

## School of Sustainable Engineering and the Built Environment

**Civil, Environmental and  
Sustainable Engineering  
(CESE)**


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**Del E. Webb School  
of Construction (DEWSC)**

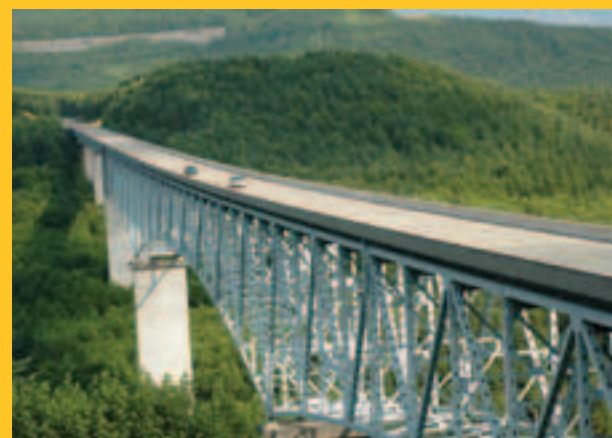
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**Construction Engineering**

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**confronting  
engineering  
challenges**



## leadership

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## Sustainable Engineering and the Built Environment

Sustainable engineering is a revolutionary approach to engineering that:

- focuses on the long-lasting improvement of the human condition;
- redefines the design boundaries of infrastructure, natural and social systems; and
- transforms the traditional design and construction methods of complex systems by the application of life cycle and environmental assessment, risk and uncertainty analysis and other emerging techniques.

The built environment includes society's physical infrastructure and integrated systems such as housing, business and commerce, transportation, and utilities which facilitate the smooth operation of basic services supporting health, prosperity and social well-being.

# Message from the Interim Director



Greetings! It is an honor to serve as the interim director for the School of Sustainable Engineering and the Built Environment (SSEBE). In this capacity I have had the great privilege to work closely with our faculty, staff, and students in setting the course for our future. Our School is a unique blend of civil and environmental engineering and construction management-focused programs. We are re-writing the way educational programs focus on sustainable engineering planning, design, and construction processes while focused on the built environment that is so essential to our civilization.

The theme of this annual report is to highlight selected research projects that are being performed by our faculty and students. As we prepare a new generation of engineers and constructors, our cutting edge work is redefining how we approach the problems that will challenge our future.

In this report, we showcase but a few of the dozens of projects currently ongoing within SSEBE. The link between research and teaching is direct. We literally have hundreds of graduate students and a number of undergraduates involved in this effort, learning as they assist faculty in performing the work. Much of the new knowledge discovered in these projects is subsequently transferred to graduate and undergraduate classrooms.

We are excited about the success of our faculty members in attracting research funding as we are currently working on projects totaling \$8,207,655 from a variety of sources. This represents a 40 percent increase over the past three years.

Of course we continue to work diligently to offer the best undergraduate teaching programs possible and our programs are considered among the very best in the nation. We have recently added a new Construction Engineering undergraduate degree program that is proving very attractive to many students. In addition we are hiring new faculty members to support teaching and research initiatives.

Enjoy this report and if you are in Tempe, please contact me and come by for a visit.

G. Edward Gibson, Jr., Ph.D., P.E.

## New Dean in Engineering



Paul Johnson, executive dean of the Ira A. Fulton Schools of Engineering and professor in the School of Sustainable Engineering and the Built Environment, has been named dean of the Fulton Engineering Schools, effective January 1, 2011.

Johnson has been a faculty member at ASU since 1994 and has previously served as the university's associate vice president for research and as interim dean of Fulton.

He received a B.S. in chemical engineering from the University of California-Davis in 1983 and an M.A. and Ph.D. in chemical engineering from Princeton University in 1984 and 1987 respectively.

Johnson came to ASU as an associate professor in 1994, rising to the rank of full professor in 2003. He later served as associate dean of research at Fulton, university associate vice president of research, and executive dean of Fulton, a position he has held since 2006. His teaching, research, and professional activities focus on the application of contaminant fate and transport fundamentals to subsurface remediation and risk assessment problems. He is an expert in soil and groundwater remediation and risk assessment.

# Message from the Program Chairs



Michael Mamlouk, Ph.D.  
CESE Program Chair

## Civil, Environmental and Sustainable Engineering (CESE)

The Civil, Environmental and Sustainable Engineering (CESE) program within the School of Sustainable Engineering and the Built Environment deals with education and research addressing the critical infrastructure needs of our society.

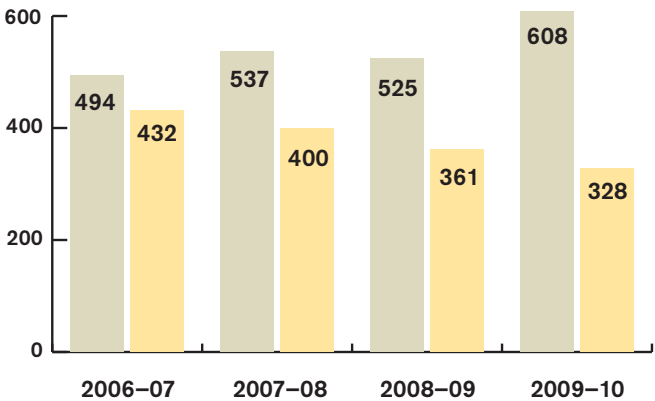
The CESE program continues to focus on its traditional areas of environmental engineering, water resources, water and air quality, transportation planning and materials, structures and geotechnical engineering.

Our program has been growing and currently we have 30 teaching and research faculty, 608 undergraduate students and 151 graduate students.

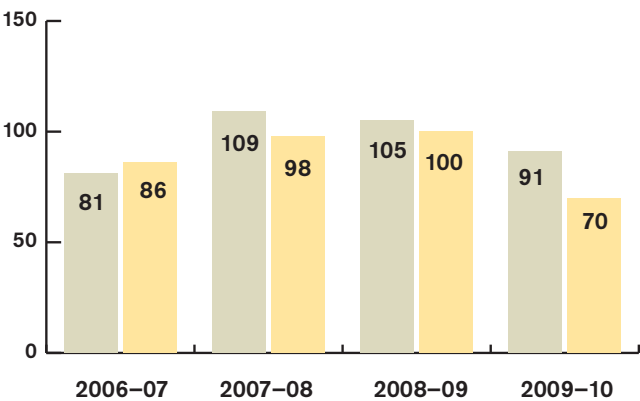
Our undergraduate students have the option to complete a general civil engineering degree or to concentrate in construction engineering, environmental engineering or sustainable engineering. The ABET review for our undergraduate civil engineering degree was very successful last fall with the degree program approved for six more years.

We started emphasizing hands on experience for our freshmen in an effort to improve our retention record. We also increased the number of our teaching assistants and will try to enhance the teaching opportunities for our Ph.D. students. Several of our undergraduate students are involved in research through the FURI program. Our students are actively engaged in various student organizations such as ASCE and Chi Epsilon.

**Undergraduate Student Enrollment**  
Civil, Environmental and Sustainable Engineering (CESE)  
Del E. Webb School of Construction (DEWSC)  
■ CESE ■ DEWSC



**Undergraduate Degrees Awarded**  
Civil, Environmental and Sustainable Engineering (CESE)  
Del E. Webb School of Construction (DEWSC)  
■ CESE ■ DEWSC







Subramaniam Rajan, Ph.D.  
Graduate Program Chair

## School of Sustainable Engineering and the Built Environment (SSEBE)

The Civil, Environmental and Sustainable Engineering (CESE) and the Construction Management (CON) graduate programs continue to grow and prosper. For the 2009-10 academic year, there were 151 students (87 M.S./M.S.E. and 64 Ph.D.; 109 male and 42 female; 95 domestic and 56 international) in the CESE program and 58 (48 M.S. and 10 Ph.D.; 44 male and 14 female; 44 domestic and 14 international) in the CON program.

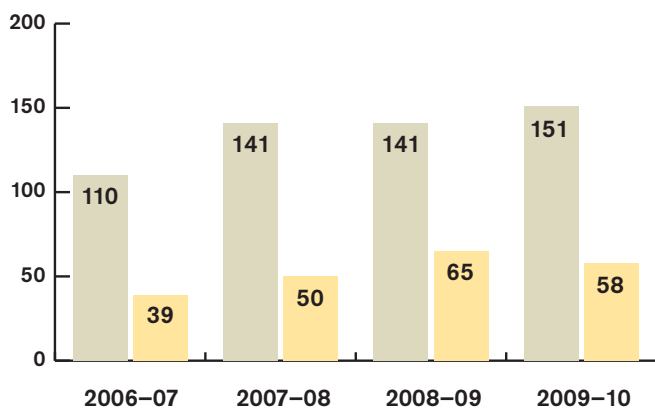
Between 2005 and 2008, the CESE program awarded 38 M.S.E., 45 M.S. and 38 Ph.D. degrees while the CON program awarded 61 M.S. degrees. For the 2009-10 academic year, the CESE program awarded 9 M.S.E., 9 M.S., and 10 Ph.D. degrees, while the CON program awarded 23 M.S. degrees. The CON program revised the non-thesis M.S. degree program, requiring students to complete 30 credit hours and a comprehensive exam; this option has been quite successful and has increased the persistence of M.S. students in the non-thesis option. Both programs saw an increase in the students attending classes full-time (9 credits or more per semester) while still meeting the needs of part-time students working in the industry. Most of the graduate courses are taught either early in the morning or late in the afternoon enabling both the full-time and part-time students to take graduate courses.

We have continued our efforts to provide various forms of financial aid packages to deserving full-time graduate students. The 2009-10 financial aid package (excluding RAs/TAs) amounted to approximately \$500,000 from various sources - Dean's Fellowships, Fulton Enrichment and Department fellowships, Graduate College's Block Grant Awards and Enrichment Fellowships and Science Foundation Arizona Fellowships.

### Graduate Student Enrollment

Civil, Environmental and Sustainable Engineering (CESE)  
Del E. Webb School of Construction (DEWSC)

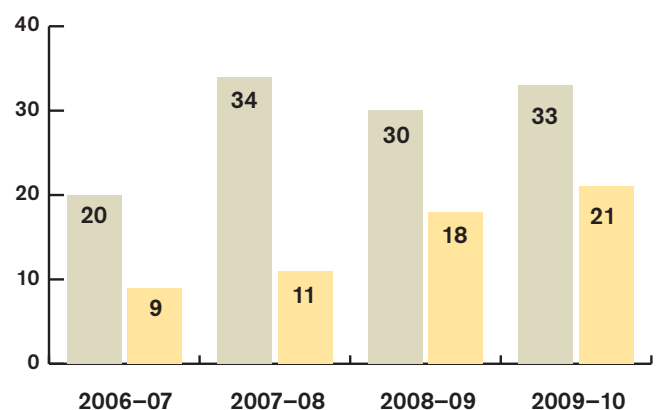
■ CESE ■ DEWSC



### Graduate Degrees Awarded

Civil, Environmental and Sustainable Engineering (CESE)  
Del E. Webb School of Construction (DEWSC)

■ CESE ■ DEWSC



# Del E. Webb School of Construction (DEWSC)



G. Edward Gibson, Ph.D.  
DEWSC Programs Chair

Greetings! The Del E. Webb School of Construction (DEWSC) has been very busy during the past year and it is an exciting time to be a student in our program. Our CM undergraduate enrollment for fall 2010 is 315 students with an additional 63 graduate students. We graduated 85 students last academic year.

We have a very experienced and active faculty, with eleven tenured or tenure-track faculty members, three lecturers and fourteen faculty associates handling teaching duties. With this wide experience base, we teach courses in current areas such as sustainable design and construction, building information modeling, trenchless construction methods, concrete production, heavy construction and mechanical/electrical estimating and facility management.

We welcome Aaron Cohen as the first Associated General Contractor (AGC) Lecturer who joined us in summer 2010 through a generous endowment from many local AGC member companies. Aaron comes from Chicago where he ran a heavy construction business for the past 14 years. He is focused on teaching and improving our heavy construction concentration.

Our faculty are involved in a variety of funded research projects in underground utility construction, project leadership, front end

planning, construction safety, performance measurement, building information modeling, facility management, and others. Several of their research projects are highlighted in this newsletter and results of these studies are migrating into the classroom.

Our alumni and the construction industry continue to support student achievement through endowments and annual scholarship donations. Last year we awarded over \$210,000 to several dozen deserving students. Our students continue to be very active in competitions at the Associated Schools of Construction meeting in Reno, NV, the American Concrete Institute in Chicago, IL and the National Association of Homebuilders in Las Vegas, NV, taking home awards in several events. One hundred fifty-seven students completed internships in summer 2010 and were located in 12 states, Canada and Mexico with an average pay of \$15 per hour.

The CM undergraduate program is accredited by the American Council for Construction Education (ACCE) and we are preparing for accreditation with the visit scheduled for spring 2011. For more information on the CM undergraduate program, visit the program website at <http://engineering.asu.edu/undergraduate/con>.

## New degree program

The University Graduate Council recommended the proposed **Master of Science in Engineering (MSE) in Construction Engineering** program for approval.

The MSE in Construction Engineering graduate program at ASU is a multi-disciplinary program encompassing the areas of geotechnical engineering, structural engineering, transportation engineering and construction management-related area. The primary goal is to impart scientific and technical knowledge that is used to construct infrastructure projects commonly used in Architecture/Engineering/Construction (A/E/C) industry.

The Master of Science in Engineering (MSE) in Construction Engineering degree will be desirable to those students who

are interested in continuing their education in engineering with a focus on construction. The American Society of Civil Engineers (ASCE), the professional society for all civil engineers, is strongly pushing for a master's degree as the minimum degree required for all practicing civil engineers. The society has passed ASCE Policy 465 ("Academic prerequisites for Licensure and Professional Practice") details of which can be found at several web sites. The MSE Construction Engineering degree will help meet that objective.

Current MSE graduate students will be given the opportunity to move to this degree program as early as spring 2011 semester. New students will be accepted for fall 2011 semester.

# Civil, Environmental and Sustainable Engineering

Research Expenditures FY 2010

\$5,109,689





# Perils of plastics:

## risks to human health and the environment



Principal Investigator:  
**Rolf Halden**

**“We’re doomed to live with yesterday’s plastic pollution and we are exacerbating the situation with each day of unchanged behavior.”**



**P**lastics surround us. A vital manufacturing ingredient for nearly every existing industry, these materials appear in a high percentage of the products we use every day. Although modern life would be hard to imagine without this versatile chemistry, products composed of plastics also have a dark side, due in part to the very characteristics that make them so desirable – their durability and longevity.

Rolf Halden, associate professor in the School of Sustainable Engineering and the Built Environment and assistant director of Environmental Biotechnology at the Biodesign Institute, has undertaken a survey of existing scientific literature concerning the hazards of plastics to human health and to the ecosystems we depend on.

Adverse effects to human health remain a topic of fierce controversy, though a growing consensus is emerging that plastics and their additives are not always the benign companions we once assumed them to be. Halden says he accepted the invitation to write about plastics and human health “because the topic showcases the bigger problem of how to create a sustainable future for modern civilization.”

Despite the scourge of discarded plastics and the health risks these substances pose, Halden is optimistic that society can begin to make wiser choices and develop more sustainable products, formed from biodegradable, non-toxic chemical building blocks. New forms of polymer, some made from renewable materials that are digestible by microorganisms, are being explored.

*Vegetation near an urban U.S. stream shows a sample of contemporary, non-biodegradable plastic waste that can persist in the environment for centuries or even millennia. (Photo: R. Halden)*



# Finding sustainable ways to improve groundwater

**A**s many cities grow, they need to utilize water sources that require more than usual treatment to make them safe and palatable. A good example is the City of Glendale, AZ, which needs to develop groundwater sources that are not contaminated with nitrate from past agricultural practices.

Looking toward improved sustainability as it uses more groundwater, the City of Glendale partnered with ASU, environmental engineering company CH2M HILL, and the Water Research Foundation to test innovative means to biologically reduce nitrate to harmless nitrogen gas.

The team operated two types of biological reduction (or denitrification) pilot processes at the City's Cholla Water Treatment Plant. One system is heterotrophic, which means that an organic material is added to drive nitrate reduction. The second system is autotrophic, meaning that hydrogen gas is added to allow reduction.

The pilot systems were operated by a team of ASU students and post-docs from the Center for Environmental Biotechnology and under the direction of Bruce Rittmann, Regents' Professor of Environmental Engineering. The pilot systems gave excellent performance, demonstrating the value of denitrification.

The ASU and CH2M HILL teams are completing technical, economic, and social-impact analyses for the final report.

Principal Investigator:  
**Bruce Rittmann**



**“Although biological treatment of drinking water is less expensive and more sustainable than conventional means, it is not widely used in the United States.**

**Our successful project will give utilities and cities confidence that they can gain the benefits with minimal risks.”**



*Membrane biofilm reactor pilot unit operated in Glendale, AZ*

# SSEBE researcher helps reveal new smoking hazard



Co-Principal Investigator:  
**Hugo Destailats**

**“We know that these residual levels of nicotine may build up over time after several smoking cycles, and we know that through the process of aging, third-hand smoke can become more toxic over time.”**

A study reporting on the health hazard posed by nicotine in third-hand tobacco smoke from cigarettes made headlines recently around the world. The team that performed the research detailed in the Proceedings of the National Academy of Science included Hugo Destailats, a research professor in the School of Sustainable Engineering and the Built Environment. He is also a researcher at the Lawrence Berkeley National Laboratory where the study was conducted. Destailats was a co-leader of the research team for the third-hand smoke study, which shows stronger indications of the high level of health risks posed by smoking.

His team's description of the findings about how residual levels of nicotine from third-hand smoke can build up and become more toxic over time is presented in a news release from the Berkeley Lab.

The study found that when the residue from tobacco smoke settled on indoor surfaces, it mixed with indoor air pollutants to form tobacco-specific nitrosamines, or TSNA's, which are potent cancer-causing substances found in unburned tobacco and tobacco smoke.

People, particularly infants and toddlers, are most likely exposed to these carcinogens by either inhaling dust or by skin contact. Using fans and opening a window doesn't help eliminate the hazards because most of the nicotine and other substances from burning cigarettes aren't found in the air, but are absorbed by surfaces.



# Pavement rehabilitation

**T**he School of Sustainable Engineering and the Built Environment (SSEBE) at Arizona State University is well known for its work on pavements research studies. Over the past ten years, several studies on asphalt rubber pavement research were completed for the Arizona Department of Transportation (ADOT), Texas DOT, Alberta Transportation, Canada and Swedish Road Administration, Sweden. Collaboration efforts are underway in Sao Paulo and Rio de Janeiro, Brazil. The research program focuses on developing typical design input parameters and engineering properties specific for asphalt rubber mixtures.

Pavements related research activities at the National Center of Excellence for SMART Innovations in SSEBE include studies on the Urban Heat Island effect, pervious concrete, thin and ultra-thin white-topping pavements, and modeling of pavement production and construction impacts on CO<sub>2</sub> emissions. Kamil Kaloush, director of the center and associate professor in SSEBE, is the recipient of the 2009 Community Service Award presented by the Arizona Pavements/Materials Conference.

Principal Investigator:  
**Kamil Kaloush**



**“We are a fortunate research group at ASU because we have the essential technologies, facilities and industry support to re-design and build sustainable pavements for the future.”**



Krishna Biligiri, recipient of the Young Scientist Grant award by the board of the International Institute of Noise Control Engineering (I-INCE) at the prestigious INTER-NOISE 2010 Conference in Lisbon, Portugal, is a research scientist in the department working with Kaloush.

Since September 2009, Biligiri has been assisting the Swedish National Road & Transport Research Institute (VTI) in Linköping, Sweden. This is a joint collaborative effort between ASU and VTI for a period of two years on a European Union (EU) directive project PERSUADE (PoroElastic Road Surface: an innovation to Avoid Damages to the Environment).

Krishna is also actively involved as a VTI research team member and has been contributing to other research projects in topics related to the development and evaluation of bio-based road products.



*Discussion on pavement rehabilitation outside Rio de Janeiro, Brazil*



# Geo-Alchemy: turning sand into sandstone



Principal Investigator:  
**Edward Kavazanjian, Jr.**



Co-Principal Investigator:  
**Bruce Rittmann**

**“Our strengths in environmental microbiology and geotechnical engineering put ASU in a position to become one of the leaders in the emerging field of bio-geotechnical engineering.”**

**G**round improvement is routinely used in geotechnical practice to mitigate natural hazards, enhance foundation performance, and reduce construction costs and impacts. Most of these ground improvement techniques employ mechanical or chemical processes to improve soil behavior.

Recently, the use of biological processes to improve the physical behavior of soil has begun to attract the interest of geotechnical engineers. Continuing work initiated under a National Science Foundation Small Grant for Exploratory Research (SGER), this project is investigating the application of microbiological induced carbonate precipitation (MICP) as a soil improvement technique.

Work conducted under the SGER showed that MICP can be induced by denitrifying bacteria (“denitrification”). Denitrification is potentially superior to MICP by ureolysis, a process currently being explored by other research groups working on MICP, in that denitrifying bacteria are ubiquitous in the subsurface and the process does not produce toxic by-products and can work under anaerobic conditions, e.g. below the water table.

This research has the potential to transform geotechnical practice, not only by development of a new, sustainable approach to ground improvement but also by advancing the emerging field of biogeotechnical engineering.

Microbial activity in soil is ubiquitous. Every gram of soil contains 10<sup>9</sup> or more microorganisms. The ability to manage these organisms for beneficial purposes opens up a myriad of potential opportunities, from strength and stiffness enhancement to groundwater control, corrosion protection, waste containment, erosion control, soil and groundwater monitoring, remediation, and even energy production. Microbially mediated subsurface processes offer the promise of sustainable, non-disruptive and energy efficient engineering solutions to important infrastructure development and geologic hazard mitigation problems.

*Liquefaction-induced damage to structures in Niigata, Japan*



# Traffic instabilities in congested traffic

**S**top-and-go driving motions are characterized by recurring decelerations followed by acceleration and are typical features of heavily congested freeway traffic. These oscillatory driving motions have adverse impact on air quality, fuel consumption, vehicle wear-and-tear, and traffic safety. Despite their ubiquity and negative impact on environment and safety, we have limited understanding about the causal factors and features of stop-and-go traffic.

Sponsored by National Science Foundation, this research investigates how stop-and-go disturbances initiate and propagate in space. The research team has analyzed high-resolution vehicle trajectories using Wavelet Transform to systematically detect disturbances in traffic and measure their spatiotemporal characteristics.

The research to date indicates that stop-and-go disturbances can be triggered by instabilities in driver behavior and lane-changing maneuvers. The disturbances usually start small as subtle decreases in speed but become more pronounced as they propagate through congested traffic, often leading to momentary stoppage. The vehicle trajectories illustrate how a small disturbance causes substantially slow or stoppage states (the blue region) to many vehicles.

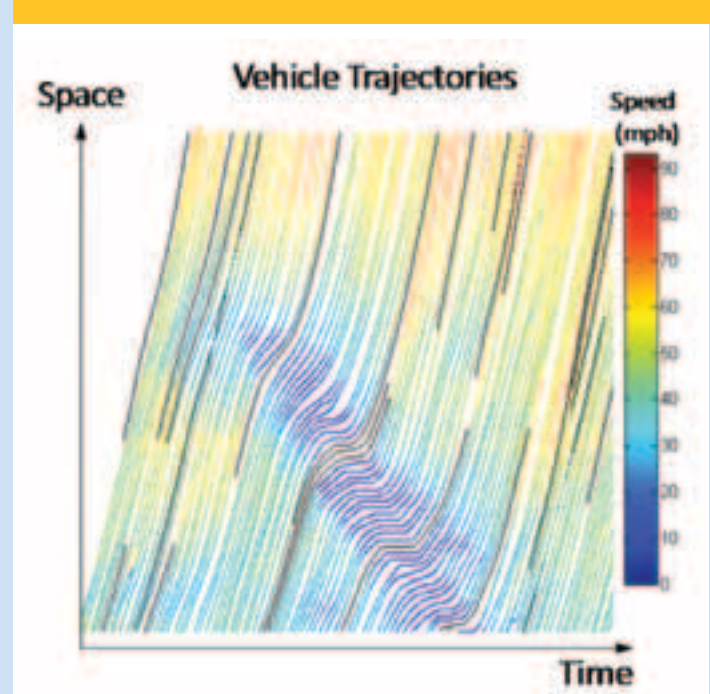
Based on the findings, the research team is currently developing mathematical and statistical models to describe driver behavior and lane-changing maneuvers, and their effects of congested traffic. With a better understanding of stop-and-go traffic and related behavior, this research will provide a foundation to develop traffic control schemes to smooth oscillatory driving behavior, which will improve safety and environmental impact of congested traffic.

Principal Investigator:  
**Soyoung Ahn**

Collaborator:  
Jorge Laval,  
Georgia Institute of Technology



**“A small disturbance created by a vehicle in congestion has the butterfly effect for many vehicles following upstream.”**



# Dealing with electronic waste



Principal Investigator:  
**Eric Williams**

**“The toxics generated in the recycling processes were not originally present in the equipment – it’s a problem in the recycling process, not the product.”**



**E**ric Williams, assistant professor in the School of Sustainable Engineering and the Built Environment, is working on solutions to the problems arising from the ballooning amount of electronic waste – or e-waste – that comes from discarded computers and related devices.

The engineering professor and industrial ecologist is looking at the environmental impact and public-health problems of technology’s rapid expansion seen in the environmentally hazardous buildup of e-waste worldwide.

The problem comes from efforts to reclaim precious metals from circuit boards and wires by using very primitive methods, Williams says. To obtain copper, informal ‘backyard’ recyclers in the developing world simply burn off the insulation, producing a host of toxic chemicals from the burning plastic. And to obtain gold and other metals from circuit boards, they simply treat them with liters of nitric acid and cyanide. “There’s no proper way to dispose of the waste acid and cyanide, which ends up being dumped into local water or soils,” Williams says.

Improved recycling processes are key but Williams thinks it is important to work within the affected countries themselves. He and his team are now preparing a paper on proposals to buy up used circuit boards and wiring to send for processing at facilities that have better environmental controls and more sophisticated techniques for recovering precious metals. “We’re doing economic analyses of this idea,” he says. “It looks like it’s a pretty cheap system to implement.”



# The Consortium for Emerging Technologies Military Operations and National Security

**B**rad Allenby, professor in the School of Sustainable Engineering and the Built Environment, has been appointed Founding Chair of the Consortium for Emerging Technologies, Military Operations, and National Security (CETMONS). CETMONS is intended to act as a resource to bring sustainable engineering and technological expertise into an important, and sometimes underappreciated, area of policy and operations (see [cetmons.org](http://cetmons.org)).

Founding Chair:  
**Brad Allenby**



Throughout history, technological evolution and military activity have been linked. The existential challenge to society represented by warfare, combined with the immediate advantage that new technology can deliver, tends to accelerate technological innovation and diffusion. The relationships between the resulting technology systems, and consequent social and ethical issues and changes, are quite complex, however, and understanding and managing them to enhance long term military advantage and security, is a critical challenge. This is particularly true when, as now, technological change is both rapid and accelerating posing the risk of cultural backlashes that could affect both short term mission capabilities and longer term security interests.

Many technologies of sufficient power to be of interest militarily have at least the potential to be deeply destabilizing to existing economic, social, and technological systems. Examples might include the possibility that military RFID sensor systems, insect robots and cyborgs are shifted from theatre intelligence to domestic intelligence; that telepathic helmet technology transitions from a small unit communication enhancement to a non-intrusive thought detection device in civil society; or that warrior enhancement technology results in radical life extension for selected civilian populations. Emerging technologies are likely to have similar destabilizing effects within the military as well, potentially affecting not just military operations, but military culture and organization, as well as broader social perspectives on military initiatives generally.

**Many technologies of sufficient power to be of interest militarily have at least the potential to be deeply destabilizing to existing economic, social, and technological systems.**



*This rendition of a robotic insect, although fanciful, is illustrative of a class of rapidly developing technologies that could have dramatic effects both on the battlefield, and in civil society.*

# Del E. Webb School of Construction

Research Expenditures FY 2010  
\$1,374,602





# New skills needed by project managers in 2020

**A** new generation of engineers and managers will be needed to address many of the problems facing our built environment.

William Badger and Avi Wiezel are the academics on the Construction Industry Institute's (CII) Research Team 281 which will determine the new skills needed for project managers (PMs) in 2020.

The research team is composed of 20 industry members representing owner and construction companies who together employ more than 700,000 people. Their innovative approach is to collect data from leadership seminars using three exercises/games that were developed by Badger and Wiezel and featured in Engineering News-Record.

The industry team members are being trained to conduct one-day seminars for the PMs within their companies and to provide the data for the research project.

The benefit of the seminars for the companies is an improvement in education and training of their PMs, the benefit to the companies' leadership group is feedback on PM problems and challenges, and the benefit for the researchers is the data collection in an interactive, realistic environment.

Data mining techniques will be used to determine the most effective approaches to managing projects in the future.

Principal Investigator:  
**William Badger**



Principal Investigator:  
**Avi Wiezel**



**“Employees in a leadership environment want to do things while employees in a management environment have to do things.”**



*Students from the Masters of Real Estate Development (MRED) represent disciplines from the schools of design, law, construction and business.*



# Critical front end planning factors for infrastructure projects



Principal Investigator:  
**G. Edward Gibson, Jr.**

## PDRI for Infrastructure is a comprehensive tool for planning

**M**any infrastructure projects suffer delay, cost overruns and performance degradation, much of it caused by unclear requirements, lack of due diligence and poor early scope definition.

G. Edward Gibson, Jr., is performing a multi-year research project for the Construction Industry Institute (CII) investigating the process and factors related to successful early project planning of infrastructure capital projects.

This research has input from a steering team of 20 industry representatives and has collected data from over 60 individuals in four workshops covering major geographic locations in the United States and also two workshops in London.

As part of the effort, the research team visited and analyzed projects at the site of the 2012 London Olympics. The result of this effort is a risk management tool called the Project Definition Rating Index (PDRI), which is currently in the testing phase and has been used on projects from 14 countries on four continents representing over \$8 billion USD. Results to date are very promising.



*Site of the London Olympics*

# Professor teaching small business owners how to expand their ventures

**C**onstruction and construction-related companies are learning how to strengthen their businesses through a collaboration of the Arizona Department of Transportation (ADOT) and the Alliance for Construction Excellence, the professional development and industry education affiliate of the Del E. Webb School of Construction.

The Alliance has created three courses for ADOT's Academy for the Development of Disadvantaged Business Enterprises.

It's geared for start-up and mid-level "disadvantaged business enterprises" that have established themselves as viable companies but are seeking to grow their businesses through building in-house technical expertise, pursuing larger contracting opportunities, or transitioning from the role of subcontractor to prime contractor.

The academy program works to ensure small companies, including those owned by women and minorities, are provided a level playing field on which to compete for federally funded projects.

ASU assistant research professor Thomas Schleifer developed the courses which focus on leadership and entrepreneurial skills, accounting, management and business-planning methods, strategic planning, asset management, negotiating skills, communications and other subjects that new business owners need to learn to become successful.

Assistant Research Professor:  
**Thomas Schleifer**



## General Services Administration (GSA) Implementation of the Performance Information Procurement System (PIPS)



**Dean Kashiwagi**, Ph.D., P.E.,  
Professor, Fulbright Scholar

Kashiwagi is the director of the Performance Based Studies Research Group, specializing in the delivery of services, the optimization of supply chains, and the creator of PIPS.

**Disruptive technology forces engineers, project managers, and contractors to do their functions differently to minimize deviations.**

**T**he GSA (Heartland Region, Region 6, Kansas City, MO) has had difficulty in accurately identifying the source of construction project deviations. Led by regional director and visionary Cy Houston, the GSA is implementing the Performance Information Procurement System (PIPS) under a five year contract worth \$825K to:

1. implement an accurate measurement system of project time and cost deviations that is not dependent on government management or documentation
2. transfer risk and control to the designers/contractors including the minimization of risk that the vendors do not control
3. minimize GSA project/risk management transactions
4. minimize project cost and time deviations
5. increase vendor profits
6. decrease project costs.

GSA is attempting to attain the same level of performance as other government entities (University of Minnesota, State of Hawaii, and the U.S. Army Medical Command) by minimizing 60% of all PM/RM transactions while minimizing contractor deviations. Best value PIPS is different from other systems due to its ability to simultaneously minimize client management, direction, and control and cost and increase quality, value, and vendor profit.





# American Indian Initiatives

**T**he Construction in Indian Country (CIIC) is a non-profit organization within ASU, established in 2001, in a joint effort from the ASU Office of the President on American Indian Initiatives and the DEWSC. CIIC's mission is to improve the quality of sustained construction on the lands of American Indians, Alaska Natives, and other indigenous peoples through education and by building trust between tribes and industry. CIIC is guided by members of an executive committee who represent a variety of professions in the construction industry, architecture, engineering, finance, legal, academic, tribal, federal, public and private entities. CIIC provides an annual conference, student support and research in support of CIIC's mission.

This year marked the seventh annual CIIC 2010 Conference and golf mixer held on May 17-19, 2010 in Fort McDowell, Arizona. The conference aims to educate tribes and industry by providing various informational workshops about the realities and opportunities concerning construction in Indian country. The conference also aims to build trust, relationships, and provide networking opportunities among tribes, industry, and various entities. The proceeds of the conference go directly toward sustaining the CIIC organization, annual conference as well as fund the educational grant and endowment for American Indian students pursuing their construction management degrees within the DEWSC.

## Student Support

- 7 American Indian students are currently enrolled in the DEWSC
- 2 new freshmen and 1 new graduate student will be entering the program in the fall
- Average 7-9 American Indian students in the program annually
- Average 1-2 American Indian students that graduate annually
- 8 American Indian students have earned their Construction Management degrees since 2006
- 1 new full-time visiting eminent scholar position within the DEWSC to provide research for CIIC

## Grant & Endowment

- 5 American Indian students were awarded \$2,000-\$2,500 each from the American Indian Construction Management Grant for a total of \$12,000 for the 2009/10 academic year
- An additional \$30,000 will be deposited into the American Indian Construction Management Endowment for the 2009/10 academic year



Construction  
in Indian Country

### American Indian Construction Management Grant Student Recipients - 2009/10



**Leonard Black** is a member of the Navajo Nation and originally from Kayenta, AZ. He is currently a junior and will be graduating in spring 2011 with his undergraduate degree in construction. After graduating, he would like to begin gaining experience so he may become a qualified construction manager. Leonard would also like to give back to his American Indian community.



**Adam Hill** was born and raised in Rochester, New York and is a member of the Mohawk Tribe. He is currently a senior at the Del E. Webb School of Construction and pursuing a bachelor's degree in construction management with an emphasis in general building. With his degree he would like to fulfill his dream of helping American Indian communities.



**Kammy Harding** is a member of the Navajo Nation originally from Pinon, AZ. She is currently a junior and plans on graduating in the fall of 2012 with her construction management degree with an emphasis in heavy construction. Upon graduating, she would like to continue working in the heavy construction field to gain more experience and obtain her master's degree in construction.



**Buu Van Nygren** is originally from Yellow Rock Point, UT and is a member of the Navajo Nation. He is currently a junior and is majoring in construction management with a minor in business. After graduation, Buu plans to obtain a master's degree in business administration and gain more experience in the construction management field.



**Sylvester Yazzie** was raised in St. Michaels, AZ and is a member of the Navajo Nation. He is currently pursuing a bachelor's of science degree in construction management. While attending school, he plans on gaining experience in the construction field. With his degree he plans on securing a job on the Navajo reservation where he will help his community.

# Student Achievements

## Student Awards

**Alex Bertheau**, a construction undergraduate student, has won 3rd place for his project "Modulus of Elasticity and Mechanical Behavior of Ultra High Performance Concrete" in the 2010 American Concrete Institute Concrete Projects Competition. Alex's faculty advisor is Luke M. Snell.

**Carmen Castilleja** and **Nathan Rodriguez**, graduate students in SSEBE, have been awarded the Reach for the Stars (RFTS) Fellowship for 2010-2011. The RFTS supports fellows during their first year to allow them to devote fulltime attention to their program of study and to enhance their scholarly and professional skills. Each student will receive a stipend of \$15,000 for the academic year. In addition to the stipend, students receive a tuition award for the first year, student health insurance and continued financial support by the academic unit in the second academic year with a TA or RA position.



**Carlos Cary**, Ph.D. student, in civil and environmental engineering, received an award for his paper "Comparative Study of a Mechanistic Resilient Modulus Predictive Equation for Unbound Materials" from the International Society for Maintenance and Rehabilitation of Transport Infrastructures presented at the 2nd International Conference on Transport Infrastructures

held in Brazil. This award was based on the papers quality and relevance of its scientific content. Carlos' faculty advisor is Claudia Zapata.

**Kyle Doudrick** has been selected for an ASU Graduate and Professional Student Association Travel Grant in the amount of \$950 for travel to The 15th International Conference on TiO2 Photocatalysis: Fundamentals and Applications.



**Nathan Dunkin**, a civil engineering undergraduate student, has received a 2010 Charles P. Lake/Rain for Rent Scholarship in the amount of \$1,500.

**Mac Gifford** has been selected to receive the ACEC of AZ 2010 Scholarship. The American Council of Engineering Companies of Arizona (ACEC/AZ) is devoted to the business interests of engineers in private practice, working to create a business environment that encourages quality design and public service. The ACEC/AZ Scholarship is designed to assist member firm employees and their families who are pursuing their education in an engineering discipline.



**Elham Bani Hashem**, a graduate research and executive fellow and lifetime member of the International Road Federation (IRF) fellowship orientation and executive leadership program, was selected as the winner of the Gerald P. Shea Award. This is a prestigious award given to just one IRF fellow each year who has proven his/her special ability, talents, and technical potentials. Elham was also selected, by fellow votes, as one of the two presidents of the class and captain of one of the fellows teams. Under her supervision, the team won all of the competitions, including a bridge building competition.

**Kristin McClellan** and **Michael Ziv-El**, won the Phoenix / Scottsdale Groundwater Contamination Scholarship for Environmental Science for 2010/11. This award in the amount of \$6,500 is being offered in recognition of their solid history of achievement and research in the study of groundwater contamination and in support of their dissertation.



**Kalyan Ram Piratla**, graduate research associate in the Del E. Webb School of Construction, was selected to receive a 2010 AZ Water Scholarship. Kalyan is working on a NSF RESIN project titled "Sustainable Infrastructures for Energy and Water Supply Systems" under the guidance of Dr. Samuel Ariaratnam.

Kalyan's scholarship application focused on problems of Arizona's Water Resources and Infrastructure looking at issues such as water re-use, centralized vs. distributed treatment plants and resiliency of the water distribution infrastructure.



**Jeffrey Stempihar** has been selected as a recipient of a research stipend in the amount of \$10,000 as part of the Graduate Research Award Program on Public-Sector Aviation Issues for the academic year 2010-11. Sponsored by the Federal Aviation Administration of the U.S. Department of Transportation and administered by the Airport Cooperative

Research Program (ACRP) of the Transportation Research Board/National Academies, the award is presented for successful completion during the upcoming academic year of a research paper on the topic "Use of Fiber Reinforced Asphalt Concrete as a Sustainable Paving Material for Airfields".



## Construction students contribute to a life-changing home makeover



A group of construction students from the Associated General Contractors (AGC) student chapter in the School of Sustainable Engineering and the Built Environment teamed with Rebuilding Together, Gilbane Building Company and Ryan Companies to provide a home makeover for a Phoenix-area family.

Rebuilding Together works to preserve affordable home ownership—especially for veterans with disabilities. They provide free home modifications and repairs.



Between 15 and 20 DEWSC construction students contributed to the makeover, providing the necessary labor to complete the eight-day project in spring 2010. With additional contributions from the contractors and the subcontractors, the volunteers were able to completely rebuild this 1,000 square-foot house for a Phoenix-area family of four.

ASU's AGC student chapter does four significant community service projects each semester. Projects like the ones done with Rebuilding Together provide students with valuable field experience and the chance to make a difference in the community.

In the fall semester, the AGC chapter participates in Rebuilding Together's Paint-a-Thon, a service project to paint the exterior of owner-occupied housing for low-income homeowners.

### Scope of work:

- New roof
- Ceiling replacement
- New evaporative cooler system
- Kitchen and bathroom renovation
- New water heater
- Landscaping and dust remediation in yard
- Flooring replaced
- New windows and doors
- Plumbing repaired
- Removal of aluminum siding
- Interior and exterior painting



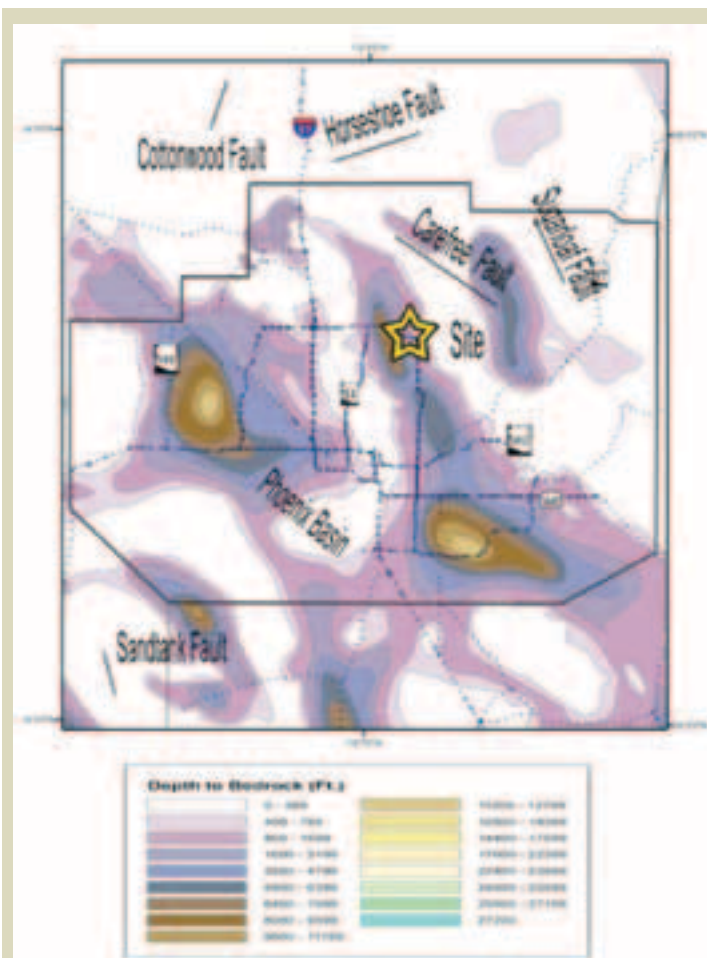
## Clean sweep for SEBE students

SEBE graduate students swept the top three places at the annual **Association of Engineering Geology (AEG) Student Night**. This year's event was held at the ASU Memorial Union on Tuesday evening, April 7, 2010. Abstracts were solicited by AEG from students in geology and geotechnical engineering programs at ASU, U of A, and NAU.

The top three abstracts were selected by the judging committee from among the submitted abstracts and those students were invited to make presentations at the event. The presentations were then ranked by the judging committee to determine who received the first, second, and third place awards.

### All three students selected to make presentations were from SEBE.

- **First place** went to **Nasser Hamdan** for his presentation on "Microbially Induced Precipitation of Calcite using *Pseudomonas Denitrificans*."
- **Second place** was awarded to **Simon Ghanat** for his presentation on "Influence of Deep Basin Soil Conditions on the Seismic Hazard in Phoenix."
- **Third place** was awarded to **Maie El-Keshky** for her presentation on "Influence of Temperature on Unsaturated Soil Properties".



### 2nd place presentation by Simon Ghanat:

The diagram represents a map of the depth-to-bedrock in the Phoenix Basin derived from Arizona Geological Survey data (Zapata 2008). It can be noted that the Phoenix Basin is dominated by a large area of deep soil (darker color on the map). The known active fault seismic sources that may affect the Phoenix Basin are the Carefree, Horseshoe, Sugarloaf, Sand Tank, and Cottonwood Basin Fault. The predominant style of faulting for all these sources is normal faulting. The closest active fault to the Phoenix Basin is the Carefree Fault, which is about 45km from downtown Phoenix and is believed to be capable of magnitude 6.3 event with an average recurrence interval of 5000 years.

# Student Excellence

## 2009/10 Scholarship Awards

*Congratulations to the following students on their achievement and a special thank you to the donors for their contributions.*

### CIVIL, ENVIRONMENTAL & SUSTAINABLE ENGINEERING

Argyro Losos Tribute Scholarship	Rafael Balderrama
Arizona Society of Civil Engineers Scholarship (AzSCE)	Michaela Doherty, Tyson Baca
Charles and Nancy O'Bannon Scholarship	Matthew Petrucci
Charles Lemon Memorial Scholarship	Bryan Wright
Charles Lemon Memorial Scholarship	Jayleen Robinson, Douglas Rohrer
CIRC Scholars Program	Jorge Amaya, Tyson Baca, Nathan Merrill, Mara Ramos, Paulina Reina, Jothan Samuelson, Sergio Sanchez
CIRC/METS Scholars Program	Erick Barrios Ponce, Christopher Gino, Kathryn Hoffmann
Civil and Environmental Engineering General Scholarship	Christopher Barsby, Christy Cavano, Michaela Doherty, Janet Frazier, Thomas Volo
Dean's Advisory Council Scholarship	Cassandra Johnson
Distinguished Senior	Canio Hoffarth
Ed Denison Memorial Technology Award	John Kondziolka
Elyse and Paul Johnson Scholarship	Vanessa Chavez
Excellence in Engineering Leadership Scholarship	Christopher Gino
Ira A. Fulton Schools of Engineering Alumni New Student Scholarship	Kevin Walsh
Jan Tuma Memorial Scholarship	Joy Marsalla
Kenneth R. and Kathryn Geiser Memorial Scholarship	Rafael Balderrama
Kiewit Companies Scholarship – Civil Engineering	Cody Anderson
Martin H. Rosness Memorial Scholarship	Rachel Leigh
Marvin J. Sheldon Memorial Scholarship	Tyson Baca
Mike Kolling Memorial Scholarship – Civil Engineering	Keith Christian, Nathan Merrill
NACME Scholarship	Nicholas Aguilar, Sergio Sanchez
Paragon Structural Design, Inc. Scholarship	Kevin Lardner
PBS&J Foundation Scholarship	Joy Marsalla
Rod J. McMullin SRP Water Resource Scholarship	Nathan Dunkin, Joy Marsalla
Stanley Consultants Scholarship	Christopher Gino, Canio Hoffarth
Terry Bourland Memorial Scholarship	Vanessa Chavez
Wood, Patel and Associates, Inc. Scholarship	John Kondziolka

### DEL E. WEBB SCHOOL OF CONSTRUCTION

Achen Gardner – Mike Kolling Memorial	Skyler Holloway, Jesse Pina, Jason Santor
AGC Student Chapter	Joshua Brown, Bret Burnham, Joshua Dixon, Brittany Hoste, Jonathan Millett, Lucas Semter, Alexandra Taylor, Silvino Villanueva
Ames Family Scholarship	William Scott
Andrew Hanneman	Pablo Sandoval
Bechtel Group Foundation Scholarship	Cynthia Botello, Brittany Hoste, Nico Rochwalik
Ben C. Griggs Memorial Award	Silvino Villanueva
Charles and Nancy O'Bannon Scholarship for Construction	Curtis Kelner
D. L. Withers Construction Co.	Yorhan Angulo-Aguirre
Daniel and Katherine Mardian	Cynthia Barela
Dave Clifton Memorial / ASPE	Brian Park
Del E. Webb Foundation Finance & Accounting	Jonathan Meek, Morgan Spears
Del E. Webb Foundation Undergraduate	Lindsay Johnson
Del E. Webb Foundation Women in Construction	Josephine Bierwagen, Ashleigh Feiring
Del E. Webb Memorial Scholarship	Chase Farnsworth, Rebecca Freitas
Del E. Webb School of Construction	Doug Hosea, Adam Walter
Distinguished Senior Award	Chase Farnsworth, Rebecca Freitas
FNF Construction	Brantley Gallimore
Frank Chandler Memorial	David Phipps
James Fann Memorial	Brian Newman
Jan Bennett Endowed Scholarship	Joshua Marriott
Jerry King Memorial	Pablo Sandoval
Jim Bebout Memorial	Colton Atwell
Kiewit Companies Scholarship	Christian Sosinski
Kitchell Contractors, Inc.	William Nelson
Kitchell Leadership Scholarship	Nicholas Baxter, Josephine Bierwagen, Cynthia Botello, Bret Burnham, Chase Farnsworth, Ashleigh Feiring, Rebecca Freitas, Garrett Hardy, Brittany Hoste, Brent Lewis, Kaitlyn Mulhollan, Justin Nelson, Nico Rochwalik, Lucas Semler, Pablo Sandoval, Silvino Villanueva
LeaderShape Recipients	Cynthia Botello, Brittany Hoste, Pablo Sandoval, Alexandra Taylor, Silvino Villanueva
Opus West Construction Corporation Undergraduate Scholarship	Kaitlyn Mulhollan
Pulte Home Corporation	Jorge Martinez
R. Glen Schoeffler Memorial	Russell Intermaggio
R. H. Johnson Scholarship	Joseph Baker, David Braeckow, William Dietz, Andrew Ronan
Richard Dawn Award	Greg Carbajal
Robert J. Wheeler Scholarship	Scott Carli, David Kestner
Ron Pratte Memorial	Brian Park
Dr. Sandra L. Weber Memorial Award	Tracy Strenger
Schuff Steel Co. Academic Scholarship	Gregory Brewer
Sun Valley Construction	Joshua Dixon
The Beavers	Anthony Davini, Brent Lewis



## Alumni News



**Enamul Hoque** has been recognized by the Academy of Geo-Professionals (AGP) Board of Trustees as having met the requirements for the Diplomate, Geotechnical Engineer (D.GE) credential. The certification period will run from February 21, 2010 thru May 31, 2011.

Hoque is the President and CEO of Hoque and Associates, Inc., a consulting engineering firm established in 1997 specializing in geotechnical exploration, civil engineering, construction materials testing, environmental assessment and solid waste engineering.

He was presented with a certificate of knowledge and lapel pin in recognition of his achievement at the induction ceremony, GeoFlorida Conference 2010. The Diplomate credential stands as a testament to life-long learning. Awardees are encouraged to show their support of AGP's goals by serving as an example for the next generation of geotechnical engineers.



**Dr. Hisham Mahmoud** has joined AMEC, the international engineering and project management company, as President of its Earth & Environmental business. Mahmoud has also been appointed to the company's Group Management Team and will be based in Atlanta.

Mahmoud joins AMEC from URS

Corporation, and has more than 19 years of experience with URS and its predecessor companies Dames & Moore and Woodward Clyde. Most recently, as East/Midwest Group General Manager, Infrastructure and Environment, he managed around 3,500 employees in some 40 offices in the U.S. and Canada.

Mahmoud has a Bachelor of Science degree in Civil Engineering from the University of Qatar and a Master's and a Ph.D., in Civil Engineering from Arizona State University, 1991.

## ASU construction grad offers helping hand

**Jeff Begay**, a member of the Navajo Nation who has worked for decades to improve business and living conditions in Native American communities, is the 2010 Del E. Webb School of Construction Outstanding Alumni of the Year.

Begay graduated from ASU with a degree in construction management in 1974 and now is manager of business development for Kitchell Contractors Native American Division. Through his division's work, Begay has helped lead efforts to bring quality construction services to Indian lands.

Lack of quality building has long plagued Indian reservations, he says. Many reservations "are like Third World countries. They are struggling to develop a strong economy, struggling to build good infrastructure," Begay says. He sees his job as "a mission and a passion. We are helping to build nations, to make them prosperous and healthy. It's fabulous

that Kitchell hires people, like me, who understand this culturally unique segment of America and also strives to provide quality service, with integrity and respect."

"There's a perception that a construction management graduate with an engineering background works only with concrete, steel and wood, and isn't really involved with much of anything else," he says. Among his efforts beyond construction business, Begay has been instrumental in organizing Kitchell's Cultural Sensitivity Seminars, inviting guest speakers from various tribal communities to make presentations about their history, culture and community.

Begay also has worked as a general contractor and been a consultant to the Gila River Indian community, assisting in the development of governmental facilities, infrastructure and community housing programs. Earlier this year, Begay helped lead an effort to rebuild

and refurbish the home of a Navajo tribal member and fellow Vietnam veteran whose home had been nearly destroyed by vandals.



*Jeff Begay (at right) is the Del E. Webb School of Construction Outstanding Alumni of the Year award winner. He's pictured attending a Salt River Pima Maricopa Indian Community Veteran's Pow Wow. At left is Stephen Tahmahkera, son of Gary Tahmahkera, a microbiology laboratory coordinator in ASU's School of Life Sciences.*

## New Faculty



**Thomas P. Seager**, associate professor, joined the School of Sustainable Engineering and the Built Environment in August 2010. Seager is formerly a founding faculty member at the Golisano Institute for Sustainability at Rochester Institute of Technology and led development of their Ph.D. curriculum in sustainability.

He works at the leading edge of an integrative, transdisciplinary approach to engineering education and research and is currently leading projects related to ultra-low energy community infrastructure, ethics education for science and engineering graduate students, and the life-cycle environmental implications of single-walled carbon nanotubes in energy applications.

Seager is the author of 24 full journal articles on topics including resilience in the context of coupled ecological-engineering systems and stochastic approaches to understanding stakeholder value choices in the context of life-cycle assessment, and has authored over two dozen other articles, books chapters, or refereed conference papers. He served as an assistant professor at Hudson Valley Community College prior to earning his Ph.D. in Civil Engineering at Clarkson University in 2001 and has previously held faculty appointments at Purdue University and University of New Hampshire.



**William Harris Smith** has joined the DEWSC team as a professor of practice. An award winning real estate developer with over \$1 billion in projects to his credit, Smith excels at coupling exceptional design with construction capabilities.

Whether re-visioning and re-using buildings by “breathing new life” into worn, historic treasures, or creating new housing concepts for in-city dwellers or university students, Bill’s firms have delivered on time and on budget. His financial expertise with varieties of real estate instruments provides the ability to make deals happen when those with less creativity and experience strike out.

This fall Bill will co-teach CON 252 Building Construction Methods, Materials, and Equipment with Professor William Badger.

## Visiting Faculty



**Roger Owers** is a visiting eminent scholar in the Del E. Webb School of construction. His research focus is on construction in “Indian Country”.

This involves researching the political, economic, social, technical, and legal aspects of engineering and constructing on lands of American Indians. Owers worked

for a major Indian tribe in the Phoenix metro area, first as a construction manager for the tribe, and then as in-house legal counsel for the tribe. He practices construction law and Indian law and also consults to a wide range of small businesses, design firms, developers, and contractors.

Owers is developing a series of seminars for teaching construction best practices to Native American constituents.



**Mookencherl Mathews** received a re-invitation to work as an Eminent Research Fellow at the School of Construction in the year 2010. He had a successful tenure as an Eminent Research Fellow at the School of Construction in 2004 and 2005. In the short time he has been identified as one of the best teachers in the Ira A. Fulton Schools of Engineering. He has taught

Statics, Strength of Materials and Building Construction and Methods.

His area of research is in the Restoration of Ancient Monuments in India and abroad.

Mathews hails from IIT Madras, India, where he was the Chairman of the Department of Civil Engineering before taking up the above assignments.

## Faculty Honors



**Brad Allenby**, a professor in SSEBE, has recently co-authored a book that combines concepts of sustainable engineering with his pioneering work in industrial ecology.

Industrial ecology broadens the scope of the sustainability concept, Allenby says. "It looks at economic, technological and industrial systems and their interaction with environmental and social systems."

From that point of view, Allenby says, "You look at a factory not only from merely an economic perspective, but from the perspective of its overall impact on environmental and social systems. You look at things like its carbon emissions and how the factory uses resources, and how they are tied to design choices and manufacturing practices."



**Allan Chasey**, associate professor in DEWSC, has received the President's Medal for Social Embeddedness and also has been named the Sundt Construction Professor of Alternative Delivery and Sustainable Development for the academic year 2010/11 in recognition of his leadership and talents. He will be working on research and teaching, including class development and outreach, in some facet of alternative delivery and/or sustainable development.



**Edward Gibson**, interim director, programs chair in DEWSC and professor in the School of Sustainable Engineering and the Built Environment was selected as the recipient of the Construction Industry Institute (CII) Distinguished Professor Award. This award is sponsored by the

CII Professional Development Committee and honors full-time or adjunct faculty at a graduate or undergraduate program that incorporated published CII research findings in their courses during the previous calendar year.



**Rolf Halden**, associate professor in SSEBE, traveled to Annecy, France to partake in an invitation-only special colloquium of the American Academy of Microbiology concentrating on Antibiotic Resistance: An Ecological Perspective on an Old Problem.

The colloquium was convened to discuss antibiotic resistance and the factors that influence the development and spread of

resistance. Participants, whose areas of expertise included medicine, microbiology, and public health, made specific recommendations for needed research, policy development, a surveillance network, and treatment guidelines.

Antibiotic resistance issues specific to the developing world were discussed and recommendations for improvements were made.



**Dean Kashiwagi** has won the International Facility Management Association (IFMA) 2009 Distinguished Educator Award, recognizing numerous accomplishments in research as well as in teaching.

Kashiwagi is a professor in the Del E. Webb School of Construction, a part of the School of Sustainable Engineering and the Built Environment.

The IFMA is the world's largest international association for professional facility managers, supporting more than 19,500 members in 60 countries. The association's members manage more than 37 billion square feet of property around the world.

The organization particularly cited Kashiwagi's use of resources provided by a prestigious Fulbright Scholar grant he was awarded in 2008 to develop a project to bring state-of-the-art facility and project management research and practices to Botswana, Africa in the past year.

The award also honors Kashiwagi's work to establish a "groundbreaking" Facilities Management Model of the Future graduate program.

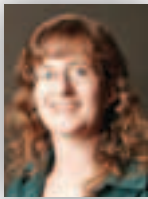
Kashiwagi is director of ASU's Performance Based Studies Research Group. It focuses on applying concepts for improving efficiency and performance, and minimizing risk, in project management, as well as for organizations and businesses.



**Edward Kavazanjian**, a professor in SSEBE, has been elected a Fellow of the American Society of Civil Engineers (ASCE). He was also awarded the 2010 Thomas A. Middlebrooks Award by ASCE for co-authoring a paper titled "Shear Strength of Municipal Solid Waste". The paper was judged worthy of special commendation for its merit as a contribution to geotechnical engineering.



## Faculty Honors contd.



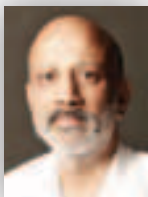
**Rosa Krajmalnik-Brown**, assistant professor in SSEBE, has been chosen as one of the recipients for the 2009 TANITA Healthy Weight Community Grant-in-aid program. Her awarded grant will amount to \$11,000.



**Jason Lueke**, assistant professor in the Del E. Webb School of Construction, has received the Outstanding Young Career Achievement award from the North American Society for Trenchless Technology.



**Michael Mamlouk**, professor in SSEBE and program chair of Civil, Environmental and Sustainable Engineering, has been awarded the 2010 Arizona Pavements/Materials Conference Community Service Award for exceptional contributions to the paving/materials programs in Arizona.



**Subramaniam Rajan**, a professor in SSEBE, has been awarded the 2009 Outstanding Engineering Educator of the Year for the Greater Phoenix Area Engineer's Week. Rajan is being recognized for his long-standing and high impact teaching effort at ASU and his contribution towards the undergraduate and graduate curriculum.



**Bruce Rittmann**, a National Academy of Engineering member and Regents' Professor in the School of Sustainable Engineering and the Built Environment, won the 2009 Award for Research Excellence from the Arizona BioIndustry Association. Rittmann is an international leader in using microbes found in nature for the benefit of the environment or human health. His research team tackles some of the world's leading problems related to water, waste and energy.



**Avi Wiesel**, associate professor in the Del E. Webb School of Construction, is among 13 faculty appointed to the inaugural Leadership Development Initiative for spring semester 2010. The Leadership Development Initiative, coordinated by the Office for Developing Transformational Leaders, launched this new program in spring 2010. The program includes a series of workshops and developmental experiences for tenured faculty who have demonstrated leadership ability, enacted leadership roles within the college, who are new to leadership roles or may aspire to leadership or administrative roles.



**Paul Westerhoff**, a professor in the School of Sustainable Engineering and the Built Environment, has been appointed to a three-year term on the U.S. Environmental Protection Agency's Science Advisory Board. Board members provide expertise on technical issues to help guide the agency in policy-making and decision-making. Westerhoff also received the Excellence in Review Award from Environmental Science & Technology.



**Matthew Witczak**, professor in SSEBE, has been invited to deliver the first annual Leonard E. Wood Academic Enrichment Seminar at Purdue University. Witczak was selected by a panel of faculty in the School of Civil Engineering at Purdue as an outstanding candidate to offer the first lecture because of his preeminent position in the field of asphalt materials and pavement design and analysis.

**The following faculty have been recognized by the Ira A. Fulton Schools of Engineering (FSE) for being in the top 5% of best teachers in FSE for 2009/10:**

*l to r:* **Braden Allenby**, professor, **William Badger**, professor, **Kraig Knutson**, lecturer, sr., and **Brooke Mayer**, lecturer.





**Morteza Abbaszadegan, Ph.D.**  
*Professor*  
 Civil, Environmental &  
 Sustainable Engineering  
**Health-Related Water  
 Microbiology**

Morteza Abbaszadegan is a professor and director of the National Science Foundation (NSF) Water & Environmental Technology (WET) Center at Arizona State University. He joined the department in 1999 after spending more than six years as a Microbiology Research Manager in private industry. He developed an Environmental Microbiology course (CEE 467/567) for the CESE program.

Abbaszadegan's research interest focuses on health-related water microbiology including microbial detection methodologies, pathogens inactivation and removal mechanisms during water treatment processes, and water quality in water distribution systems. He has developed new techniques for the detection of viruses, bacteria, Giardia and Cryptosporidium in water samples. He has authored more than 50 research papers in peer-reviewed journals and more than 20 in books and reports.

Abbaszadegan successfully established a NSF Water Quality Center (WQC) and WET Center at ASU. The NSF Centers provide a platform to address issues as diverse as water quality by capitalizing the strengths of partner organizations. The Centers have provided research resources and capabilities to the participating members in a variety of water quality arenas.



**Soyoung Ahn, Ph.D.**  
*Assistant Professor*  
 Civil, Environmental &  
 Sustainable Engineering  
**Transportation**

Soyoung Ahn is an assistant professor in the School of Sustainable Engineering and the Built Environment at ASU. Prior to joining ASU in 2006, she received her Ph.D. (2005) in Civil and Environmental Engineering from the University of California, Berkeley and worked as a postdoctoral research associate in the Department of Civil and Environmental Engineering at Portland State University, Oregon.

Her expertise lies in traffic flow theory, traffic operations, ITS applications, congestion management, and traffic safety. Her research aims to 1) better understand the fundamental nature of traffic flow through observation, experimentation and the application of quantitative methods, 2) examine the safety impact of traffic flow phenomena, and 3) apply the knowledge in developing traffic theories and control strategies through applications of ITS.

Her research has been funded by Arizona Department of Transportation, Federal Highway Administration, National Science Foundation, Oregon Department of Transportation, and Oregon Transportation Research and Education Consortium.

Ahn currently serves as a member of the Traffic Flow Theory and Characteristics committee of the Transportation Research Board.



**Braden Allenby, Ph.D., J.D.**  
*Professor*  
 Civil, Environmental &  
 Sustainable Engineering  
**Earth Systems Engineering**

Brad Allenby is the Lincoln Professor of Engineering and Ethics, and of Law, a professor in CESE, Founding Chair of the Consortium for Emerging Technologies, Military Operations, and National Security, and the Director of the Center for Earth Systems Engineering and Management at ASU.

He moved from his previous position as the Environment, Health and Safety Vice President for AT&T in 2004. Allenby received his B.A. from Yale University, his J.D. and M.A. (economics) from the University of Virginia, and his M.S. and Ph.D. in Environmental Sciences from Rutgers University.

Allenby is past President of the International Society for Industrial Ecology, ex-Chair of the AAAS Committee on Science, Engineering, and Public Policy, Chair of the IEEE Presidential Sustainability Initiative, an AAAS Fellow, an AT&T Industrial Ecology Fellow, and a Fellow of the Royal Society for the Arts, Manufactures & Commerce.

His areas of expertise include sustainable engineering, Design for Environment, industrial ecology, telework and netcentric organizations, transhumanism, and earth systems engineering and management.



**Samuel T. Ariaratnam, Ph.D., P.E.**  
*Professor*  
 Del E. Webb School of  
 Construction  
**Urban Underground  
 Infrastructure Systems**

Samuel Ariaratnam is a professor in the Del E. Webb School of Construction at Arizona State University. He received his B.A.Sc. in Civil Engineering from the University of Waterloo (Canada) and his M.S. & Ph.D. from the University of Illinois at Urbana-Champaign.

Ariaratnam's educational and research interests lie in the area of "Urban Underground Infrastructure Systems" with an emphasis on Horizontal Directional Drilling and Trenchless Pipe Replacement. He has published over 150 technical papers, holds three patents, co-authored five textbooks, and is active in numerous professional organizations.

In 2003, he was presented with the Young Civil Engineer Achievement Award from the University of Illinois at Urbana-Champaign. Ariaratnam is a past recipient of the John O. Bickel Award from the American Society of Civil Engineers (ASCE) and was named to the Phoenix Business Journal's prestigious "Top Forty Under 40" list in 2006. Currently, he serves as the Chairman of the International Society for Trenchless Technology and is active in the local community as a member of the Tostitos Fiesta Bowl Committee.

Ariaratnam is a registered professional engineer in the State of Arizona and the Province of Ontario (Canada).



**William W. Badger, Ph.D., P.E., N.A.C.**

*Professor*  
Del E. Webb School of Construction  
**Construction Management**

Bill Badger received his Ph.D. in Soil Mechanics from Iowa State University in 1972, his MSCE in Civil Engineering from Oklahoma State University in 1964, and his BSME in Mechanical Engineering from Auburn University in 1959.

Badger was director and professor in the Del E. Webb School of Construction (DEWSC) from 1992 to 2005. He is currently a professor in DEWSC.

From 1982 to 1985, Colonel Badger was the Engineer for the United States Military Academy (West Point), supervised long-range planning, engineering, energy, environmental, construction, and maintenance. 1979-82, Colonel Badger was the District Engineer in St. Paul, MN. As Commander of a U.S. Army Engineering District, he provided leadership and management to an engineering organization of 800 personnel with an area including parts of five states, executed programs of planning, engineering, construction, and operation of navigation and flood control projects and conducted emergency operations for floods and other natural disasters.

#### Awards:

2008 - One of ENR's 25 Newsmakers of the year

2007 - The Construction Industry Institute's Richard L. Tucker Award for Leadership & Service

2005 - Associated Schools of Construction's Life Time Achievement Award

2000 - Member of the National Academy of Construction (N.A.C.)



**Howard H. Bashford, Ph.D., P.E.**

*Associate Professor*  
Del E. Webb School of Construction  
**Residential Construction**

Howard Bashford owned and operated an engineering consulting firm for 19 years and a construction development company for 8 years before coming to the DEWSC in 1991. He has been a faculty member ever since, spending two years at Brigham Young University and the remainder of the time at DEWSC.

Bashford has served as Director of the Graduate Program since 1997. He has also worked with Drs. Walsh and Sawhney of DEWSC to develop a collaborative research program focused upon residential construction. This has led to the development of the Arizona Partnership for Advancing Technology in Homebuilding (AzPath), a partnership with five local home builders, National Science Foundation, and the US Department of Housing and Urban Development (HUD). Bashford is also the Director of the Housing Research Institute (HRI) at ASU.

Bashford also heads the Master of Real Estate Development (MRED) program at DEWSC. This accelerated program is part of a university wide trans-disciplinary degree, collaborating with the schools of design, law and business at Arizona State University.

He is the recipient of the 2003 Crescordia Award for Outstanding Excellence in Environmental Education.



**Allan D. Chasey, Ph.D., P.E.**

*Associate Professor*  
Del E. Webb School of Construction  
**High-Technology Construction**

Allan Chasey, an associate professor in the Del E. Webb School of Construction, received his Ph.D. from Virginia Tech, M.S. in Engineering Management from the Air Force Institute of Technology, and B.S. in Civil Engineering from ASU.

He is Director of CREATE, a research consortium of companies representing the Advanced Technology design and construction.

Chasey developed a graduate program in Advanced Technology facilities in conjunction with leading experts in controlled environment manufacturing. This one-of-a-kind program focuses on the construction process for high-technology, controlled environment facilities. He is also developing the Building Information Modeling (BIM) curriculum for the School of Construction.

Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), the Institute of Environmental Sciences and Technology (IEST), International Society of Pharmaceutical Engineers (ISPE), and the Semi-conductor Environmental, Safety and Health Assoc. (SESHA). He also serves as the lead of the Facilities Working Group for the Factory Integration TWG for the International Technology Roadmap for Semiconductors (ITRS).



**James J. Ernzen, Ph.D., P.E.**

*Associate Professor*  
Del E. Webb School of Construction  
**Concrete Materials and Construction Operations**

Jim Ernzen is an associate professor and Director of Concrete Industry Management (CIM) at the Del E. Webb School of Construction.

He has over 22 years experience as a construction manager, project engineer, construction materials researcher, and civil engineering educator in the Army Corps of Engineers.

Ernzen serves as the Academic Co-chairperson of the Project Delivery Methods Task Force sponsored by the Alliance for Construction Excellence at Arizona State University where he teaches a graduate course, conducts seminars, and performs research. He also teaches courses and conducts research in concrete materials and concrete construction operations.

He received his Ph.D. in Civil Engineering at the University of Texas at Austin, M.S. in Mechanical Engineering from University of Notre Dame and B.S. in Mechanical Engineering from University of Notre Dame.




**Apostolos Fafitis, Ph.D., P.E.**

*Associate Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Concrete & Structures Design**

Apostolos Fafitis joined the faculty at ASU in 1984. He received his Ph.D. from Northwestern University. Prior to joining ASU, Fafitis worked for 15 years for various structural consulting companies in South Africa, Greece and the USA. He has been involved in the analysis and design of reinforced and prestressed concrete bridges and buildings.

Fafitis' teaching interests include: statics and strength of materials, reinforced and prestressed concrete design, nonlinear structural analysis and dynamics of structures.

Research interests: constitutive modeling of brittle materials, elasto-plastic behavior of structures, time dependent nonlinear structural analysis and seismic isolation of structures.

**Selected Publications:**

Fafitis, A. (2001) "An Application of Green's Theorem in the Analysis of Reinforced Concrete Sections Under Biaxial Stress", *ASCE J. of Str. Eng.* Vol. 127, pp. 840-846.

Fafitis, A. (2005) "Nonlinear truss Analysis by One Matrix Inversion", *ASCE J. of Str. Eng.* Vol. 131, pp. 701-705.

Attard, T. and Fafitis, A. (2007) "Optimal Seismic Analysis of Frames", *Engineering Structures* Parts 1 and 11, 29(8), pp. 1990-2000.

Rong, B., Chen, Z. and Fafitis, A. (2009) "Axial Compression Stability of a Crisscross Section Column Composed of Concrete-Filled Square Steel Tubes", *J. of Mech. Of Mater. and Struct.* Vol. 4, pp. 101-113.


**Peter Fox, Ph.D., P.E.**

*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Wastewater Treatment and  
Water Reclamation**

Peter Fox has been a faculty member in Civil, Environmental and Sustainable Engineering at ASU for 20 years. He received his Ph.D. in Environmental Engineering from the University of Illinois in 1989, his M.S. in Environmental Engineering from the University of Illinois in 1985 and his B.S. in Chemical Engineering with Honors from the University of Illinois.

His professional interests are primarily in water reuse, biological treatment processes and brine disposal/desalination. He has focused his work on natural treatment systems, groundwater recharge and indirect potable water reuse for the last fifteen years.

Fox served on the National Academy of Science ad-hoc committee that published the National Research Council report entitled "Prospects for Managed Underground Storage of Recoverable Water" in 2008. He also authored the groundwater recharge chapter in the Metcalf and Eddy textbook on water reuse. In addition, Fox was an executive committee member for the development of the national roadmap for desalination and water purification.

Fox was awarded the Quentin Mees Research Award from the AzWater Association in 1991, 1994, 1997 and 2003.


**G. Edward (Edd) Gibson, Jr., Ph.D., P.E., N.A.C.**

*Professor, Programs Chair and  
SSEBE Interim Director*  
Del E. Webb School of  
Construction  
**Construction Management**

Edd Gibson joined ASU and the Del E. Webb School of Construction in August 2009 as its programs chair. He is Professor and Sunstate Chair of Construction Management and Engineering in SSEBE.

Gibson has led over \$9 million in funded research during his career from sponsors such as NSF, Construction Industry Institute, NRC, Alfred P. Sloan Foundation, Texas Department of Transportation, U.S. Army Corps of Engineers and others. He has taught on the university level for almost 20 years and has delivered more than 190 short courses to industry during that time, receiving awards for university and continuing education instruction.

Gibson has several years of industry employment experience with the U.S. Army Corps of Engineers and Texas Instruments, and is a licensed professional engineer in Texas. He is Past-President of the Board of Governors for the Architectural Engineering Institute within the American Society of Civil Engineering.

**Honors & Distinctions:**

Elected as Fellow in ASCE, 2006. Elected National Academy of Construction (NAC), 2005. U.S. Dept. of State, Fulbright Senior Specialist Grant to Norway, 2004. Construction Industry Institute's Researcher of the Year Award, 2004. National Society of Professional Engineers, Sustaining Universities Program, Outstanding Engineering Educator Award, 2002.


**Rolf U. Halden, Ph.D., P.E.**

*Associate Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Environmental Engineering and  
Water Resources**

Rolf Halden received his Master's degree in Biology (Diploma, 1992) from the Technical University of Braunschweig, Germany, and a second Master's (1994) and Ph.D. (1997) in Civil Engineering from the University of Minnesota.

His research and teaching interests are in bioremediation, proteomic mass spectrometry, human exposure assessment, and sustainable chemistry.

Ongoing projects focus on the occurrence and fate of pharmaceuticals and personal care products (PPCPs) in the environment, the genomic and proteomic characterization of pollutant-degrading microorganisms, the development of in situ microcosm array (ISMA) technology for remedial design, and the determination of body burdens and biomarkers of toxic exposures and effects in adults and children.

Halden's microbiology and mass spectrometry labs are housed in the Center for Environmental Biotechnology at ASU's Biodesign Institute. He has served on the Maryland State Water Quality Advisory Committee, the Food and Drug Administration's Nonprescription Drugs Advisory Committee, and a National Research Council committee of the National Academies.



**Sandra Houston, Ph.D., P.E.**  
Professor  
Civil, Environmental &  
Sustainable Engineering  
**Geotechnical Engineering**

Sandra Houston has been a member of the Civil, Environmental and Sustainable Engineering faculty at ASU for 25 years and former chair of the department. Her primary area of expertise is geotechnical engineering. Houston's contributions to the field of geotechnical engineering focus on advancement of methodologies for dealing with arid region problem soils, particularly collapsible and expansive soils.

She is the regular instructor of undergraduate and graduate level foundation engineering classes and has recently developed a graduate level course on Unsaturated Soil Mechanics.

A heavy emphasis on the advancement of unsaturated soil mechanics into the practice of geotechnical engineering is evident by her professional service activities.

Houston has a long history of leadership in professional society organizations, particularly through participation in the American Society of Civil Engineers (ASCE), the Geo-Institute of ASCE, and the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE). She currently serves as the chair of the Unsaturated Soils Committee of the Geo-Institute of ASCE, as a member of the ISSMGE Committee on Unsaturated Soils, and as a member of the National Academies of Science Committee on Geotechnical and Geo-environmental Engineering.



**Paul Johnson, Ph.D., P.E.**  
Dean, Ira A. Fulton Schools of Engineering  
Professor  
Civil, Environmental &  
Sustainable Engineering  
**Environmental Engineering**

Paul Johnson is the Dean in the Ira A. Fulton Schools of Engineering and a professor in the School of Sustainable Engineering and the Built Environment.

He received his Ph.D. and M.A. in Chemical Engineering from Princeton University and B.S. in Chemical Engineering from University of California, Davis.

Prior to joining ASU in 1994, he was a Senior Research Engineer at the Shell Oil Westhollow Technology Center. His teaching, research and professional activities focus on the application of contaminant fate and transport fundamentals to subsurface remediation and risk assessment problems.

Johnson received the AEHS Academic Career Recognition Award in 2006 and CERF Charles Pankow Award for Innovation Finalist in 2005. Johnson is also editor-in-chief for the National Ground Water Associations journal Ground Water Monitoring and Remediation.



**Kamil Kaloush, Ph.D., P.E.**  
Associate Professor  
Civil, Environmental &  
Sustainable Engineering  
**Pavements and Materials**

Kamil Kaloush is an associate professor in Civil, Environmental and Sustainable Engineering, affiliate faculty in the School of Sustainability, and Director of the National Center of Excellence on SMART Innovations ([www.asuSMART.com](http://www.asuSMART.com)). He holds a Ph.D. degree specializing in pavements and materials from Arizona State University. He is a registered Professional Engineer, and has over 20 years of experience as a consulting engineer in pavement research.

Kaloush is a member of several professional organizations and has over 60 publications in his field. He is the chair of the Transportation Research Board subcommittee on Pavement Materials and the Urban Climate; a member of the Civil Engineering Examination Committee, National Council of Examiners for Engineering and Surveying; and co-advisor for the ASU-ASCE student chapter.

In 2009 Kaloush was the recipient of the Community Service Award presented by the joint ASU, ADOT, Industry and Local Government Pavements/Materials Conference committee.



**Dean T. Kashiwagi, Ph.D., P.E.**  
Fulbright Professor  
Director  
Performance Based Studies  
Research Group (PBSRG), Del E. Webb School of Construction  
**Project Management**

Dean Kashiwagi is the worldwide expert in optimizing the delivery of construction and other services using performance information. His structures/processes simultaneously minimize project/risk management functions up to 90%, increased vendor profit as much as 100%, increased performance to 98%, and decrease costs.

His Performance Information Procurement System (PIPS) and Performance Information Risk Management System (PIRMS) is licensed by the U.S. Army Medical Command and the General Services Administration. Kashiwagi has generated over \$8.5M in grants over 16 years, and has successfully run over 700 project tests, delivering over \$4B of construction and other services.

Kashiwagi is an accomplished author of over 175 refereed conference and journal papers and is a registered engineer in eight states. He was the 2009 International Facility Management Association Educator of the Year. In 2005, he was the recipient of the CoreNet Global Innovation of the Year Award for the research being tested at Harvard University and in 2001 his work received the Pono Technology Award for research work and results in the State of Hawaii. Kashiwagi's research has also expanded to Finland, Netherlands, Africa, and Malaysia.



**Edward Kavazanjian, Jr.,  
Ph.D., P.E., G.E.**

*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Geotechnical Engineering**

Edward Kavazanjian is a geotechnical engineer with 20 years of experience in engineering practice and 13 years of university teaching and research experience. His research and teaching interests include geotechnical earthquake engineering, analysis and design of waste containment systems, and the emerging area of biogeotechnical engineering.

Kavazanjian has been honored by the American Society of Civil Engineers (ASCE) with the 2010 Thomas A. Middlebrooks award for his paper on "Shear Strength of Municipal Solid Waste" and in 2009 with the Ralph B. Peck Award for outstanding contributions to the geotechnical engineering profession through the publication of thoughtful, carefully researched case histories on landfill engineering. He was also selected as 2009 Engineering Educator of the Year by the Phoenix chapter of the National Society of Professional Engineers.

Kavazanjian is co-author of the Federal Highway Administration guidance document on Geotechnical Earthquake Engineering for Highways and the Environmental Protection Agency guidance document on RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities. He is Immediate Past President of the Geo-Institute of ASCE, representing the 11,000+ geotechnical engineers who belong to ASCE and also a member of the National Research Council Board of Earth Sciences and Resources, where he serves as chair of the standing Committee on Geological and Geotechnical Engineering.



**Rosa Krajmalnik-Brown,  
Ph.D.**

*Assistant Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Environmental Biotechnology**

Rosa Krajmalnik-Brown is an assistant professor in Civil, Environmental & Sustainable Engineering (CESE). Before joining CESE she was a postdoctoral researcher at Biodesign working in the Center for Environmental Biotechnology. She received her B.S. (1996) in Industrial Biochemical Engineering from Autonomous Metropolitan University in Mexico City and her M.S. (2000) and Ph.D. (2005) in Environmental Engineering from Georgia Institute of Technology.

Her primary areas of research interest are: biotransformation and fate of environmental contaminants, bioremediation of soil, sediments, and groundwater, the use of microbial systems for bioenergy production with an emphasis on environmental applications of molecular microbial ecology. Another area of research where she applies her molecular microbial ecology expertise is the human intestinal microbial ecology and its relationship to obesity.

Her research has been published in Proceedings of the National Academy of Science, Applied and Environmental Microbiology, Environmental Science and Technology, FEMS Microbiology Ecology and Environmental Microbiology.



**Jason S. Lueke, Ph.D., P.Eng.**

*Assistant Professor*  
Del E. Webb School of  
Construction  
**Underground Construction and  
Infrastructure**

Jason Lueke is an assistant professor in the Del E. Webb School of Construction (DEWSC). Prior to joining DEWSC in January 2009, he worked for 8 years as a civil infrastructure engineer in the contracting and consulting industries. He received his Ph.D. in Civil Engineering, specializing in Construction Engineering and Management, from the University of Alberta, Edmonton, in 2005. His research focuses on underground construction, buried infrastructure, and trenchless construction methods.

Lueke has been involved professionally in numerous infrastructure projects including water distribution, and wastewater and storm water management; undertaking design services, feasibility studies, value engineering, risk mitigation, and tendering services; and has specialized expertise in trenchless construction methods including horizontal directional drilling, pipe relining, pipe bursting, case boring, and tunneling. Lueke is currently researching photogrammetric methods to provide quality assurance and to record as-builds; investigating behavior of buried plastic pipe installed by open trench and directional drilling beneath rivers; and researching methods to sustainably rehabilitate water distribution networks.

In 2010, Lueke was awarded the Trent Ralston Award for Young Trenchless Achievement from the North American Society for Trenchless Technology (NASTT) for excellence in the early stages of his career.



**Michael S. Mamlouk, Ph.D.,  
P.E., F.ASCE**

*Professor and Program Chair*  
Civil, Environmental &  
Sustainable Engineering  
**Pavement and Materials**

Michael Mamlouk graduated from Purdue University and has over 30 years of research and teaching experience in the field of pavement / materials engineering. Prior to joining ASU, Mamlouk worked at the State University of New York at Buffalo for 5 years. He received his Ph.D. degree from Purdue University in 1979.

Mamlouk's main areas of expertise include pavement design, pavement evaluation and maintenance, and material characterization. He is currently working as the Co-PI of a \$750,000 project funded by the National Cooperative Highway Research Program (NCHRP) dealing with the endurance limit of hot-mix asphalt.

Mamlouk has published numerous technical papers and is actively involved in professional societies such as ASCE, AAPT, TRB and ASTM. He is the main author of the "Materials for Civil and Construction Engineers" textbook, which has been used by over 125 engineering schools nationwide and overseas. He has worked as a consultant and expert witness to many highway agencies and local industry and is a professional engineer in the State of Arizona.





**Larry W. Mays, Ph.D., P.E.,  
P.H., D. WRE, F.ASCE**  
*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Water Resources Sustainability**

Larry Mays has been a professor at Arizona State University since 1989, and former chair of the department. He started his academic career at the University of Texas at Austin in 1976, and became Director of the Center for Research in Water Resources in 1988. Mays received his Ph.D. in 1976 from the University of Illinois.

His area of research interest is in the use of optimization and risk/reliability methods for the design and operation of water infrastructure systems to promote water resources sustainability. He has mentored over 30 Ph.D. students.

Mays is the author, co-author, or editor-in-chief of over 20 books including *Water Resources Engineering*; *Groundwater Hydrology*; *Applied Hydrology*; *Hydrosystems Engineering and Management*; *Water Resources Handbook*; *Water Distribution Systems Handbook*; *Hydraulic Design Handbook*; *Water Resources Sustainability*, and others. Mays' most recent books are *Urban Water Management in Arid and Semi-arid Regions* published by UNESCO, and *Ancient Water Technologies* published by Springer.

Among his honors is a distinguished alumnus award from the University of Illinois at Champaign-Urbana. He is a Diplomate, Water Resources Engineering, of the American Academy of Water Resources Engineering and a Fellow of ASCE and IWRA.



**Panagiotis (Takis) Mitropoulos, Ph.D., P.E.**  
*Assistant Professor*  
Del E. Webb School of Construction  
**Construction Accident Prevention**

Panagiotis Mitropoulos joined the faculty at the Del E. Webb School of Construction as an assistant professor in August 2004. He has a Doctoral degree in Civil Engineering from Stanford University and a Master of Science degree in Civil Engineering from Virginia Tech. He is a registered professional engineer in Greece. Before joining ASU, Mitropoulos worked for eight years as a Performance Improvement Specialist on large technical projects and as a consultant with Lean Project Consulting.

Mitropoulos teaches courses in productivity improvement, construction scheduling and construction safety. His primary areas of research include accident prevention, high performance crews, and lean production management.

In 2007, Mitropoulos received the NSF Career Award for his research "Safety as an Emergent Property of the Production System: Work Practices and Team Processes of High Reliability Crews."

He is a member of the Lean Construction Institute, the International Group of Lean Construction, and the Construction Research Council.



**Barzin Mobasher, Ph.D., P.E.**  
*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Cement and Concrete Engineering**

Barzin Mobasher, who joined the Ira A. Fulton Schools of Engineering faculty in 1991, has been involved in research and teaching in the area of cement and concrete engineering for more than 25 years. He received his Ph.D. in 1990 from Northwestern University. His specific expertise is in the mechanics of composite materials, the development of new construction materials and the durability of building materials.

Mobasher has published more than 100 peer-reviewed research papers on the mechanics and durability of concrete technology, and has delivered more than 120 technical presentations worldwide.

In 2009 Mobasher was selected as a Fellow of the American Concrete Institute (ACI), one of the most prominent organizations in the concrete technology field.

He is a member of the American Society of Civil Engineers (ASCE) and American Ceramic Society and member of the International Editorial Board of *Computers and Concrete*.

Mobasher was the recipient of the ACI Scholarship Award in 1984 and Federal Highway Administration Honorable Mention Award in 1988.



**Ram Pendyala, Ph.D.**  
*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Transportation Systems Engineering**

Ram Pendyala joined ASU in 2006 after spending 12 years on the faculty at the University of South Florida. He received his Ph.D. from the University of California at Davis in 1992.

Pendyala teaches courses in transportation engineering, transportation systems analysis and modeling, and public transportation planning and design. He has conducted more than \$5 million in sponsored research over the past 15 years for a variety of agencies. His research has primarily focused on the development and application of new methods for modeling and forecasting transportation demand and system performance under a wide variety of socio-economic, modal, and land use scenarios.

Pendyala is currently Chair of the Transportation Research Board's Travel Analysis Methods Section, and Vice Chair and Chair-Elect of the International Association for Travel Behavior Research. He has published nearly 100 articles in refereed journals, books, and conference proceedings. He serves as an advisor to various agencies including the Chicago Metropolitan Agency for Planning, Transportation Research Board, US Department of Transportation and World Bank.

Pendyala has mentored over 50 M.S. and Ph.D. students. He was named among the top 5% of teachers in the Ira A. Fulton Schools of Engineering for 2008.



**Subramaniam (Subby) Rajan, Ph.D., P.E.**

Professor  
Civil, Environmental &  
Sustainable Engineering  
Associate Chair  
Graduate Program  
Structures and Materials

Subby Rajan's teaching and research interests include solid mechanics with emphasis on constitutive modeling, finite element analysis, design optimization and high-performance software development. Currently he is working on research projects sponsored by the Federal

Aviation Administration (FAA), the Army Research Office (ARO) and local industries. These projects involve characterization of materials for blast and ballistic mitigation, development of constitutive models and computer simulations, and design optimization to reduce the weight, thickness and cost of body, vehicle and aircraft armor.

Rajan continues to mentor undergraduate, master's and doctoral students and has been recognized for these efforts as CEE's nominee for ASU President's Professor Award.

**Selected Publications:**

D. Naik, S. Sankaran, B. Mobasher, S. D. Rajan and J.M. Pereira, "Development of Reliable Modeling Methodologies for Fan Blade-Out Containment Analysis. Part I: Experimental Studies", *J of Impact Engineering*, 36:1, 1-11, 2009.

Z. Stahlecker, B. Mobasher, S.D. Rajan and J. M. Pereira, "Development of Reliable Modeling Methodologies for Fan Blade-Out Containment Analysis. Part II: Finite Element Analysis", *J of Impact Engineering*, 36:3, 447-459, 2009



**Bruce Rittmann, Ph.D., N.A.E.**

Professor  
Civil, Environmental &  
Sustainable Engineering  
Director  
Center for Environmental  
Biotechnology  
Environmental Biotechnology

Bruce Rittmann's research and teaching focus on Environmental Biotechnology, or managing microorganisms to provide services to society. The services include bioremediating pollution of water and soil, and generating renewable bioenergy. This highly inter-disciplinary research links engineering fundamentals with microbial ecology, biochemistry, genetics, geochemistry, and materials.

Rittmann's awards include membership in the National Academy of Engineering, a Fellow of the AAAS, the Huber and Freese Awards from the ASCE, and appointment as a Regents' Professor at ASU. He has more than 420 publications and is on the ISI's List of Most Highly Cited Researchers.

**Selected Publications:**

Rittmann, B. E. and P. L. McCarty (2001). *Environmental Biotechnology: Principles and Applications*. McGraw-Hill Book Co., New York.

Marcus, A. K., C. I. Torres, and B.E. Rittmann (2007). Conductionbased modeling of the biofilm anode of a microbial fuel cell. *Biotech. Bioengr.* 98: 1117-1182.

Chung, J., R. Krajmalnik-Brown, and B. E. Rittmann (2008). Bioreduction a hydrogen-based membrane biofilm reactor. *Environ. Sci. Technol.* 42(2): 477-483.



**Thomas P. Seager, Ph.D.**

Associate Professor  
Civil, Environmental &  
Sustainable Engineering  
Sustainable Engineering

Tom Seager joined the School of Sustainable Engineering and the Built Environment in the Ira A. Fulton Schools of Engineering at Arizona State University in August 2010. Seager is formerly a founding faculty member at the Golisano Institute for Sustainability at Rochester Institute of Technology and led development of their Ph.D. curriculum in sustainability.

He works at the leading edge of an integrative, transdisciplinary approach to engineering education and research and is currently leading projects related to ultra-low energy community infrastructure, ethics education for science and engineering graduate students, and the life-cycle environmental implications of single-walled carbon nanotubes in energy applications.

Seager is the author of 24 full journal articles on topics including resilience in the context of coupled ecological-engineering systems and stochastic approaches to understanding stakeholder value choices in the context of life-cycle assessment, and has authored over two dozen other articles, books chapters, or refereed conference papers.

He served as an assistant professor at Hudson Valley Community College prior to earning his Ph.D. in Civil Engineering at Clarkson University in 2001 and has previously held faculty appointments at Purdue University and University of New Hampshire.



**Kenneth T. Sullivan, Ph.D., M.B.A.**

Assistant Professor  
Del E. Webb School of  
Construction  
Performance Measurement

Kenneth Sullivan has a research and teaching focus in the use of performance measurement and best value concepts to increase business efficiency and to minimize risk. He has conducted his research across the project life-cycle including design, construction, and facility management. The research is applied at both organization and project levels, including contracts, risk management, project management, and accountability systems. ASU has applied many of his concepts internally and estimates a value impact of over \$10M/year due to the realized efficiencies.

Sullivan has a Ph.D., MS, and BS in Civil and Environmental Engineering and a MBA in Real Estate and Urban Economics all from the University of Wisconsin-Madison.

**Honors/Distinctions:**

Top 5% of Engineering Faculty Award 2009

Deputy Director of the PBSRG.  
Director of FMRI

Research Secretariat for  
CIB W117 – Performance  
Measurement in Construction.

**Selected Publications:**

Sullivan, K., Kashiwagi, J., and Kashiwagi, D. (2010). "The Optimizing of Design Delivery Services for Facility Owners." *Journal of Facilities Management*, Vol. 8 (1), pp. 26-46.

Sullivan, K. and Guo, Y. (2009). "Contractor Cash Flow and Profitability Analysis between Best Value and Low Bid." *Cost Engineering*, Vol. 51 (9), pp. 16-20.



**Enrique R. Vivoni, Ph.D., P.E.**  
Associate Professor  
Civil, Environmental &  
Sustainable Engineering  
**Watershed Hydrology**

Enrique Vivoni holds a joint appointment as an associate professor in the School of Sustainable Engineering and the Built Environment and the School of Earth and Space Exploration. He obtained a B.S. in Environmental Engineering, M.S. in Civil and Environmental Engineering and Ph.D. in Hydrology from the Massachusetts Institute of Technology.

Vivoni is well known for his research in watershed hydrology and its linkages with ecological, atmospheric and geomorphologic processes. As a surface hydrologist, he performs research in hydrometeorology, ecohydrology, geomorphology and surface-groundwater interactions. His teaching is centered on surface hydrology and techniques for numerical and field studies.

Vivoni is the recipient of numerous awards including the Most Promising Engineer -Hispanic Engineering National Achievement Award Conference (2007), Presidential Early Career Award for Scientists and Engineers (2008) and U.S. Fulbright-Garcia Robles Scholar (2009). He is an active member of the American Geophysical Union, American Society of Civil Engineers, Geological Society of America and American Meteorological Society.



**Paul Westerhoff Ph.D., P.E.**  
Professor  
Civil, Environmental &  
Sustainable Engineering  
**Environmental Engineering**

Paul Westerhoff joined ASU and CESE in August 1995 and was promoted to full professor as a University Exemplar in 2007. He was appointed Chair of Civil, Environmental and Sustainable Engineering in 2008 and founding Director of the School of Sustainable Engineering and the Built Environment through 2010.

Westerhoff has a strong publication and research record, has garnered wide recognition for his work related to treatment and occurrence of emerging contaminants in water, and has been active in multidisciplinary research. He has lead research funded by AWWARF, USEPA, NIH, NSF and local organizations investigating reactions and fate of oxo-anions (bromate, nitrate, arsenate) during water treatment, characterization, treatment and oxidation of natural organic matter in watersheds, formation of disinfection by-products, removal of taste and odor micropollutants and fate of nanomaterials in water. He has over 105 peer reviewed journal article publications and has been involved in over 250 conference presentations. He belongs to ASCE, AWWA, AEESP, ACS, IOA, IWA, AWPCA, and IHSS and serves on numerous voluntary committees for these organizations.

Westerhoff has received several research awards including the 2005 ASCE Walter L. Huber Research Award and the 2006 WEF Paul L. Busch Award.



**Avi Wiezel, Ph.D., P.E.**  
Associate Professor  
Del E. Webb School of  
Construction  
**Construction Engineering**

A faculty member of ASU since 1996, Avi Wiezel holds a M.Sc. degree in structural engineering and a M.Sc. and Ph.D. in building science.

Prior to becoming a professor, Wiezel held several managerial positions with construction and engineering firms in Europe and the Middle East. His activities resulted in continuous productivity improvements averaging 15% per year for the units in which he was in charge. Wiezel taught in four languages on three continents (Asia, Europe, and America) to students of all levels, ranging from vocational education to doctoral students.

He ranks among the top 5% of best teachers in the Ira A. Fulton Schools of Engineering and is the recipient of the Outstanding Faculty Member Award. He serves as the Coordinator of Construction Graduate Studies.

Wiezel is a true interdisciplinary researcher, with interests ranging from computer modeling of human skills in construction, to engineering education, and leadership. He served as the President of the Faculty Senate in the School of Engineering and as the Chair of the Education Committee of the Technical Council on Computers and Information Technology (TCCIT) in the American Society of Civil Engineers (ASCE).



**Eric Williams Ph.D.**  
Assistant Professor  
Civil, Environmental &  
Sustainable Engineering  
**Earth Systems Engineering**

Eric Williams is assistant professor with a joint appointment between the School of Sustainable Engineering and the Built Environment and the School of Sustainability. He is Research Director of the Center for Earth Systems Engineering and Management. His research interests include life cycle assessment, industrial ecology, information technology, and energy and water systems.

Much of Williams' work addresses the environmental assessment and management of information technology. Life cycle studies of microchips and computers have shown that the manufacturing phase is more environmentally intensive than previously thought. The management of electronic waste (e-waste) is under investigation via a project taking a global perspective on environmental, social and economic issues. Williams also works on managing implications and applications of Information Technology for energy demand such as telecommuting, e-commerce and energy smart homes.

Energy related work includes life cycle assessment of emerging energy technologies such as photovoltaics and biofuels. He also works on combining thermodynamic and energy approaches with empirical modeling to assess long-term trends and future potential of energy technologies.





**Matthew W. Witczak, Ph.D., P.E.**

*Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Pavement Design**

Matthew Witczak is an internationally recognized expert in the area of highway and airport pavements. He served on the faculty of the University of Maryland for 26 years before becoming professor of Civil Engineering at ASU in 1999.

Witczak is co-author, with the late Professor E.J. Yoder, of the textbook, "Principles of Pavement Design", and has authored well over 120 technical papers and reports in the area of pavement design, rehabilitation, materials and management systems. He has been involved in numerous worldwide consulting activities and has been invited to speak in all five continents. Witczak has also testified before the U.S. Senate Subcommittee on national transportation issues. At ASU, Witczak has been the research team leader in developing the 2002 Pavement Design Guide for flexible pavements, and a national study for the development of a simple performance test for asphalt mixtures.

**Honors & Distinctions:**

2002 Asphalt Institute Honor Roll, ASCE invited co-author on "The History of Asphalt in the U.S." to commemorate the 75th year Anniversary of ASCE as a technical society, Walter J. Emmons Award of the Association of Asphalt Paving Technologies, 2008 Thomas B. Deen Distinguished Lectureship Award.



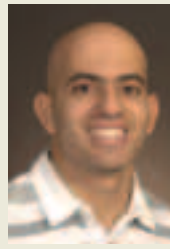
**Claudia E. Zapata, Ph.D.**

*Assistant Professor*  
Civil, Environmental &  
Sustainable Engineering  
**Geotechnical Engineering**

Claudia Zapata received her Ph.D. from Arizona State University in 1999. Her research interests are in the areas of characterization and modeling of fluid flow and volume change behavior of unsaturated soils and lab/field instrumentation. She has particularly focused on the characterization of problem soils; applications related to the behavior of pavement subgrades due to dynamic loading and environmental conditions; and the assessment of fluid flow and volume change of soils under slabs-on-ground residential foundation systems.

Zapata is currently working on three main research projects: The implementation of the Mechanistic-Empirical Pavement Design Guide for the Maricopa Department of Transportation; the study of cracked expansive clays for the National Science Foundation; and the development of an Atlas of unsaturated soil properties for the 50 states for the National Cooperative Highway Research Program.

Zapata is the author of 20 technical publications focusing on expansive soils, unsaturated soil properties predicting models, and environmental effects on pavement design. She was featured in the May/June 2009 ASCE Geotechnical Engineering magazine, Geo-Strata, as a co-author of the article entitled "Application of Unsaturated Soil Mechanics to Pavement Subgrade Design."



**Ramzy Kahhat Abedrabbo, Ph.D.**

Ph.D. is an assistant research professor in the School of Sustainable Engineering and the Built Environment at Arizona State University. He obtained his Ph.D. in Civil and Environmental Engineering at the same university focusing on the sustainable management of electronic waste (e-waste). His current research focuses on the development of methodologies to characterize and quantify the international flow of e-waste. He also investigates the creation of sustainable management systems in order to manage e-waste properly in specific locations around the globe. Kahhat has also studied and researched about the environmental impacts of residential buildings using the life cycle assessment methodology. In the past, he has been involved in a number of mine projects such as environmental impact assessments, baseline monitoring, and aquifer characterization in Peru.



**Absar Alum, Ph.D.** is an assistant research professor in Civil, Environmental and Sustainable Engineering. He joined ASU in 2001 and was appointed assistant research professor in 2006. Alum's research is in the area of health related environmental microbiology and toxicology. The primary area of his expertise is microbiology/engineering interface. His work on the rapid microbial detection methodologies has resulted in a new generation of biosensor. Alum is active in various professional organizations including the American Society for Microbiology. Recently he was selected as Visiting Resource Person for developing countries under UNESCO-ASM-VPR program.

**Construction majors Rebecca Freitas and Josephine Bierwagen review blueprints. Photo by Jennifer Johnson.**

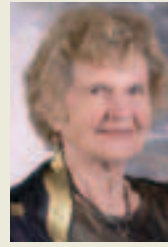




**Paul Dahlen**, Ph.D., is an assistant professor research in Environmental Engineering. He received a B.S. in Hydrology from the University of Arizona, an M.S. and Ph.D. in Civil and Environmental Engineering from Arizona State University, and has spent over 7 years working in industry as a hydrologist/environmental engineer. Dahlen's research interests focus on the assessment and remediation of hydrocarbon impacts to soil/groundwater. Specific research includes leaking underground storage tank impacts on groundwater resources, hydrocarbon vapor intrusion processes, oxygen injection technologies for use in in-situ permeable reactive barriers, and the use of in-situ thermal remedial applications for hydrocarbon impacted soils/groundwater.



**Hugo Destailats**, Ph.D., joined CESE in 2006 as an assistant professor research. He holds a joint appointment with the Lawrence Berkeley National Laboratory. Destailats earned his Ph.D. in Chemistry at the University of Buenos Aires (Argentina), and was a postdoc at the California Institute of Technology. He studies various aspects of environmental chemistry including the fate and transport of organic pollutants, the characterization of pathways of human exposure to toxic environmental contaminants and the development of advanced remediation technologies for water and air cleaning. A recent focus of his work has been the study of chemical transformations of pollutants in the indoor environment. He is the author of more than 35 journal articles.



**Della M. Roy**, Ph.D., research professor, holds a part-time joint appointment in the School of Sustainable Engineering and the Built Environment and the School of Mechanical, Aerospace, Chemical and Materials. She is also a Professor Emerita of Materials Science at The Pennsylvania State University where she has held various faculty appointments through the years. Her various research and teaching interests include the areas of cementitious materials, chemically bonded ceramics, biomaterials research and radioactive waste management. Areas of research encompass materials synthesis, processing, characterization in inorganic, ceramic, cement and mineral systems; phase equilibria and thermodynamic properties; hydrothermal synthesis; chemically bonded ceramics; biomaterials synthesis; nano- and micro-structural design, and durability of materials. Roy has authored or co-authored some 435 papers, and 10 edited books. She is Founding Editor of the journal *Cement and Concrete Research* of which she served as Editor-in-Chief for 34 years. She has received numerous awards and honors: Elected member of the National Academy of Engineering and the World Academy of Ceramics. She has also received the Jeppson Medal, Copeland Award, and Bleining Award of the American Ceramic Society.



**Thomas Schleifer**, Ph.D., assistant research professor, joined the construction industry at age 16 and has more than 50 years of contracting and consulting experience. He holds a B.S., M.S. and Ph.D. in construction management and served as a superintendent, PM and president of the largest international consultancy firm serving the contract surety industry. During this period, he assisted in the resolution or salvage of hundreds of distressed or failed construction firms. Schleifer has been listed in "Who's Who in Finance and Industry", "Who's Who in America" and "Who's Who in the World." Publications by Schleifer include: books; *Construction Contractors' Survival Guide*, John Wiley and Sons; *Glossary of Suretyship and Related Terms*, CMA Press; video and audio tapes; Schleifer's Construction Profit Series, newsletter: Schleifer's Construction Forecast.



**Resplendent in their hard hats, Construction Management graduates of the Del E. Webb School of Construction Cynthia Karina Botello (left) and Brisdela Guerrero chat while waiting for the Hispanic Convocation to begin.**



**Aaron Cohen, M.S.**, joins ASU as the Associated General Contractors (AGC) Lecturer focusing on teaching courses in the Heavy/Civil concentration for the Construction Management degree program. Cohen is an alumnus of ASU holding a BS in Business Management as well as an M.S. from DePaul University. He brings with him over 15 years of industry experience having served as the President of Apollo Trenchless, Inc., an engineering and construction service provider specializing in the application of trenchless technologies for municipal construction projects. Cohen has also been employed as a Project Manager and Estimator for Tires & Tracks, Inc., a company specializing in utility construction projects. He has spoken on the subject of horizontal directional drilling at various regional and national trade shows for industry associations such as the American Society of Civil Engineers (ASCE), American Water Works Association (AWWA), American Public Works Association (APWA) and Underground Construction Technology (UCT) Expo to name a few.



**Kraig Knutson, Ph.D.**, a senior lecturer in the DEWSC joined the DEWSC team in 1998. He owned and operated an electrical contracting business for 9 years and worked as a journeyman / foreman for several electrical contractors. He is a Certified Professional Constructor (CPC), has his Electrical Journeyman's Certificate, Electrical Contractor's License (State of Arizona).

Knutson has a Ph.D. in Industrial Engineering from Arizona State University (1998) and received his Master of Science Degree in Construction from the Del E. Webb School of Construction (1995).

Teaching and research include historical construction methods, infrastructure security and application of industrial engineering techniques to construction processes.



**Christopher Lawrence, Ph.D.**, studied several years of architectural technology before earning a B.S.C.E. at Lawrence Technological University in 1994. Master's and Ph.D. studies at ASU followed with a specialization in Geotechnical Engineering. His research and engineering employment focused on unsaturated soils theory and the design, development and fabrication of advanced soil testing systems.

In January 2000, Lawrence began an adjunct and associate teaching position at ASU in Civil, Environmental and Sustainable Engineering (CESE) and the Del E. Webb School of Construction (DEWSC). He began his current lecturer position in 2005.

Lawrence teaches many different courses and has instructed much of the technical core in both CESE and DEWSC. He serves on several committees and leads CESE student groups as a Faculty Advisor for the ASU chapters of the American Society of Civil Engineers (ASCE), Chi Epsilon (the national civil engineering honor society) and the Society of American Military Engineers (SAME).



**Brooke Mayer, Ph.D.**, a lecturer in CESE, completed her Ph.D. at ASU in 2008. Her primary emphasis is teaching undergraduate CESE courses, including Statics, Numerical Methods, and Introduction to Environmental Engineering. She is also involved with the ASU student chapter of the American Society of Civil Engineers (ASCE).

Mayer recently completed several studies related to the removal and inactivation of microbial pathogens from drinking water using enhanced coagulation and ultraviolet disinfection, the reduction of disinfection byproducts and their precursors using titanium dioxide photocatalysis, and innovative strategies to achieve low total phosphorus concentrations in high water flows.



**Edwin C. Weaver, P.E.**, a senior lecturer in DEWSC, teaches and develops graduate and undergraduate courses in the Concrete Industry Management and Construction Management degree programs. Before moving to Arizona, Weaver was on the faculty in the Construction Engineering and Management program at North Carolina State University from 2000-2007 and was recognized by the department with the 2006-2007 Kimley-Horn Faculty Award for most outstanding faculty member.

Research areas of interest include Contracts and Specifications for Concrete Construction, Concrete Paving for Airfields and Roadways, and Safety during Concrete and Masonry Construction Operations. Weaver is a licensed Professional Engineer (PE) in Arizona and North Carolina.



The West campus recently completed part of a program that is slated to bring 17,000 solar panels to its south parking lots and surrounding areas.



## School of Sustainable Engineering and the Built Environment **Staff**

**Gary Aller**  
Director, Alliance for Construction  
Excellence

**Derek Brennan**  
Desktop Publishing Specialist, Sr.

**Brian Dyar**  
Fiscal Specialist

**Matthew Eicher**  
Program Manager

**Peggy Ferrin**  
Specialist, Sr.

**Dhaval Gajjar**  
Research Lab Assistant

**Peter Goguen**  
Laboratory Manager

**Lisa Hogle**  
Program Manager

**Jacki Houchens**  
Coordinator, Sr.

**Jacob Kashiwagi**  
Program Manager

**Rachael Lugo**  
Accountant, Sr.

**Jhanaye Mansker**  
Administrative Associate

**Marisa Masles**  
Research Specialist, Sr.

**Elizabeth Moore**  
Academic Success Specialist

**Megan Pearse**  
Academic Success Specialist

**Judy Reedy**  
Administrative Associate to the  
SSEBE Director

**Sylvia Romero**  
Program Manager

**John Savicky**  
Program Manager

**Kimberly Silentman-Kanuho**  
Coordinator

**Jake Smithwick**  
Research Technician

**Clyde Steinhilber**  
Business Manager

**Marie Sullivan**  
Research Specialist

**Dawn Takeuchi**  
Research Advancement Accountant

**Kenneth Witczak**  
Laboratory Coordinator

## New Staff



**Tom Fujibayashi**, technical support analyst senior, started at ASU as a member of Engineering Technical Support in 1989. Tom looks forward to continuing his support for the teaching and research computing needs of the school.



**Tyler Harris**, laboratory coordinator/technical services specialist, is a recent addition to SSEBE. New to Arizona, Tyler moved here from New York City. This former Marine and Columbia University alumnus is glad to be a part of the SSEBE team and looks forward to continue establishing this school as one of the nation's finest.



**Susan Garrison**, administrative assistant, came to ASU in 2005 as an administrative assistant working in the Engineering Deans' office and then transferred into SSEBE in 2009 to work in the Del E. Webb School of Construction office.



**Pamela Hintze**, administrative associate, will be working with the Performance Based Studies Research Group assisting with ORSPA contracts, licensing materials and financial reports. She has over 20 years of experience in accounting management.



**Linda Gonzalez**, academic success specialist, joined SSEBE in November of 2009. She has worked in higher education for 12 years, mostly in the capacity of teacher education and experiential education. Linda earned her M.S. Degree in Cultural Anthropology from Montclair State University in 2000.

## New Staff contd.



**Anthony Perrenoud**, research technician, with PBSRG in the Del E. Webb School of Construction (DEWSC). He initially started in February 2009 and was hired on as staff in January 2010. Anthony graduated in May 2010 with a BS in Construction Management from DEWSC and will begin graduate school in fall 2010. His responsibilities include project management, training and assisting clients and vendors and research within the construction industry.



**Dawn Rogers**, program manager, has been in the construction industry for over 13 years working with both local and national construction trade associations. Dawn graduated from Northern Arizona University with a degree in Journalism and Public Relations. She was then hired to implement and form the Concrete Home Building Council for the National Association of Home Builders in Washington, DC. Dawn has extensive experience working in the construction industry and continues to work with the mentoring program for Women In Construction.



**Mike Sever**, assistant director of academic services, joined SSEBE in October 2010. Mike is originally from Ohio. After seven years in the United States Air Force he completed his undergrad in Education and M.S. in Higher Education. Mike has worked in higher education since 1996 and has been an advisor in Business, Chemical and Materials Engineering, and Barrett, The Honors College at ASU.



**Alicia Stiers**, business operations manager, joined the School of Sustainable Engineering and the Built Environment in July 2009. She had formerly been with the School of Materials prior to the reorganization of the Fulton Engineering Schools. Alicia has been with ASU for 16 years.



**Jacqueline Thompson**, research technician, returned to the Del E. Webb School of Construction in December 2009 after working in the construction industry for four years. She earned her M.S. in environmental planning from ASU in 2004 and began conducting research in the School of Construction from 2004-06. Jacqueline is working on an NSF Partnership for Innovation grant that is investigating construction sustainability.



**Brian Volker**, academic success specialist, joined ASU in June of 2006. His first position with ASU was a graduate specialist in the Architecture Department. In January 2010 Brian joined the SSEBE advising department. He graduated from ASU in 2001, with an undergraduate degree in Communication Studies and continued at ASU to receive his M.S. degree in Liberal Studies in 2008. Brian is presently finishing his second Master's degree in Global Technology and Development.



**Lauren Winston-McPherson**, student services coordinator assistant, recently joined the civil engineering and construction advising center. In addition to her professional endeavors, Lauren is also pursuing a Master of Liberal Studies degree with a concentration in Gender and Culture Studies. Her expected graduation date is spring 2011.



Construction at the Phoenix Sky Harbor International Airport.

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SCHOOL OF SUSTAINABLE ENGINEERING  
AND THE BUILT ENVIRONMENT  
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EDITOR: JUDY REEDY  
ART DIRECTOR: STUDIO 18

## School of Sustainable Engineering and the Built Environment



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