Influence.

Besides the countless students he has counseled, he's been a guiding light for faculty, too.

"He has been a fantastic direct mentor to me," Burken says. "He stands for what S&T stands for: excellence in preparing students for the engineering profession he loves."



photo by Brad Rupert

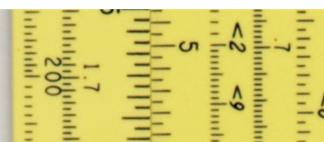
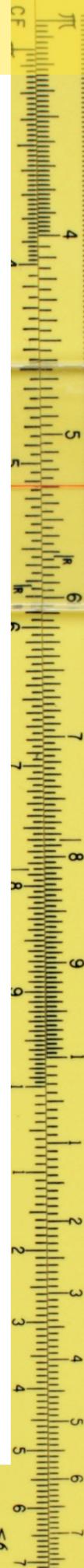
Jerry Bayless, a.k.a., "Mr. S&T," poses above with the Joe Miner mascot.

Bayless has been a part of Missouri S&T since he was a first-year student in 1955.

After more than 57 years on campus, he retired Tuesday, Feb. 28, 2017.



photo by Sam O'Keefe/Missouri S&T





At one point during the heavy rain that fell across southern Missouri this past April, all volunteer first responder **Dan Israel**, CE'83, could see from his back porch was the swollen North Fork River — a river that usually flows 100 yards from his house.

Floodwaters reached unprecedented heights the weekend of April 29, 2017, in Ozark County, where Israel lives with his wife, **Caroline**, CE'83. At its peak flow — 41.8 feet on the local gauge — the river consumed the homes of many of his neighbors and either flooded or destroyed bridges throughout the county, including several near their rural Tecumseh, Missouri, home. Israel and his neighbors had no way out.

According to an *Ozark County Times* article, the rushing current trapped the Hoversens in the water. Witnesses reported that Katie was holding two dogs and clinging desperately to a fence post in the chest-deep rising water when Israel pulled her into the rescue boat. He took her to safety and returned to save her husband, who was sitting on a tractor.

Israel didn't just save these people, though. He and his wife took them into their home. They fed the survivors, gave them clothes and shoes, and provided other necessities, like toothbrushes. When supplies ran low, they called on the Ozark County Sheriff and the Missouri State Highway Patrol, which brought additional supplies by boat.

"These people were cold and wet," Israel says. "All they had was what they were wearing; many of them had no shoes."

Once floodwaters began to recede and the evacuees secured alternate living arrangements, Israel ferried them out. They were welcome to stay as long as they needed, though. Five weeks after the flood, the last evacuee left the Israel home.

"We had to get a little creative," Israel says. "I'm just glad we were there and able to help."

The recovery effort has kept Israel busy. He developed house plans and consulted on other rebuilding projects. He expects recovery to continue through the rest of the year.

The flood swept away Israel's barn, all of his tools and his blacksmith shop. He began rebuilding the barn in mid-June.

"In a few months, I hope we are back to normal," Israel says. "For our neighbors, it will be much longer, but I will be here helping them as we move forward."

Israel works part-time for the Ozark County Sheriff's Office and is a first responder and firefighter with the Tecumseh Volunteer Fire Department.

"I entered law enforcement right after high school," says Israel, a past president of the Academy of Civil Engineers who retired as a geotechnical engineer and part-owner from Terracon after 31 years in industry. "I kept a hand in law enforcement, though, and have worked part-time more than 26 years."

As the river rose out of its banks that April weekend, Israel evacuated his neighbors — eight people, including four children. In all he helped save 17 lives during the flood. Three he plucked from a rooftop. Six others, he pulled from the water.

Ted and Katie Hoversen of Tecumseh were among those Israel helped save.



photos submitted by Dan Israel

LIFESAVING FLOOD RELIEF

by Mary Helen Stoltz

Missouri S&T, UM System

partner to complete
Advanced Construction
and Materials Laboratory

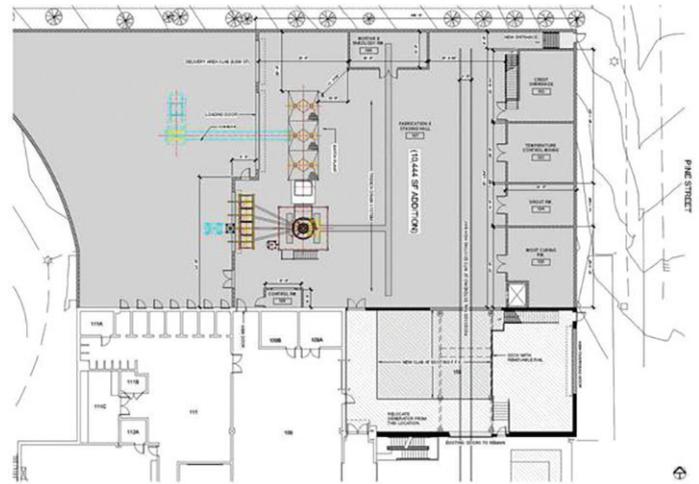
by Andrew Careaga

Missouri S&T is partnering with the University of Missouri System to fully launch a key research initiative at S&T, the Advanced Construction and Materials Laboratory (ACML). The laboratory is expected to position Missouri S&T as a national leader in the development of innovative materials and approaches to address public infrastructure challenges.



The ACML was Missouri S&T's top-priority capital project for matching funds from the state of Missouri through the state's 50-50 program. Under that program, the Missouri legislature would appropriate equivalent funds to match private donations for capital projects on UM System campuses that would benefit Missouri and Missourians. No 50-50 projects received state support this year. But Missouri S&T and UM System leaders decided that the ACML project was too important to delay, so they chose to designate university funds to complete it.

"This project is too important to the needs of our state, our nation and our world for us to let it languish," says **Christopher G. Maples**, interim chancellor of Missouri S&T. "It is time to take matters into our own hands to make the Advanced Construction and Materials Laboratory a reality."



Plans for expanding the ACML

A STRATEGIC INVESTMENT

Missouri S&T has raised more than \$3 million in private donations toward the \$6.5 million project, including a \$3 million gift from the estate of **James A. Heidman**, CE'65, and \$100,000 gift from the Sunderland Foundation, the charitable arm of Ash Grove Cement Co. UM System President **Mun Y. Choi** has agreed to commit half of the remaining funds from the system while Missouri S&T will continue fundraising efforts to cover the remaining project costs.

The ACML was identified as a strategic investment by the UM System during Choi's budget address in June. Strategic investments are designed to strengthen programs of excellence for the UM System and its campuses.

"I'm very grateful to President Choi for his commitment to this important initiative, and to our donors for their support of our vision to make Missouri S&T a global leader in developing new and innovative approaches to address pressing issues with our nation's infrastructure," says Maples.

ABOUT THE ACML

The ACML will expand the High-bay Structures Laboratory in Butler-Carlton Civil Engineering Hall to provide 16,000 square feet of research space for developing and testing new construction materials and methods. These innovations will offer faster, longer-lasting, more cost-effective and greener solutions to building and infrastructure challenges.

For more information on how you can help with the remaining cost of the expansion, contact **Shannon Bishop**, senior development officer, by phone at 636-295-6762 or by email at sbishop@mst.edu.

Oerther receives President's Award for Cross-Cultural Engagement

Dr. Daniel Oerther, professor of environmental engineering at Missouri S&T, was awarded the fourth of 10 UM System President's Awards by former UM System interim Vice President for Academic Affairs **Bob Schwartz**.

Schwartz — accompanied by S&T Provost **Robert Marley** — surprised Oerther in April with the President's Award for Cross-Cultural Engagement, which includes a \$5,000 prize. The award recognizes faculty who promote cross-cultural engagement through education, research and service.

Since joining the faculty in 2010, much of Oerther's service includes trips around the world, anchored by semesters teaching in Rolla. His legacy has a positive impact on the student population.

"Professor Oerther has brought his passion for cross-cultural engagement to the Missouri S&T

classroom as Dan is the campus director of Diplomacy Lab — a public-private partnership enabling the Department of State to 'course-source' research and innovation to solve foreign policy challenges," wrote S&T professor **Ian Ferguson**, in his nomination. "Professor Oerther has demonstrated a profound, positive impact on our students and our global community."

Outside of the classroom, Oerther has led students on trips to Kenya, Tanzania, India, Brazil and Guatemala, working to provide clean drinking water to more than 100,000 rural villagers. In addition, he illustrated 'intentional living' to the Rolla community by living for three years, with his family of four, in a tiny home located in the Missouri S&T Solar Village. His example inspired S&T students to construct a 'Nest Home' for the 2015 Solar Decathlon.

"Dan is more than my 'teacher.' He's a 'co-learner' with me," wrote **Lee Voth-Gaeddert** in a nomination letter.

Voth-Gaeddert is a doctoral student currently working with the Peace Corps in Guatemala.

"Following on Dan's advice to learn more about what it's like to be poor in the U.S., I lived in a local trailer park here in Rolla, in between my overseas trips. I learned how to study my physical environment and engage with my cultural environment by living and working with the community of interest. This approach to cross-cultural

engagement is exactly what we do as Peace Corps volunteers," Voth-Gaeddert said.

In 2014, Oerther was named a foreign affairs officer for the U.S. Department of State in Washington, D.C., working for clean water and food security around the globe.

The job, according to Oerther, consists of "fighting terrorism, protecting U.S. interests abroad and implementing

foreign policy initiatives while building a freer, prosperous and secure world."

Oerther has been recognized on local, regional and national levels for his work as a professional engineer and a leader of science diplomacy.

"Dan's my role model and my mentor; he's my biggest supporter and harshest critic; and he's the perfect candidate for the President's Award for Global Engagement," wrote Voth-Gaeddert.

The UM System President's Awards are presented annually to faculty members across the four campuses of the UM System who have made exceptional contributions in advancing the mission of the university. Oerther was formally recognized by UM System President **Mun Choi** during an awards celebration held in June.



Pictured from left to right: Joel Burken, Provost Robert Marley, Daniel Oerther, Ian Ferguson and former interim VP for Academic Affairs, Bob Schwartz.

ASPHALT EXPERT JOINS MISSOURI S&T IN AUGUST



Abdelrahman

Dr. Magdy Abdelrahman, professor of civil and environmental engineering at North Dakota State University, has been named the Missouri Asphalt Pavement Association (MAPA) Endowed Professor in Flexible Pavements at Missouri S&T. His appointment begins Aug. 1, 2017.

The new professorship was established through a gift of \$550,000 from the Missouri Asphalt Pavement Association.

“The addition of Dr. Magdy Abdelrahman to Missouri S&T brings a new set of skills and talents to our strong legacy in infrastructure engineering,” says **Dr. Joel Burken**, Curators’ Distinguished Professor and chair of S&T’s civil, architectural and environmental engineering department. “His talents and experience in flexible pavements are a tremendous addition to our team in civil, architectural and environmental engineering. Future generations of S&T engineers will be leaders in our field and specifically benefit Missouri transportation systems for decades to come due to the support provided from MAPA.”

Abdelrahman’s research is on infrastructure sustainability with a focus on applications of recycled materials in pavement engineering, including modified asphalt binder. “My work represents a unique blend of practical and fundamental research activities related to the same topics,” he says.

He has written or co-written 100 peer-reviewed publications and technical reports, and he shares a patent on asphalt-rubber interaction, “Elastomer Reclaiming Composition and Method” (US Patent No. 6815510).

Abdelrahman is associate editor of the American Society of Civil Engineer’s (ASCE) *Journal of Materials in Civil Engineering* and a board member of two other international journals. He served nine three-year terms on four national committees of the Transportation Research Board (TRB) and one term on an ASCE committee.

“Serving on engineering committees has provided me with insights into the next generation of engineering education and allowed me to link early engineering education to the outcomes of engineering programs,” Abdelrahman says.

He was the major advisor for seven Ph.D. and four master’s graduates at North Dakota State University and currently advises two Ph.D. students and one master’s student. He received a National Science Foundation (NSF) CAREER award that provided support for research and for developing new courses in infrastructure sustainability.

At Missouri S&T, Abdelrahman plans to focus on contributions to new knowledge in civil engineering through high-quality research and publications; excellence in teaching and curriculum development that provides students with a high level of preparation for professional careers; development of a high degree of program visibility and recognition at the national and international levels; development of program resources and contribution to the research infrastructure of

(continued on page 16)

59th Missouri S&T Asphalt Conference

The civil, architectural and environmental engineering department conducted the 59th Annual Asphalt Conference Nov. 29-30, 2016. Twenty presentations were given, including those by departmental alumni **Amy Bryant**, CE’08, **Brent Whitwell**, CE’05, MS CE’06, **Rick Holesinger**, CE’86, MS CE’11, and **Todd Miller**, CE’90. The conference was directed by **Dr. David Richardson**, CE’71, MS CE’73, PhD CE’84. Attendance totaled 250.

SUPERPAVE and Short Courses

During the 2016-17 season, five different types of certification courses were held at S&T: two Superpave QC/QA full certification short courses (five-day), one Superpave QC/QA re-certification short course (two-day), one Binder Test course (one-day), one Aggregate Consensus Tests course (one-day), and two TSR courses (one-day), for a total of seven courses. A total of 88 engineers, inspectors and contractors were certified. The courses were directed and taught by **Dr. David Richardson**, CE’71, MS CE’73, PhD CE’84. Other instructors included, **Steve Jackson**, CE’07, Econ’07, and **Mike Lusher**, CE’96, MS CE’04. Over 3,000 individuals have gone through the training and certification at Missouri S&T since 1998.



Two of the nine speakers at Missouri S&T's first TEDx event came from our department. At a TEDx event, TED Talks video and live speakers combine to spark discussion and connection. These local, self-organized events are branded TEDx, where x means it is an independently organized TED event.

For more information, visit tedxmst.com.

William Schonberg
 "Importance of a Universal
 Technological Education"



photos by Sam O'Keefe

Schonberg elected president of space society

Dr. William Schonberg, professor of civil, architectural and environmental engineering, was elected president of the Hypervelocity Impact Symposium at its 2017 meeting, held April 23-28, in Canterbury, England. Schonberg also presented two papers at the conference — the first was based on work he performed as a faculty fellow at the NASA Jet Propulsion Laboratory during summer 2016. He described the development of design equations that would increase the safety of human space travel and space operations in earth orbit and beyond. His second presentation was excerpted from ongoing work that is supported by the NASA Engineering Safety Center. Its aim is to develop new response characterization equations for fuel tanks on spacecraft operating in the orbital debris environments of earth orbit if they were to be hit by a

piece of debris. While in Canterbury, Dr. Schonberg was also interviewed by radio station KCBS in San Francisco regarding the planned launching of so-called "mega-constellation satellites" and their possible effect on the orbital debris environment.

The Hypervelocity Impact Society is an international professional organization of scientists and engineers dedicated to facilitating the exchange of information on the physics of high- and hypervelocity impact phenomena. The society's biennial symposia have a long-standing international reputation as a catalyst for stimulating research in this area through a wealth of oral and poster presentations, and commercial exhibits. The symposium's proceedings are the major archival source of papers published in this field.

In 2015, Schonberg received the society's Distinguished Scientist Award in recognition of his leadership, innovation and technical excellence in hypervelocity research. In addition to co-chairing that year's Hypervelocity Impact Symposium, Schonberg also co-chaired the 1998 symposium, served as the society's president and secretary-treasurer. He also chaired the society's Educational Outreach and Publications Committees. As Educational Outreach Committee chair, Schonberg was responsible for administering the Alex Charters Student Scholars program, which provides financial support to students who attend the symposia.

Schonberg's term as president runs until the society's next conference, which is in 2019.

Dr. Man-Chung Tang has designed over 100 bridges around the world. He spoke about innovation on campus in April as the 2017 Stueck Lecturer.

Innovation drives humankind forward with new ideas, new ways of doing, new ways of thinking — and Dr. Man-Chung Tang, a world authority on cable-stayed bridges, has brought innovative designs to the structures for over 50 years.

It is often said, “the sun never sets on a Man-Chung Tang bridge.” His designs can be found all around the world and are considered to be a blending of art and premier engineering development.

As the Stueck Lecture speaker, Tang presented his views on art and innovation in design. The lecture was presented as part of the Neil and Maurita Stueck Distinguished Lecture Series for civil, architectural and environmental engineering at S&T. The series was made possible by a fund established by Maurita Stueck to bring additional outside perspectives to S&T students, and to honor her late husband, **Neil Stueck**, CE'43.

Tang is known for his immeasurable contributions to the bridge design industry and for the quality and innovation behind his individual designs. His career as a structural engineer has spanned over 50 years and has encompassed designing 100-plus bridges around the globe, including over 32 cable-stayed bridges, four major suspension bridges and numerous segmental bridges.



Stueck Lecture 2017 Dr. Man-Chung Tang

by Joe McCune

Tang asked the audience to consider these questions: What is innovation? How do you become innovative? Who is capable of being innovative?

Tang was elected to the National Academy of Engineering in 1995 for his contribution to the advancement of cable-stayed bridges. He also served as chairman of the American Society of Civil Engineers (ASCE) committee on cable-suspended bridges and published a definitive guideline for the design of cable-stayed bridges, which is used today by engineers worldwide.

Tang is the 2008 recipient of the Friendship Award, China's highest award for foreign experts who have made outstanding contributions to the country's economic and social progress. In June 2000, he was elected as a foreign member to the Chinese Academy of Engineering. The academy is the highest honorary and advisory organization for engineering and technology in China, and an election to the academy is considered the highest title and lifelong honor an engineer can receive in China.

After earning a Ph.D. in civil engineering in 1965 from Technical University in Darmsadt, Germany, Tang worked on the design of several record-breaking bridges. He previously served as chief engineer and was responsible for the design, redesign and construction engineering of long-span segmental concrete box girder bridges in the United States and Canada. Currently he is overseeing the design and construction of several major long-span bridges in China.



Watch the Stueck Lecture:
<https://youtu.be/3WPgtSdlPpE>

CE Academy inducts

The academy recognizes outstanding alumni for their professional achievement and success

Seven professionals were inducted into the Missouri S&T Academy of Civil Engineers at a dinner and induction ceremony held in April at Kabekona Hills Retreat Center.

Becky Baltz



Becky Baltz, southwest district engineer for the Missouri Department of Transportation (MoDOT), earned bachelor of science degrees in civil engineering and engineering management from Missouri S&T in 1984. With MoDOT, she progressed through various engineering jobs in St. Louis and Springfield, and was named district engineer in 2006 in Joplin. In 2011, she was named southwest district engineer in Springfield, where she restructured the district

as part of MoDOT's reorganization. A highlight of her career is the 2012 conversion of U.S. Highway 71 to Interstate 49 between Joplin and Kansas City. Other projects she directed in the southwest district include the region's first design-build project, first six-lane freeway, MO 249/Range Line Bypass in Joplin, and several diverging diamond interchanges — one of which received the American Association of State Highway and Transportation Officials (AASHTO) 2015 "Best Use of Innovation" Award in the small projects category. She is the only person to receive "Most Influential Woman" recognition in both Joplin and Springfield. She also received the 2016 Distinguished Service Award from the Ozarks Chapter of the Institute of Transportation Engineers (OCITE), as well as the 2016 Woman of the Year Award from the Kansas City Chapter of the Women's Transportation Seminar (WTS).

Claudia Hoeft



Claudia Hoeft, national hydraulic engineer with the U.S. Department of Agriculture's Natural Resources Conservation Service, earned a bachelor of science degree in civil engineering in 1990 from Missouri S&T. She started her hydraulic engineering career with the U.S. Department of Agriculture (USDA) in Columbia, Missouri. She worked at the USDA Natural Resources Conservation Service (NRCS) in Indiana, Missouri and Arkansas, and since

2005 Hoeft has served as the NRCS National Hydraulic Engineer in Washington, D.C. She provides critical direction for engineering practice with specific leadership for hydrologic and hydraulic analysis of watersheds, floodplains, wetlands, agricultural and urban lands, and streams for NRCS water resource projects. She oversees and coordinates with other NRCS engineering specialists on policy regarding earthen embankment dams constructed through the NRCS Watershed and Flood Prevention Program as well as other hydraulic structures constructed with assistance provided to landowners through various NRCS-administered programs. She authored, co-authored, or served as editor for portions of the NCRS National Engineering Handbook (NEH) on Hydrology and NEH on Snow Survey and Water Supply Forecasting. She is a Fellow of ASCE.

Paul Kronlage



Paul Kronlage, vice president of engineering for EFK Moen LLC, earned a bachelor of science degree in civil engineering in 1983 from Missouri S&T. For 14 years with MoDOT, he worked and managed highway corridors in the St. Louis area, such as 11 miles of widening of Interstate 55 south of Interstate 270, 10 miles of widening of Highway 141 from Highway 30 to Interstate 64, and 10 miles of widening of Highway 21 in Jefferson County. In 1998,

Kronlage and three friends founded EFK Moen LLC. As partner and director of engineering, he has helped grow the company from its original four employees to a firm with offices in St. Louis, Chicago and Fairview Heights, Illinois. EFK Moen supports large firms and has acquired its own large projects, such as the 11 miles of widening of Highway 65 in Taney County, Highway 364 in St. Charles County from I-64 to I-270, and the first consultant-designed diverging diamond interchange at James River Freeway and National Ave. in Springfield, Missouri. Kronlage is a longtime member of the Engineers' Club of St. Louis, Missouri Society of Professional Engineers, American Council of Engineering Companies and International Society of Pharmaceutical Engineers.

Mary Lamie



Mary Lamie, executive director of St. Louis Regional Freightway, earned a bachelor of science degree in civil engineering from the University of Missouri-Columbia in 1989 and a master's degree in civil engineering from Missouri S&T in 1998. She worked for the Illinois Department of Transportation for 22 years, with her last assignment as deputy director of highways for Region 5. While at IDOT, she was responsible for the region's transportation

program, including engineering, management and budgeting. Her project management experience includes the high-speed rail corridor between St. Louis and Chicago and the Stan Musial Veterans Memorial Bridge (I-270) across the Mississippi River. Since 2015, she has served as executive director of St. Louis Regional Freightway, a business enterprise of Bi State Development. She is responsible for public-private partnerships to optimize the region's freight transportation network, creating a foundation for the bi-state region as a national freight hub. She received the 2008 (Illinois) Southwest Leadership Council Salute to Leadership Award, the 2008 Winning Women Public Service Award, the 2004 Woman of the Year by the WTS Metropolitan St. Louis Chapter and the 1992 IDOT State Engineer of the Year Award.

seven new members

...s, and it provides organized assistance to the civil engineering department at Missouri S&T.

John Priest

John Priest, who is semi-retired in Littleton, Colorado, earned a bachelor of science degree in civil engineering from Missouri S&T in 1952. During the last six decades, he has managed staffs and successfully implemented water resource, environmental, policy and institutional programs in the U.S. and for international lending agencies and government ministries. Between 1959 and 1986, he went from planning engineer to vice president and group manager for the eastern hemisphere at Harza Engineering Co. in Chicago. Subsequently, as senior vice president and president, he directed global operations of Engineering Consultants Inc. in Englewood, Colorado. Priest managed and directed environmental and engineering projects in Argentina and Chile for Black & Veatch International. While rebuilding five countries that were devastated by war and natural disaster from 2004-09, he oversaw the strengthening of Afghan contractors through rebuilding infrastructure, accompanied by the reintegration into society of combatants after 30 years of war. He led financing studies for the \$20 billion Tunnel and Reservoir Program for Greater Chicago to capture stormwater runoff that contaminated Lake Michigan, and for the preparation of a congressionally mandated report to secure the 1979 appropriation for construction of the Garrison Diversion Project. During 20 years of reserve service in the Navy Civil Engineer Corps, he was promoted to captain and was action officer on the staff of the chief of Naval operations for strategy, plans and policy with a focus on the global maritime strategy that was designed for peaceful defeat of the Soviet Union.

Dr. Tom Wolff



Dr. Tom Wolff, senior associate to the engineering dean at Michigan State University, earned a bachelor of science degree in civil engineering from Missouri S&T in 1970, a master's degree in civil engineering in 1974 from Oklahoma State University and a Ph.D. from Purdue University in 1985. Upon graduating from Rolla, he worked for the St. Louis District U.S. Army Corps of Engineers as a geotechnical engineer. After 15 years with the Corps, he earned his Ph.D. and joined the civil and environmental engineering department at Michigan State University. At Michigan State, he has been associate dean of undergraduate studies, interim chair of the civil engineering department and his current position. At Michigan State, he received three department teaching awards and one from Chi Epsilon. Wolff was the principal investigator on 12 funded research projects, graduating seven Ph.D.'s. He has written chapters in four different engineering textbooks and written articles in refereed journals and publications from conference proceedings. At Michigan State, he was the Chi Epsilon faculty advisor and served on ASCE committees related to geotechnical engineering. Wolff was involved in three post-Katrina task groups and currently serves as the national president of Chi Epsilon Honor Society. From the Corps of Engineers, Wolff received the Corps of Engineers' Commander's Award for Public Service, MSU's College of Engineering's Withrow Distinguished Service Award and the MSU ASCE Student Chapter William A. Bradley Award for outstanding faculty members.

HONORARY MEMBER

Dr. Shamsher Prakash



Dr. Shamsher Prakash, professor emeritus of civil, architectural and environmental engineering at Missouri S&T, joined the civil engineering department in 1978 as an associate professor in geotechnical engineering and has since influenced a generation of graduates and peers. He retired in 2000. Prakash is a pioneer in the liquefaction of silts and clays and soil-pile-structure interactions. His books, reports and publications serve as a mentor to students in his field. Among his many recognitions are Distinguished Member of ASCE; Gold Medal, Kazakistan Society for service to Geotechnical Engineering Worldwide (2013); Distinguished Alumnus, Indian Institute of Technology for contributions to earthquake engineering; and Distinguished Alumni, University of Illinois. Prakash developed and chaired five international conferences on recent advances in geotechnical earthquake engineering and seven international conferences on case histories in geotechnical engineering. These conferences, sponsored by S&T, were held in various locations through the United States. In 1988, Prakash and his wife, Sally, established the Shamsher Prakash Foundation with the purpose of "uplifting mankind through yoga, geotechnical engineering, education and peace." Their foundation makes 10 cash awards in geotechnical engineering research, teaching, practice and creative design and for achievement in soil dynamics. Their foundation also funds a primary school for children of immigrant workers in India.

Mentor a Miner

The Mentor a Miner Program is a networking tool designed to connect students or alumni with professors, other alumni or professionals who have industry knowledge and connections relevant to a field of study. The program gives our students an extra advantage, whether it be through educational assistance, industry insight or career advising.

Find out more online.

<http://career.mst.edu/mentor-a-miner/>

S&T Chapter of EWB receives \$750,000 in funding

by Maridel Allinder

From clean drinking water to flood control, Missouri S&T's Engineers Without Borders projects are changing lives in Central and South America. Now, two major donors have stepped forward to provide \$750,000 in funding for EWB — a \$500,000 challenge grant from the Houston-based Montana Cahill Foundation and a \$250,000 gift from S&T graduate **David Heikkinen**, ME'93, and his wife, **Ann**.

"EWB students are a different breed and we are lucky to have them," says **Duane Montana**, CE'75, a Montana Cahill Foundation director and retired executive with Brown & Root. "EWB students represent something of our higher nature and better selves. They make a commitment, often over multiple years, that goes beyond the classroom. It is a commitment to a community to provide its people with a basic life necessity: clean water."

The Montana Cahill Foundation challenge grant is the largest gift in the history of S&T's EWB chapter.

It will match every dollar contributed to the chapter up to \$500,000 to create a \$1 million fund in support of the student group. The Heikkinens' gift is the second-largest in chapter history and brings the challenge halfway to its goal of raising \$500,000. With \$250,000 in challenge funds remaining, contributions are still needed.

Foundation director and Missouri S&T trustee **Peggy Cahill Montana** appreciates the way EWB broadens students' horizons.

"As directors who have lived and worked globally, Duane and I believe there is much to be gained from international

exposure," says Montana, who holds a bachelor of science degree in chemical engineering from S&T and retired in 2015 as president and CEO of Shell Midstream Partners. "EWB students gain the obvious benefits of language skills and cultural immersion, but they also gain a better understanding of the world and its people."



Ryan Feldman, Los Eucaliptos, Bolivia

David Heikkinen, founding partner and CEO of Houston-based Heikkinen Energy Advisors, is a Rolla native who earned a bachelor of science degree in mechanical engineering from S&T and an MBA from Tulane University. He formerly served as global head of exploration and production research for Tudor, Pickering, Holt & Co. and Capital One Southcoast.

"A gift to EWB has an impact on many more students than one scholarship could, and that cascade of compounding appealed to us," says Heikkinen. "Say that our contribution touches 20 students in EWB, and those 20 students touched 10 or 100 people with each EWB project. All of a sudden

we have touched the lives of 200 or even 2,000 people. Our donation was also matched by the Montana Cahill Foundation, which doubled its impact immediately and secured the EWB program for years to come."

Missouri S&T established its EWB student chapter in 2005, three years after the international organization was founded to help developing communities improve their quality of life through sustainable engineering projects.

Teams of S&T students are working on projects in small communities in Bolivia, Guatemala and



Emily Courtney, Los Eucaliptos, Bolivia



Elysia Sparks and Chad Barton, Nahualate, Guatemala

Honduras. They are primarily designing and building water storage and distribution systems.

Dr. Rick Stephenson, professor emeritus of civil engineering at Missouri S&T and founding advisor of the S&T chapter, has witnessed the transforming power of these student-led projects.

“EWB introduces students to a different kind of experiential learning,” he says. “It connects them to the real world of poverty, malnutrition, infant mortality and disenfranchisement. The generosity of the Montana Cahill Foundation and the Heikkinens has fulfilled my dream of long-term financial sustainability for EWB and ensured that future students have these opportunities.”

For **Dr. Mark Fitch**, S&T associate professor of environmental engineering and EWB faculty advisor, the experience is a wake-up call. “We work in the poorest communities in the poorest countries in our hemisphere,” he says. “The majority of S&T students have never lived alongside someone who survives on \$7 a day.”

For more information on how you can help EWB meet the Montana Cahill Foundation’s challenge, contact **Tory Verkamp**, Missouri S&T executive director of development, at verkampv@mst.edu or 573-341-4490.

Team Highlights by Josephine Gass

EWB at S&T has now implemented water systems to help over 13,000 people through community projects in Guatemala, Honduras and Bolivia. Advised by **Dr. Mark Fitch**, the team will be traveling to all three countries this summer to implement or monitor the student-led water projects. In Guatemala, students will monitor any problems in the system that now serves a community of 3,000 people. The Puerto Pando, Bolivia, team will be implementing an entire system including a sedimentation tank, slow sand filter, 60-meter pipeline suspension bridge and a water distribution system. Another team in Los Eucaliptos, Bolivia, will be monitoring a project that was completed last summer, as well as surveying a new community so students are able to design a water system in the coming school year. In Honduras, an additional tank was constructed in April and the team will be designing a supply line.

The teams have been working not only to design the systems, but also on fundraising and outreach. In addition to the numerous fundraisers and events the chapter has participated in, two EWB-S&T students had the opportunity to present at a University of Missouri Board of Curators Dinner in April. **Josi Gass** (senior, EnvE), EWB-S&T president, and **Ashley Longrie** (junior, EnvE), EWB-S&T health and safety officer, not only shared information about the team’s projects with the Curators, but also stories detailing how EWB-S&T has had an immense impact on their college experience, careers and mindset.

Oerther named treasurer of AAEES

Dr. Daniel Oerther, professor of environmental engineering at Missouri S&T, began his second, three-year term as the treasurer of the American Academy of Environmental Engineers and Scientists (AAEES) in January. The nearly 3,000 members of AAEES are licensed professional engineers who have received additional training and testing to become board-certified.

Oerther's duties will include planning and fiscal management of an annual budget of approximately \$1 million and a staff of six full-time employees located in Washington, D.C.

ASPHALT EXPERT CONTINUED FROM PAGE 9

Missouri S&T; and professional services and outreach activities at the national and international levels.

"MAPA is excited to have Dr. Abdelrahman join the faculty at Missouri S&T," says Dale Williams, MAPA's executive director. "The addition of Dr. Abdelrahman to Missouri S&T staff will fulfill the vision of having a faculty member dedicated to teaching and research in the area of asphalt pavements. We look forward to Dr. Abdelrahman getting on board, educating future engineers and conducting research that will improve the quality, durability and longevity of asphalt pavements."

Abdelrahman earned bachelor of science and master of science degrees in civil engineering from Zagazig University in Egypt in 1983 and 1988, respectively. He earned a Ph.D. in civil engineering at the University of Illinois in 1996.

Myers earns outstanding educator award

by Alan Scher Zagier

A Missouri S&T structural engineering professor who also oversees academic affairs in the university's College of Engineering and Computing has been selected as a top educator by the Architectural Engineering Institute.

Dr. John Myers helped lead the development and implementation of the architectural engineering curriculum at S&T in 2000, soon after his arrival on campus. He spent a portion of the 2015-16 academic year as CEC acting vice provost and dean before returning to his position as the college's associate dean of academic affairs.

Myers was recognized as the Architectural Engineering Institute's 2016 Outstanding Educator at the organization's annual conference in Oklahoma City, earlier this year. The award honors career excellence in teaching, research and service.

"I very sincerely cannot think of a better candidate who in so many ways demonstrates broad excellence for our campus," says colleague **Dr. Joel Burken**, Curators' Distinguished Professor and chair of the civil, architectural and environmental engineering department at S&T. "He answers the call when put forth."

Myers holds a Ph.D. in civil engineering from the University of Texas at Austin, a bachelor of science degree in architectural engineering from Pennsylvania State University and a master of science in civil engineering from the University of Texas at Austin.

He has received numerous awards for teaching, research and service excellence, is a fellow of the American Society of Civil Engineers, the American Concrete Institute and the Masonry Society and has published nearly 300 technical articles and reports.



Myers

"It's extremely humbling to have been selected for this honor among academicians who teach and support architectural engineering curriculums throughout the country," Myers says. "And it's been tremendously rewarding to watch the growth and development of our architectural engineering program since its inception."

"What I'm most impressed about is the impact of our graduates. In a relatively short period of time since we started the program, our alumni have contributed to the design and construction of many prominent facilities in the U.S., including high-rise commercial facilities, retail structures, medical and mixed-use buildings, and even the new Yankee Stadium. It's been such a thrill to see what started as a conversation among two faculty members in an office 17 years ago have such a state and national impact."

Missouri S&T is home to one of 20 architectural engineering programs in this country accredited by ABET, the Accreditation Board for Engineering and Technology.

Burken joins EPA advisory board

by Mary Helen Stoltz

Dr. Joel Burken, Curators' Distinguished Professor and chair of civil, architectural and environmental engineering at Missouri S&T, has been selected to serve on the U.S. Environmental Protection Agency's Science Advisory Board (SAB). The SAB is made up of experts from across the country, in areas such as epidemiology, public health, medical research, biology and other fields related to protecting human health and the environment.

Burken, who has also served as the director of the Environmental Research Center at S&T, will serve as "a special government employee" through Sept. 30, 2019. He is asked to provide independent expert advice on technical issues underlying EPA policies and decision-making. His expertise in hazardous waste remediation, water quality and the use of natural sustainable technologies are reasons why he was selected, according to former EPA administrator Gina McCarthy.

"Many of the existing SAB members are people I have really looked up to for their work on the national scene, and now I'm both thrilled and humbled to join them," Burken says. "I look forward to working on the board and with the EPA to protect human health and provide input on some of our most important environmental topics. I am certain this will be a challenging and learning experience for me."

The SAB is committed to employing sound science in the EPA's pursuit of resolutions to a range of urgent environmental issues. Board members' scientific and technical expertise, experience and innovation play

critical roles in the success of the EPA's approach to effective human health and environmental protection.

"I rely on the board for the expert guidance that is essential to the EPA's ability to protect public health and the environment," McCarthy says. "Over the past year, the SAB has engaged in a variety of advisory activities of significant importance to the EPA. I have every expectation that in the days ahead, the agency's need for the expert advice and guidance that only the SAB can provide will be even more in demand."

A major objective is to review and provide EPA advice and recommendations on the adequacy and scientific basis of any proposed criteria document, standard, limitation or regulation under the Clean Air Act, the Federal Water Pollution Control Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the Safe Drinking Water Act, the Comprehensive Environmental Response, Compensation and Liability Act, or any other authority of the administrator.

Burken joined the Missouri S&T faculty in 1997 as an assistant professor of civil engineering after earning his Ph.D. from the University of Iowa. He helped establish S&T's bachelor's program in environmental engineering. In 2009, he established the Green Campus Committee, now known as the Strategic Sustainability Planning Committee, and he led efforts to establish the Chester and Evelyn Baker Greenhouse. During his time at S&T, he has published over 65 peer-reviewed articles and book chapters.



CONCRETE CANOE TEAM FINISHES FIFTH

Missouri S&T's Concrete Canoe Design Team earned fifth place at the American Society of Civil Engineers' 2017 Mid-Continent Student Conference, which was held in April at the University of Arkansas. This year, S&T's canoe was built using a repurposed mold from a previous year. The canoe was made of a mixture of Portland cement — the same material found in sidewalks — ceramic air-filled bubbles, carbon fiber and repurposed coal ash.

To learn more about the team, visit:
facebook.com/MissouriSTConcreteCanoe

Working together with the American Concrete Institute (ACI)



Teaming up to host a certification course and seminar

In April, our department partnered with the American Concrete Institute (ACI) Missouri Chapter to organize a certification session for ACI Grade 1 Field Technician. This certification consisted of a written and practical test to evaluate the knowledge of participants on how to test fresh concrete. Eleven students and one faculty member participated in the certification.

In conjunction with this certification, ACI Missouri and the department hosted a seminar on how to prevent cracks in concrete. Luke Snell, executive director of ACI Missouri, discussed the main mechanisms of concrete shrinkage cracking and the spacing of saw cuts to create a preferential plane where the concrete should crack. By means of several legal case studies, he demonstrated the responsibilities of structure designers and contractors. In a second part of the seminar, plastic shrinkage cracking was introduced, highlighting the main causes and consequences.



Kudos to Luke Snell, executive director, and Billy Snell, secretary of ACI Missouri, for leading this event and to Dr. David Richardson, Daniel Galvez Moreno and Alex Wang for helping proctor the practical tests. This certification is a valuable asset to students looking for an internship or for a job. The intention is to repeat this every year.



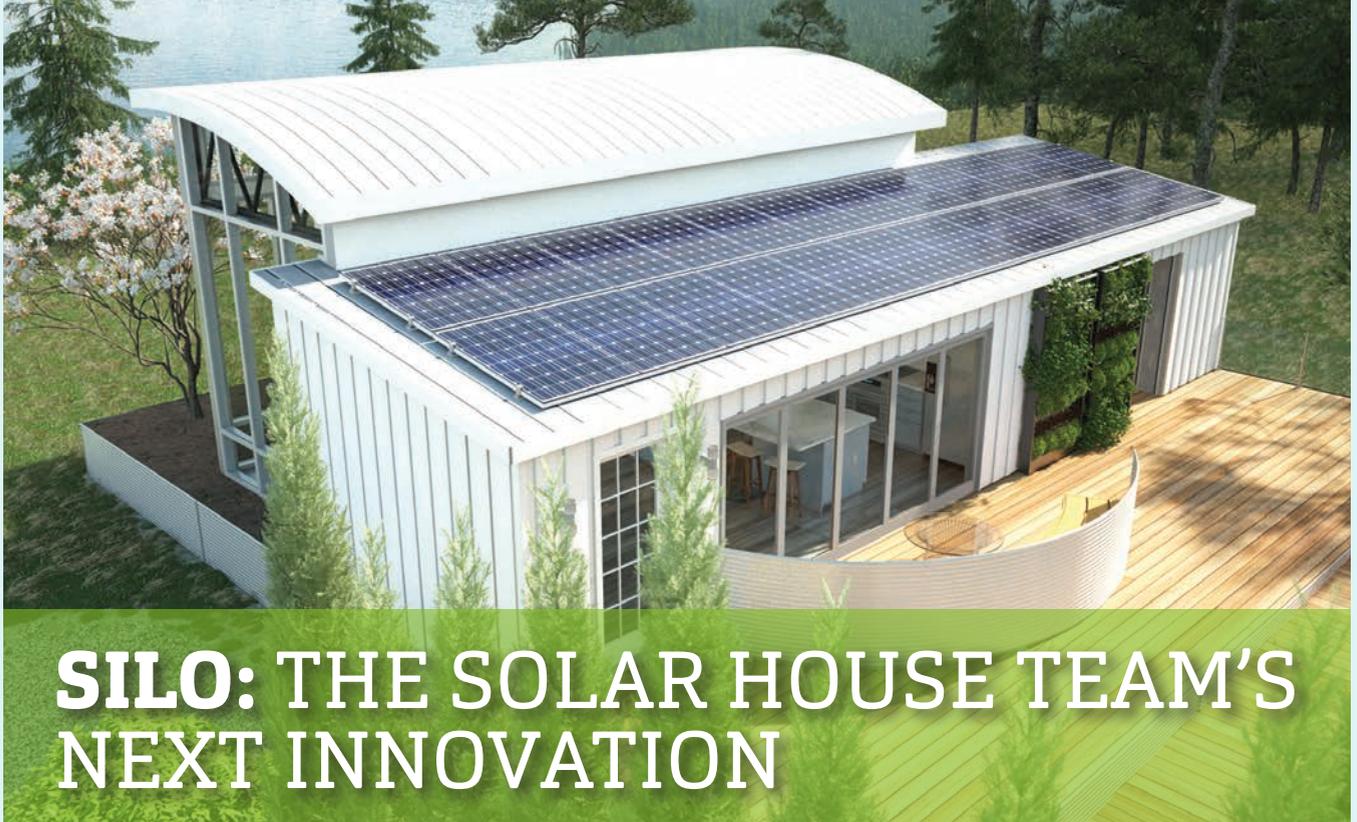
Richardson authors ACI mixture design publication for concrete pavements

Dr. David Richardson, CE'71, MS CE'73, PhD CE'84, has labored for seven years as the primary author of the new *"Guide for Design and Proportioning of Concrete Mixtures for Pavements,"* to be published in 2017 by the American Concrete Institute. The guide provides a method that focuses on designing concrete mixtures in the context of pavement structural design, concrete production, construction operations and the environment in which the pavement will reside, for all types of typical pavements. Concrete mixtures would be suitable for slipform, fixed-form and laser-guided screeding construction methods. The method also considers the hardened concrete performance parameters of strength, durability, abrasion resistance, skid resistance, smoothness, and dimensional and shape stability. Methods of checking for incompatibilities of materials in given construction environments are included, as well as methods for aggregate grading optimization.

The method considers sustainability, recycled materials, special durability issues and special testing and provides insight on interactions of materials, pavement types/performance, production facilities, and paving equipment/methods. The guide is considered to be unique to the paving industry.

"In my almost 30 years of ACI committee membership I have only seen one other person do something comparable with a document," says Jerry Holland, vice president and director of design services and a principal at Structural Services Inc. "I so much appreciate what Dave has done in providing this extremely valuable document to the concrete world."

Richardson is co-author of five other ACI design publications, two of which are also scheduled for publication in 2017.



SILO: THE SOLAR HOUSE TEAM'S NEXT INNOVATION

It's that time again. With the latest design nearly complete, the ground is rumbling with the sound of construction as the next Missouri S&T Solar Decathlon entry takes shape. The team is made up of students, faculty, staff, industry partners and a few others. For the seventh time, the team is constructing a new house for the U.S. Department of Energy Solar Decathlon. This house, called SILO, will compete in Denver against other collegiate teams in October.

The "S" in Silo's name stands for smart, which is represented by a home automation system that allows the homeowner to live efficiently and in harmony with nature. "I" is for innovative. Numerous sustainable technologies enhance the homeowner's life and include systems such as the solar array, grey water reclamation and on-site energy storage. "L" represents living. The home's abundant greenery and modern appliances combine for comfortable, smart living. Ample sunlight, clean air and a relaxing atmosphere create the "O" in SILO, which stands for oasis. Together, these features combine into a Smart Innovative Living Oasis, the ideal experience for any homeowner.

"SILO was created to meet the needs of a rapidly growing demographic — couples looking to downsize and invest in their future," says **Cameron Summers**, public relations director for the Solar House Design Team and a senior in architectural engineering.

"The team felt strongly the design should be centered on couples who are entering their late 40s and early 50s where kids have often left their home to forge their own paths," says **Jennifer Nickel**, director of design for the team and a senior in architectural and civil engineering.

"It is designed with the practicality of a farmhouse and the modern, sustainable style of a conventional home. SILO is

perfect for a couple or individual looking for a more relaxed, 'green' way of living," says **Abby Clancy**, a senior in architectural and civil engineering.

With the Solar Decathlon scheduled for this coming fall, students have been working hard to complete the construction of this house.

"This has been a two year process and the team has learned a great deal about the design and construction process," says **Heath Pickerill**, the team's main faculty advisor.

"The experience has proven to be a great stepping stone for their careers in industry as many of the team members typically get multiple offers in industry," explains **Dr. Stuart Baur**, faculty advisor and assistant chair of architectural engineering.

The team is looking forward to showing off its latest entry to thousands of visitors, as well as winning the 10 competition areas against 12 other universities from around the world. The winner of the competition is the team that best blends design excellence and smart energy production with innovation, market potential, and energy and water efficiency.

Please consider this an invitation to join the team in Denver. Tours are available Thursday, Oct. 5, through Sunday, Oct. 8, and Thursday, Oct. 12, through Sunday, Oct. 15.

"Come out to support our team and sustainable living, and most importantly, learn how you can make a positive impact on the environment with simple changes to your home," says **Luke Mueller**, project manager and a senior in chemical engineering.



Former deputy director of national intelligence speaks at commencement

by Mary Helen Stoltz

Stephanie O'Sullivan, CE'82, former principal deputy director of National Intelligence at the Office of the Director of National Intelligence, spoke at two commencement ceremonies held in the Gale Bullman Building in May. During commencement, O'Sullivan received a doctor of science, honoris causa.

O'Sullivan served as the principal deputy director of National Intelligence at Office of the Director of National Intelligence from February 2011 to January 2017. During her service with the ODNI, she focused on the operations of the office and the Intelligence Community (IC), as well as IC integration initiatives and resource challenges. Before this assignment, she served as the associate deputy director of the Central Intelligence Agency (CIA), where she worked with the director and deputy director in the overall leadership of the agency with

emphasis on day-to-day management of the organization.

Prior to becoming associate deputy director of the CIA, O'Sullivan for four years led the CIA's Directorate of Science and Technology (DS&T) — the part of the agency responsible for developing and deploying innovative technology in support of intelligence collection and analysis.

In her career, she held various management positions in the CIA's DS&T, where her responsibilities included systems acquisition and research and development in fields ranging from power sources to biotechnology. A native of Cape Girardeau, Missouri, O'Sullivan joined the CIA in 1995 after working for the Office of Naval Intelligence and TRW.



photos by Sam O'Keefe

Stephanie O'Sullivan, former principal deputy director of national intelligence.

Geotechnical engineering expert presents first Prakash Lecture at S&T

by Mary Helen Stoltz

Dr. Richard D. Woods, a member of the National Academy of Engineering and a professor emeritus of civil and environmental engineering at the University of Michigan, presented the inaugural lecture in the Shamsher and Sally Prakash Distinguished Lecture Series in Geotechnical Engineering.

The lecture, titled “Geotechnical Impact of High Energy Construction Operations on Nearby Infrastructure,” also served as the keynote address for the 2017 GeoMO Conference, which was held the same day on the Missouri S&T campus. Engineers who attended the lecture could also register for the full day of conference activities.

“Many construction operations result in the propagation of seismic waves in the ground surrounding the site of the operation,” Woods says. “These vibrations are potentially damaging to nearby infrastructure either by direct impact of the ground wave causing distortion of the structure or by settlement caused by vibrations causing shakedown settlement of loose sands.”

Woods discussed ways to evaluate potential damage and present criteria for limits of tolerable vibration levels for both structural and human response.

The Shamsher and Sally Prakash Distinguished Lecture Series was established through a gift from **Dr. Shamsher Prakash**, professor emeritus of civil, architectural and environmental engineering, and his wife, Sally.

Shamsher Prakash joined the Missouri S&T civil engineering faculty in 1978 as an associate professor in geotechnical engineering. He retired in 2000. Prakash has made numerous contributions to the field of geotechnical earthquake engineering, and he is recognized for advancing the study of soil dynamics and earthquake engineering. He is considered a pioneer in the liquefaction of silts and clays, as well as soil-pile-structure interactions.

photos by Michelle Wiginton



Woods



Prakash



Pictured from left to right: Joel Burken, interim Chancellor Christopher G. Maples, Shamsher Prakash and Sally Prakash.

STEEL BRIDGE TEAM EARNs THIRD AT COMPETITION

by Peter Ehrhard

Missouri S&T's Steel Bridge Design Team earned third place at the American Society of Civil Engineers' 2017 Mid-Continent Student Conference.

The competition was held in April at the University of Arkansas in Fayetteville, Arkansas. During the event, the team raced to construct a scale-model steel bridge as fast as possible. The bridge was scored on its weight and rigidity, construction speed and the number of team members building the bridge. Each bridge was also "load tested" to prove its weight-bearing capacity.



The competition is scored based on a dollar amount rather than a points system. This scoring simulates the actual accounting process involved in determining the budget for an actual bridge construction project.

This year, Missouri S&T's team designed an over truss bridge with a cantilever on one end. It was comprised of approximately 70 pieces and had been tested to support up to 2,500 pounds. Four students from the team constructed the bridge during the competition.



"This year is really special for us; our bridge and work is dedicated to our late advisor, Dr. Philpot. We have a lateral piece carved with his name on it; the team members really miss him."

— Jonathan Kuchem
Junior, Civil Engineering
Steel Bridge Design Team Leader



This year the team had to overcome the loss of its faculty advisor, Timothy Philpot, who passed away in January. The team dedicated its bridge to Dr. Philpot during a memorial ceremony in March. Pictured with the team is Dr. Philpot's wife, Ginger.

photo by Sam O'Keefe

Passing of Dr. Timothy Philpot



Dr. Timothy Alan Philpot, associate professor of civil, architectural and environmental engineering at Missouri S&T, died unexpectedly from a stroke on Jan. 25, 2017. He was 59.

Dr. Philpot was a native of Murray, Ky., and married his high school sweetheart Jeanette Belle “Ginger” Gilliam. He attended the University of Kentucky where he earned his bachelor’s degree in civil engineering in 1979. He earned a master’s degree in civil engineering at Cornell University in 1980. Afterwards, he spent six years as a structural engineer in the offshore construction industry in New Orleans, London, Houston and Singapore. In 1992, he earned his Ph.D. in civil engineering from Purdue University and began his teaching career at Murray State University.

In 1999, Dr. Philpot and his family moved to Rolla, where he began teaching at Missouri S&T and specializing in engineering mechanics. The author of the best-selling textbook, *Mechanics of Materials: An Integrated Learning System*, and developer of award-winning multimedia educational software packages MDSolids and MecMovies, Dr. Philpot was respected by students for his ability to make his subject of mechanics of materials accessible.

Even though he made an “A” in the course as an undergraduate student, as a young engineer he realized his weakness in understanding key concepts impeded his work in design situations. Thus, the textbook

and software programs became his life’s work. He strove to teach “to the mind’s eye... which can facilitate the mental visualization that is integral to understanding and solving engineering problems.” He was known nationally and internationally for his book and interactive, multimedia educational software. That course material has been used by more than 41,000 students and adopted at 340 educational institutions — clearly showing his remarkable impact on the education of future engineers.

Dr. Philpot was a registered professional engineer in Missouri and Kentucky. He received several awards for teaching excellence, including the Tau Beta Pi Outstanding Professor Award. He was also proud to serve as faculty advisor to the Missouri S&T Steel Bridge Design Team. In 2017, he was posthumously awarded the S&T Student Affairs Meritorious Service Award for being an outstanding advisor who voluntarily committed to assisting student organizations with reaching their full potential. He had a tremendous impact on students’ lives inside and outside of the classroom. The S&T Steel Bridge Team members organized a tribute and lead efforts for a memorial in his name.

Dr. Philpot is survived by his wife, Ginger, of Rolla; his mother, Lou Ann Philpot, of Murray, Ky; daughter and son-in-law, Dr. Madeleine Philpot and Dustin Dunstedter, of Rolla; and son and daughter-in-law, Larkin and Emily Philpot, of Pittsburg, Pa. He was an organ

donor whose selflessness saved the lives of many others.

Memorial contributions may be made to a Missouri S&T campus memorial or his favorite charity, the Rolla Area Animal Shelter.

MISSOURI S&T MEMORIAL

Donations may be mailed to: Civil, Architectural and Environmental Engineering, 1401 N. Pine St., Rolla MO, 65409 or you can visit giving.mst.edu and select “give now.” Please designate the Timothy Philpot Memorial selection on the pop-up window.

ROLLA AREA ANIMAL SHELTER BUILDING CAMPAIGN

This fundraising effort is called SAVE (Save, Adopt, Volunteer and Educate). Donations may be sent to: Attn: Timothy Philpot Memorial Account, City of Rolla Finance Department, 901 N. Elm St., P.O. Box 979, Rolla, MO, 65402. Inquiries may be made at www.saverollanimals.org.

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