

# blueprint

SPRING 2011



## UH CIVIL ENGINEERING STUDENT SUCCESS

- DEPARTMENT ADDS TWO NAE MEMBERS, SEVEN NEW FACULTY
- ALUMNUS NAMED ENGINEER OF THE YEAR
- LASER MAPPING CENTER COMES TO UH

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blueprint

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<b>Director</b> Lindsay Lewis	<b>Publication Coordinator</b> Laura Christian
<b>Editor</b> Toby Weber	<b>Graphic Designer</b> Andy Rich
<b>Photographers</b> Thomas Shea Mark Lacy	<b>Cover Photo</b> Thomas Shea

Department of Civil and Environmental Engineering  
N107 Engineering Building 1  
Houston, TX 77204-4003

Phone 713.743.4250  
Email lchristian@uh.edu  
Website www.egr.uh.edu/cive

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Chair's Message



Abdeldjelil "DJ" Belarbi

Chair, Dept. of Civil and Environmental Engineering

Dear CEE Alumni and Friends,

Welcome to our *Blueprint* newsletter. Great things are happening at UH, and I would like to share some developments in the Civil and Environmental Engineering (CEE) department.

In January 2011, the Carnegie Foundation for the Advancement of Teaching recognized UH as a Tier One University having "very high research activity." More recently, the Princeton Review chose UH as one of America's Best Colleges. In fall 2010, the National Research Council ranked CEE in the top 50 percent out of 130 Ph.D. programs. Additionally, the department placed in the top 30 percent of the country in the NRC's research activity measure. This is the result of the hard work of our faculty, students, staff and alumni.

Despite the challenges around the country, CEE is expanding. In the last year, we added seven faculty and expect four more in Fall 2011. This almost doubled the size of the department within two years. We are happy to welcome our newest faculty: Drs. Dawood, Glennie, Herman, Rodriguez, Shrestha, Veletsos and Willam. Simultaneously, we said good-bye to Dr. Dennis Clifford who retired in Fall 2010.

As part of our growth strategy, we continue improving our programs by raising standards. Our faculty have been developing a set of goals and action plans for the next five to ten years to build stronger undergraduate and graduate programs, increase research productivity, and lead interdisciplinary research in natural hazard mitigation and sustainable functioning of engineered and natural systems, infrastructure preservation, climate change, environmental quality, energy, and natural resources protection. In response to these challenges, we are expanding our horizons and have added talented faculty in computational mechanics, material science/engineering, geosensing, and microbiology and molecular genetics.

In this issue, we invite you to read about our research, new faculty and the expertise they bring with them, the success of our students, and last but not least, the headlines our accomplished alumni are making. In fact, the CEE department established an "academy" to recognize these prominent alums, the details of which are included in this newsletter.

I appreciate the opportunity to serve as chair of this fine department. We are always happy to hear and share updates from you and appreciate your support.

2010 Beyer Lecture Series



William F. Marcuson III



Mauro Ferrari

As part of the annual Beyer Lecture Series, CEE welcomed both William F. Marcuson III and Mauro Ferrari last fall. Marcuson is Director Emeritus of the Geotechnical Laboratory in Waterways Experiment Station in Vicksburg, Miss. He received his bachelor of science in civil engineering from the Citadel in 1963, master of science in civil engineering from Michigan State University in 1964, and doctor of philosophy in civil engineering from North Carolina State University in 1970. He was president of the American Society of Civil Engineers (ASCE) in 2007 and is one of the nation's leading civil engineers. He has received five national awards from ASCE, including the Norman Medal, civil engineering's oldest honor. In 1995, he was honored by the National Society of Professional Engineers as Federal Engineer of the Year. His lecture was titled *The New Orleans Levees, the Worst Engineering Catastrophe in U.S. History – What Went Wrong and Why?*

Ferrari is the Ernest Cockrel Jr. Distinguished Endowed Chair of the Methodist Hospital Research Institute in Houston. He also serves as President, CEO and Director of The Methodist Hospital Research Institute, professor of experimental Therapeutics at The University of Texas M.D. Anderson Cancer Center, professor of bioengineering at Rice University, and president of The Alliance for Nano-Health. He is a founder of biomedical nano/micro-technology, especially in their applications to drug delivery, cell transplantation, implantable bioreactors and other innovative therapeutic modalities. In these fields, he has published more than 200 peer-reviewed journal articles and six books. His lecture was titled *The Civil Engineering of Cancer Nanomedicine*.



Professor Leads Nuclear Infrastructure Conference

The tsunami and resulting nuclear crisis in Japan has brought renewed attention to the importance of nuclear power plant infrastructure. Thomas Hsu, Moores Professor of Civil Engineering at the Cullen College, organized and chaired the first International Workshop on Infrastructure Systems for Nuclear Energy, held in Taipei, Taiwan, last December. The workshop covered the latest developments in the design and materials used in those structures intended to prevent radioactive pollution leaks, as well as those used to store nuclear waste.

Presenters hailed from the United States, Asia and Europe and included Hsu, Professor Kaspar Willam, Associate Professor Ashraf Ayoub, and Professor Yi-Lung Mo. The proceedings of the conference are being published by Elsevier Publishing Company.

ACI Convention Honors

At the 2011 American Concrete Institute Annual Convention, two UH civil engineering professors received high honors and one of UH's ACI student chapter teams captured third place in the FRP Composites Competition.

Professor and Department Chair Abdeldjelil "DJ" Belarbi received the Joe W. Kelly Award, an international award given to distinguished individuals to recognize outstanding contributions in education relating to the broad field of concrete. Belarbi was recognized at the ACI annual award ceremony in Tampa, Fla. and in an article published in the *Concrete International* magazine.

In addition, Professor Thomas Hsu was recognized as a member of the institute for 50 years, and the University of Houston's ACI student chapter also received recognition for capturing a third place finish in the international FRP Composites Competition.

## NSF National Center for Airborne Laser Mapping Moves to UH



Ramesh Shrestha

Last year, the National Science Foundation-funded National Center for Airborne Laser Mapping (NCALM) moved to the University of Houston. The center's director, Ramesh Shrestha, a Hugh Roy and Lillie Cranz Cullen Distinguished Professor of Civil and Environmental Engineering, brought NCALM to UH from the University of Florida.

Focused on airborne laser swath mapping and ground-based scanning laser technology research, the center has helped arm earth scientists across the country with detailed information on everything from beach erosion and landslides to drainage patterns and faults.

NCALM researchers are exploring the possibility of using Light Detection and Ranging (LiDAR) to map everything from glacial movements to the migration of penguin colonies in Antarctica.

Using the technology, researchers take measurements of the ground's surface from their Cessna 337 Skymaster airplane. From roughly 2,000 feet, this remote technology measures properties of scattered light through the use of laser pulses. Thousands of small cone-shaped pulses travel through a hole in the bottom of the plane to the ground below. A unique detector picks up rays reflected from the ground. Then, each point's distance is determined by measuring the time delay between the transmission of a pulse and the detection of reflected signals.

In coming years, the UH group plans to develop a next generation LiDAR system. The unit, less expensive than commercially available systems, would allow for some of the most accurate, highest resolution observations possible in laser mapping.



photo by Thomas Shea

## Professors Win Grant to Study Concrete Strengthening and Repair



Ashraf Ayoub



Abdeldjelil "DJ" Belarbi

When concrete on a bridge or building deteriorates, cracks or is weakened, the structure doesn't need to be torn down and replaced. Instead, it can be repaired and strengthened with advanced materials such as carbon fiber reinforced polymers (CFRP) that are more than five-times stronger than steel when placed under tension.

While cheaper than constructing a whole new bridge, a single such repair can easily cost hundreds of dollars once equipment handling, materials, labor and other expenses are added up. Multiply that by the hundreds or even thousands of repairs that a single city or state may perform each year, and even these inexpensive fixes can put a dent in any budget.

That's why repairing concrete in our deteriorated and ageing infrastructure remains a challenge and a topic of continuous research. "We understand how the concrete behaves and how the carbon fiber material by itself behaves. But when you combine the two of them, nobody has a good idea about how they interact, glue to each other, and form a composite system," said Ashraf Ayoub, associate professor of civil and environmental engineering.

This interaction between concrete and CFRP sheets is the subject of a research project being conducted by Ayoub and CEE Chairman Abdeldjelil "DJ" Belarbi that recently won a \$300,000 grant from the National Science Foundation.

## Researcher Working to Quantify Real-World Impact of Automobiles



Shankar Chellam

Shankar Chellam, professor of civil and environmental engineering, recently received a grant from the Texas Air Research Center to find the pollution "fingerprint" of gasoline-driven vehicles.

Chellam is able to conduct this research thanks to the Washburn Tunnel, Texas' only operational under-water vehicle tunnel and hence an ideal location for this investigation. "If we sample the air in this tunnel, the chances of other sources of pollution impacting our sample are very, very slim. Whatever we measure can be directly attributed to the vehicles that go through the tunnel," he said.

The first step of this process involves perfecting methods of measuring the metals emitted by automobiles. Working with post-doctoral researcher Suresh Kannan Danadurai and doctoral student Nick Spada, Chellam will first work to extract from particulate matter samples, metals such as platinum, palladium, vanadium, chromium, zinc, copper, barium, antimony and lead. The research team will then refine ways of measuring these metals in very low concentrations using instrumentation based on inductively coupled plasma-mass spectrometry.

Chellam anticipates that this phase of the research will take roughly one year.

Afterwards, in cooperation with local and state officials and Professor Matt Fraser, a researcher from Arizona State University, Chellam will place air samplers in the tunnel to measure particulate matter emissions. Since the tunnel is closed to diesel-driven semi trucks, this project will offer the fingerprint of gasoline-powered vehicles only, with few exceptions.

By measuring pollution produced by thousands of cars over hours and even days at a time, Chellam will be able to determine the real-world make-up of the airborne particulate matter pollution arising from gasoline-driven vehicles.

While the immediate goal of this research is simply to identify the chemical fingerprint of automobile exhaust, Chellam hopes that his work ultimately will be used to make life in cities, and elsewhere, more livable. "What we hope is that by communicating our findings, there may be some environmental policy decisions made based on our research and similar work that others are doing," he said.

## Professor Developing Patch for Repairing Cracked Steel



Mina Dawood

Mina Dawood, assistant professor of civil and environmental engineering, received a three-year, \$300,000 grant from National Science Foundation to develop a new method of repairing cracks in steel structures.

Dawood's approach is to mix fiber-reinforced polymers with shape-memory alloys to form a patch that compresses the crack tip, like a bandage pulled tightly over a cut. In doing so, such patches would dramatically slow or even eliminate the propagation of the crack.

While the fiber-reinforced polymers will give the patches strength, this 'pre-stressing' effect will be achieved through the use of shape-memory alloys, which can be manipulated at the molecular level to take on a specific shape when, for example, they are heated to a certain temperature.

In real-world applications, Dawood said a patch would likely be designed and fabricated offsite and then taken to the repair location. A repair crew

would then cover the crack with the patch, which would be held in place with a structural adhesive. When the adhesive bonding is complete, the patch would be heated with a localized heat source as simple as a hair dryer. That heating would cause the patch to contract, pulling the two sides of the crack closer together.

In addition to being more reliable, this approach is also easier to implement than existing repair methods, noted Dawood. "You can imagine welding steel plates on the bottom of a bridge is not an easy task. It's disruptive, it requires a lot of heavy machinery and it can't be done quickly. These patches can be applied more quickly with less equipment and fewer workers."

Dawood has two primary collaborators on this project at the Cullen College: Kaspar Willam, professor of civil and environmental engineering and a member of the National Academy of Engineering, and Gangbing Song, professor of mechanical engineering.

## CEE Honors Longtime Faculty, Dr. Dennis Clifford



Dennis Clifford

On December 4, 2010, the Department of Civil and Environmental Engineering honored a very special faculty member: Dr. Dennis Clifford.

He obtained a master's degree in environmental engineering and chemical engineering and a Ph.D. in environmental engineering from the University of Michigan. He then began teaching at the University of Houston in 1976.

While a faculty member at UH, Dr. Clifford held the Thomas and Laura Hsu Professorship in Engineering. He is an internationally known scholar in water treatment and ion exchange, an exemplary teacher, and an unselfish contributor to the department, college, university and his profession. Dr. Clifford was twice named as one of the college's outstanding teachers, and in 2005, he received the Cullen College of Engineering Career Teaching Award for "excellence in teaching and service to the students of the college." He has graduated 10 Ph.D.s and 27 master's students.

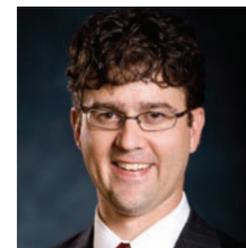
During his tenure at UH, Dr. Clifford obtained over \$5.3 million (his share) of outside funding. He has more than 150 publications including 53 refereed journal papers, 23 peer-reviewed reports, 60 confer-

ence proceedings, nine book chapters and nine invited papers. He is a co-inventor on five patents related to water analysis and treatment. He has won numerous research and publication awards including the Sigma Xi Research Award, the Halliburton Senior Research Award, the Fluor Daniel Faculty Excellence Award and the Abraham E. Dukler Distinguished Faculty Award from the UH Engineering Alumni Association.

Dr. Clifford's service to the university has been exemplary. He directed the Environmental Engineering Graduate Program for 14 years and the Environmental Engineering Lab for 16 years. In addition to serving as chair of the department, Dr. Clifford has been a member or chair of numerous department, college, university and professional committees.

Due to his dedication, Dr. Clifford has earned emeritus status at the university. The emeritus title is conferred only upon retired tenured faculty who have made a significant contribution to the university through a long and distinguished record of scholarship, teaching and/or service. In addition, an endowed scholarship has been created in the department in his honor.

## New Faculty



Craig Glennie  
Assistant Professor

Craig Glennie joins CEE from TerraPoint USA Inc., a LiDAR remote sensing company, where he was vice president of engineering. He received a Ph.D. and B.Sc. in geomatics engineering from the University of Calgary, Alberta in 1999 and 1996, respectively, and is a registered professional engineer. Prior to his role as vice president at TerraPoint, he served as senior geodetic engineer and manager of U.S. operations. At UH, he will work as part of the National Center for Airborne Laser Mapping and the proposed graduate program in geosensing systems engineering.



Reagan Herman  
Instructional Associate Professor,  
Research Associate Professor

Reagan Herman joins CEE from Johns Hopkins University, where she served as senior lecturer and assistant research professor. Prior to her appointment at John's Hopkins, she was an assistant professor of civil engineering at UH. She received her Ph.D. and M.S. in structural engineering from The University of Texas at Austin in 2001 and 1995, respectively. Her research interests focus on the design and behavior of steel structures, with an emphasis on steel bridge design. Her research work has included studies of various aspects of steel trapezoidal box girder bridge design and behavior.



Debora Rodrigues  
Assistant Professor

Debora Rodrigues joins CEE from Yale University, where she was a post-doctoral researcher in the environmental engineering program within the department of chemical engineering. She received a Ph.D. in microbiology and molecular genetics from Michigan State University in 2007. Her research focuses on microbiological processes in the environment. She is currently investigating the toxic effects of nanomaterials on microorganisms from aquatic systems and the role of biofilms in corrosion.

## Department Adds Two NAE Members

Two new faculty members who belong to the National Academy of Engineering have joined the department.

**Kaspar Willam** (left), professor of civil and environmental engineering, joined CEE last fall from the University of Colorado, Boulder. Inducted into the NAE in 2004, he has authored more than 160 publications and served as an invited speaker on more than 140 occasions. Willam, who earned his Ph.D. from the University of California, Berkeley, is also a fellow of the American Society of Civil Engineers, the American Society of Mechanical Engineers and the United States Association for Computational Mechanics. He is recognized as a leading authority on structural mechanics and materials, and a recipient of the Nathan M. Newmark Medal of ASCE.

**Anestis "Andy" Veletsos** (right) joined CEE as an adjunct professor of civil and environmental engineering. He is also the Brown & Root Emeritus Professor in the Department of Civil Engineering at Rice University. Veletsos is a two-time winner of the Norman Medal, the highest award given by the American Society of Civil Engineers for papers published in its journals. He headed the group that formulated the Applied Technology Council's first design provisions for soil structure and then incorporated those provisions into the federal government's National Earthquake Hazards Reduction Program. Veletsos' areas of expertise include structural and foundation dynamics, earthquake engineering and the dynamics of offshore platforms.



Photo by Thomas Shea

## Accolades

**Abdeljelil "DJ" Belarbi** received the Joe W. Kelly Award from American Concrete Institute. Also, a graduate scholarship was named for him by the Missouri ACI chapter for his many years of service as an officer of the ACI-MO Board of Directors and for establishing several student scholarships in the Missouri-Western Illinois ACI Chapter.

**Reagan Herman** received the 2010 American Society of Civil Engineers' Moisseff Award with co-authors Yura, Helwig, and Zhou.

**Mohammed Mansour** won an Outstanding Lecturer Award from the UH Cullen College of Engineering.

**William Rixey** received a \$75,000 grant from the American Petroleum Institute to explore the impacts of various ethanol fuel blends on a pilot-scale aquifer. He also won a \$23,000 grant to explore subsurface multiphase flow characteristics of bioalcohol fuels and groundwater quality from the Texas Hazardous Waste Research Center.

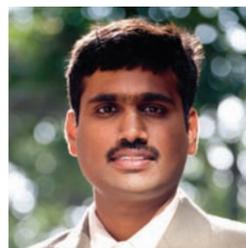
**Jerry Rogers** will receive a Lifetime Achievement Award from the Environmental and Water Resources Institute in May. He also will receive the American Society of Civil Engineers' 2011 Civil Engineering History and Heritage Award this October. His paper titled "The New Town of Boulder City: City Planning and Infrastructure Engineering for Hoover Dam Workers" was

one of 20 papers selected nationally for inclusion in the proceedings of a special symposium to celebrate the 75th anniversary of the Hoover Dam at the American Society of Civil Engineers annual conference.

**Kyle Strom** won an Outstanding Teaching Award from the UH Cullen College of Engineering.

**Cumaraswamy "Vipu" Vipulanandan** won the 2011 Most Valuable Professional award from the Underground Construction Technology Association and Underground Construction magazine for his outstanding contributions in education and research related to underground infrastructure construction and maintenance.

## CEE Grad Student Wins Fellowship, Best Paper Award



Taraka Ravi Shankar Mullapudi

Civil engineering graduate student Taraka Ravi Shankar Mullapudi won a fellowship last fall to research an underused method of distributing the load of a structure in soil.

Mullapudi won the American Society of Civil Engineers' Trent R. Dames and William W. Moore Fellowship, an award available to graduate students, professors and practicing engineers. Winners are selected based on the technical and social value of their research and its potential to advance the science and profession of engineering. While past awards have been in the \$2,000 to \$6,000 range, Mullapudi's fellowship award totals \$10,000.

Studying under the guidance of Prof. Ashraf Ayoub, he will use this funding to examine the interaction of inelastic soil structure behavior.

"Soil can resist loads proportional to its normal displacement at a particular point, which is what most structures rely on," Mullapudi said. "But it can also resist bending because of the cohesive nature of the soil, and usually this bending resistance is neglected. We are investigating and numerically simulating that interaction."

Better understanding the interplay between tensionless soil and a load that is applied on structural components will allow architects and engineers to design structures (such as buildings and bridges) that more efficiently and effectively distribute their weight, Mullapudi said. When his research is complete, ideally his findings will be incorporated into structural design computer software.

More recently, Mullapudi won the Earthquake Engineering Research Institute's 2011 Student Paper Competition at its 63rd Annual Meeting, held in La Jolla, Calif. His paper titled "Seismic Behavior of RC Structures Subjected to Combined Loading Including Torsion" explores the behavior during earthquakes of reinforced concrete members with eccentric loadings, asymmetrical geometries, and skewed and curved geometries with unequal spans and column heights. In seismic events, these concrete members are subjected to multiple combined loads, including axial, flexure, shear and torsion loads.

Mullapudi has developed an analytical model "to predict the behavior of structures under such loads, as well design them to resist against destructive earthquakes," he said.

## CEE Undergrad Named Outstanding Senior



Jennifer Ngo

The Cullen College of Engineering's Outstanding Senior for the 2010-2011 academic year is Jennifer Ngo. Ngo, who came to UH on a full academic scholarship, graduated with a B.S. in civil engineering in December of 2010 with a final grade point average of 3.71.

During her time at UH, Ngo was active in the life of the college. She served as treasurer of the UH chapter of the American Society of Civil Engineers for two years, organizing and/or participating in events like the IEEE Chili Cook-off, its Habitat for Humanity volunteer efforts, and the group's semester kickoff parties.

Ngo was also a three-time member of the college's Concrete Canoe team. "I'm really active physically, and I like to do outdoorsy stuff, so this was a natural fit for me," she said. Two of those teams won the regional Concrete Canoe competition and went on to represent UH at nationals.

In addition to her work with student organizations, Ngo went out of her way to build up her resume while still enrolled as a student. She spent a year as a research assistant on a Texas Department of Transportation-funded research project led by Kyle Strom,

an assistant professor of civil and environmental engineering. She also completed two internships during her time at the college. The first was with United States Gypsum, a building materials manufacturer. The second internship, which she landed through the Engineering Career Fair, was with Spectra Energy, a natural gas pipeline and infrastructure firm.

After graduating in December, Ngo immediately began a position as a project engineer in the pipeline engineering department with Boardwalk Pipeline Partners, also a natural gas infrastructure company. In this role, she serves as part of a team that evaluates and selects the best routes for new pipelines. Once routes are finalized, her team selects a firm to engineer the pipelines themselves, as well as manages the construction process.

Given her academic achievements and clear commitment to professional success, it's not surprising that Ngo is considering pursuing an advanced degree, though one aimed at business rather than the lab. "I want to go back. Probably not for a masters in engineering, but for an MBA," she said. "I'm thinking that I'll go back about two years down the line."

## UH Civil Graduate Student Awarded O.H. Ammann Research Fellowship



Rachel Howser

The Structural Engineering Institute of the American Society of Civil Engineers has awarded the 2011 O.H. Ammann Research Fellowship to UH graduate student Rachel Howser. Established in 1963, the Ammann Fellowship is intended to foster the creation of new knowledge in the field of structural design and construction.

The fellowship will support her research titled "Development of Self-Consolidating Carbon Nanofiber Concrete Sensors for Structural Health Monitoring," a project aimed at the development of a carbon nanofiber aggregate (CNFA) that can measure the damage in a concrete structure. "Carbon nanofibers have electrical properties and when you add them to concrete, it gives the concrete electrical properties. Since there is a relationship between the strain of

concrete and its electrical resistance, you can look at its electrical properties to see how badly it has been damaged by an earthquake or some other sort of disaster," she said. Howser is pursuing this research under the direction of Professors Thomas Hsu and Yi-Lung Mo.

Howser received a Bachelor of Science degree in civil engineering from Rose Hulman Institute of Technology in 2008. She's been an active member of the American Society of Civil Engineers, participated in the Research Experiences for Undergraduates program at UH, which sparked her interest in graduate studies in the UH CEE department, and pursued a unique post-graduate research opportunity in Taiwan as part of a SF International Research and Education in Engineering (IREE) grant.

## Concrete Canoe Team Leads Region in 2009-2010

For two out of the last three years, the UH Concrete Canoe Team has captured first place at the American Society of Civil Engineers (ASCE) Texas/Mexico Regional Concrete Canoe Competition, earning a spot to compete at the national level each year.

In 2010, students competed against 13 teams at Town Lake in Austin for the title. High rankings in each of the four portions of the competition—an oral presentation, design paper, physical display and five canoe races—earned them top honors in the competition. But it was their concrete mixture—poured to make the 215-pound canoe dubbed Steer Clear—that challenged their engineering minds and made the win attainable.

Their final recipe was applied to a wood-and-Styrofoam hull, which they let cure for 28 days.

"It feels so great to win," said Jessica Baptista, the team's captain. "We worked so hard and lost a lot of sleep to make this possible. We literally poured our heart and souls into this and it paid off."

In total, the students' estimate more than 1,100 hours was spent on the project. Many afternoons and weekends were spent on surrounding lakes and bayous bringing their paddling skills up to speed for two female, two male and one co-ed race in the boat. At regionals, they breezed by their competitors—taking first in three of the races and second in the others.



photo by Thomas Shea

## Previous ASCE President, UH Alumnus Named Engineer of the Year



Wayne Klotz

Wayne Klotz (MSCE '76) received the honor in recognition for his work with Klotz Associates, the civil engineering firm he co-founded, and for his service to the profession as national president of the American Society of Civil Engineers.

Klotz served as head of ASCE from November 2008 to November 2009. During that period, congress and President Barack Obama debated and crafted the American Recovery and Reinvestment Act, better known as the stimulus package.

During this same time, the ASCE was preparing its report card on the state of the nation's infrastructure. Recognizing an ideal chance to advocate for a much-needed infrastructure investment, Klotz moved up the release of the report card to coincide with the stimulus debate. He soon was giving interviews to media outlets across the country, becoming the de facto spokesman for strengthening the nation's infrastructure.

While the stimulus bill ended up dedicating less than 10% of its dollars to infrastructure, Klotz said, "the fact remains that it was a huge boost to public awareness that the basic infrastructure – water, wastewater drainage, paving, the building blocks of our modern society – need to be taken care of and improved."

## Alum Working on International Initiatives



Alireza "Alex" Ghodsi

Cullen College alum Alireza Ghodsi, P.E. (MCE '78), chairman of the board of the international corporation Rigid Global Buildings (formerly Rigid Building), traveled to the Middle East as part of a small U.S. delegation to meet with officials in Afghanistan about rebuilding the war-torn country.

Invited to participate by Paul Brinkley, a deputy leading a special task force under U.S. Secretary of Defense Robert Gates, Ghodsi was one of only a handful of successful Iranian-American businessmen invited to Afghanistan to discuss how the private sector can help in the rebuilding of the nation.

In addition to advocating for infrastructure spending, as ASCE president Klotz also worked to raise awareness of the need for sustainability in civil engineering projects. Sustainability in these efforts means accounting for three main factors in a project: its economic viability, environmental impact, and effect on the people who live and work near it.

Klotz' focus on sustainability led to the recent creation of the Institute for Sustainable Infrastructure, a partnership among the ASCE, the American Council of Engineering Companies and the American Public Works Association. Klotz is currently serving on the board of directors for this new group.

One of the ISI's first projects is the creation of a rating tool, similar to the United States Green Building Council's LEED program, to quantify the sustainability of civil engineering undertakings. The ISI and its rating system, Klotz said, "will oversee the sustainability effort for really the whole profession."

While his efforts on behalf of his civil engineering profession are impressive, Klotz has also reached great heights with the firm he co-founded in 1985. Klotz Associates works on all elements of public infrastructure, as well as on some commercial and industrial projects.

The trip included tours of Kabul and Herat, Afghanistan, meetings with their respective mayors and city officials and a special summit with General David Petraeus, the commander of NATO forces in Afghanistan.

The discussions involved how to rebuild the country through the wealth of newly-discovered mineral deposits. These discussions ultimately resulted in the signing of various Memorandums of Understanding (MOUs) outlining the role of the U.S. and private industry in developing a framework for the process.

## Donor Roll Call

Anan Al-Bahish  
American Concrete Institute,  
Houston Chapter  
Clyde N. Barfield, Jr.  
David M. Barton  
Dr. Abdeldjeli Belarbi  
Bruce Alan Carmichael  
Ruben A. Cheng  
Billy M. Cooke  
Gerald M. Diaz  
David Duerr  
Exxon Mobil Corporation  
Herbert A. Feldt  
Harold J. Gillespie  
Sharon Giordano  
Gonzalez Group, LP  
Arturo Reyes Guerrero  
Dr. Thomas T. C. Hsu  
Douglas A. Kirkpatrick  
Klotz Associates, Inc.  
Herbert Lum  
Dr. Mouhamad Y. Mansour  
Ken E. Moore  
Than-Nhi Thi Nguyen  
Sean Nolan  
Jerilyne Busse O'Neill  
Rafael Ortega  
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Dr. Arup K. SenGupta  
St. Nicholas Foundation  
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Patrick Peter Steffanelli  
Kenneth E. Tand  
Texas Association of  
Environmental Professionals  
The Ivanhoe Foundation  
Bobbi S. Treacy  
Edward Allen Turner  
Joseph Albert Ward, Jr.  
XS Environmental Consulting, LLC  
David Joshua Zettlemoyer

## The Academy of Distinguished Civil & Environmental Engineers

The Department of Civil and Environmental Engineering recognized the need to honor their prominent alumni by creating The Academy of Distinguished Civil & Environmental Engineers. In 2010, the department, in concert with their Industrial Advisory Board, began designing an appropriate and fair method of selecting candidates and forming a self-sustaining group that will continue the legacy. CEE plans to induct its first members into this select organization in April 2011.

The academy is dedicated to recognizing outstanding alumni who bring honor to the CEE department and have sustained distinguished contributions to the profession, field, the university, or society at large. Academy members represent an elite group of alums who have achieved greatness all starting with the same set of tools obtained here in the Civil and Environmental Engineering department in the UH Cullen College of Engineering.

When selecting candidates, the academy seeks out alumni who received their degree in civil or environmental engineering from the University of Houston at least twenty years prior to nomination. During those twenty-plus years, each candidate must have become an outstanding engineer practitioner and/or possess recognized expertise in one or more fields of civil or environmental engineering. While promoting civil and environmental engineering, the

academy also recognizes its alums who have become an outstanding and recognized leader and achieved distinction in a field other than civil or environmental engineering. Academy members are outstanding and recognized academicians, scientists, or researchers in civil or environmental engineering or another field.

Academy candidates are leaders in their communities or business and have achieved outstanding success. They are active in professional or career organizations, recipients of honors in their profession, active in the community. Many are known by their involvement in public service, service organizations, and/or charitable causes, or are lecturers or writers on subjects related to their chosen field.

The academy is evidence of the success available to current students. By recognizing these well-decorated alumni, the Civil and Environmental Engineering department will help the university achieve national prominence in civil or environmental engineering education and strengthen students' understanding of the engineering profession through the personal and professional example of their predecessors. The academy will be a distinguished group of alums to provide expert advisory guidance and counsel to the department, faculty, and students and advance the objectives of the development program.

## 2011 Inductees



**Charles Beyer** (BSCE '72, MCE '77)  
President, Beyer Construction, LLP



**Rafael Ortega, P.E.** (BSCE '81)  
Vice President of Lockwood, Andrews & Newnam



**The Honorable Bill Callegari** (MSCE '72)  
House Representative, District 132



**Arup SenGupta, Ph.D., P.E.** (MSEnvE '82, PhD EnvE '84)  
P.C. Rossin Professor, Lehigh University



**David A. Eastwood, P.E., C.A.P.M.** (BSCE '77, MSCE '78)  
President of Geotech Engineering and Testing



**Steven Simmons, P.E.** (BSCE '81)  
Deputy Executive Director, TxDOT



**William Fendley, P.E.** (BSCE '71)  
Board member, Cobb, Fendley, & Associates, Inc.



**Daniel Wong, Ph.D., P.E.** (BSCE '83, MSCE '85, PhD CE '88)  
CEO of Tolunay-Wong Engineers, Inc.



**Jesse Gonzalez, P.E.** (BSCE '69)  
Co-Owner, The Gonzalez Group  
Former Chairman of the Board, SpawGlass

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