A Message from

Dear Alumni & Friends,

The AE Department continues to move forward on several fronts and we had a busy spring semester, which started with a strategic plan implementation. The Industrial and Professional Advisory Council also met and discussed several issues including strengthening the department’s graduate programs and marketing efforts, and potential revisions to the AE Program structure. There were also numerous student-centered activities and the annual senior thesis presentations and awards banquet. This newsletter contains the highlights of the spring events, and also covers several honors and awards to alumni, faculty, staff and students:

- Alumni recognitions in the Spring include Michael Harrison ('85) who was named amongst the 2015 College’s Outstanding Engineering Alumni; Rebecca Delaney ('06g) – who received the Penn State Alumni Association’s Alumni Achievement Award, and the Alumni Society of Architectural Engineering’s 2015 Early Career Impact Award; and Sean Flynn ('07g), who was recognized with the Penn State Engineering Alumni Society’s 2015 Young Alumni Achievement Award. Details of these and recognitions for Alyssa (Adams) Wingenfield ('09) and Christopher Taylor ('00g) are on pages 4 and 5;

- In addition to shaping the future of the built environment worldwide, our alumni are also utilizing their engineering prowess to improve the lives of people in developing countries – see Carey Steckler ’05 on page 6;

- Our students continue to do us proud by winning the most awards in the 2015 ASCE Charles Pankow Foundation Architectural Engineering National Student Competition (page 7). Our students also placed first in the NAHB Residential Construction Management Competition at the International Builders Show in Las Vegas (page 14), and won two awards at the 2015 Department of Energy’s Race to Zero Student Design Competition in Golden, CO (page 13);

- Sadly, former AE Department Head, Dr. Paul Seaburg, passed away at the age of 80. He is fondly remembered by many in the Department and College. A brief memorial is presented on page 9;

- The final senior thesis presentations were made to an industry jury of 32 members. Rachel Sommer won the Best Overall Thesis Award in addition to being named the AE student marshal. Details of this and other award and scholarship winners are on pages 10-11;

- Other student-centered activities - including the China Study Abroad program, and the annual Washington DC Trip – are covered on pages 12-14.

We are most grateful for the strong support you have provided to the program over the past year (see pages 10, 11, and 15). This is making a difference to the program and our students. Please continue to stand with us as we advance the program in the coming years.

Thank you,

Chimay J. Anumba, FREng, Ph.D., DSc., Dr.h.c., P.E.
AE Department Head

On the cover: University House on the Penn State University Park campus. Photo courtesy of AE staff member Deb Sam.
ALUMNI NEWS

1970's

Richard Stoudt, Jr. (Rick) '76 is president of High Construction Company in Lancaster, PA. His responsibilities include the overall management and direction for High Construction Company, a division of High Real Estate Group.

1980's

Drew Potts '88 is an instructor at the Pennsylvania College of Technology in Williamsport, PA. His responsibilities include teaching statics, strength of materials, structural analysis and steel design. Drew was back on campus Nov. 1, 2014 enjoying the PSU vs. MD game with a few fellow alumni.

Left to right, Drew Potts '88; John Anania '88; Terry Derstine, '88 Microbiology; Jerry Thompson '88; Rob Roth '88; David Shea '88.

1990’s

Blair Malcom '90 gave a presentation on “A Holistic Approach to Campus Lighting Upgrade Programs” at this year’s LIGHTFAIR International Conference in New York City, May 5-7. Malcom, an electrical engineer with OPP Engineering Services at Penn State and Margo Pietras-Barnes from the University of Pennsylvania, shared innovative approaches, best practices, and successes associated with their large-scale campus lighting upgrade programs. The presentation covered material procurement, distribution contracts, lighting solutions, and implementing a lighting design guide.

Tony Payne '92 is executive director with Fulton County Area Vocational Technical School in McConnellsburg, PA. He is in charge of day-to-day operations, student achievement, and staff development. The school serves the three school districts in Fulton County, PA. Payne says “Current enrollment is about 170 students.”

Christopher G. Kirchner, PE, '92, '97g has joined Vanderweil Engineers in Boston, MA as a mechanical team leader and project manager.

Joseph Uchno ’99 was promoted to Associate at SKA in their Potomac office. He has a diverse project portfolio, managing projects ranging from high-rise office, residential, and mixed-use buildings with grocery stores, to hotels, specialized structures, government design-build projects, and parking garages.

(Continued on page 7)

AE Alumni Receives the Ralph Enghouser Award

Jered Widmer, MIES, IALD, '00 received the Illuminating Engineering Society (IES) Philadelphia Section Ralph Enghouser Award during an awards banquet on June 4, 2015 in Philadelphia.

Widmer, an associate principal with The Lighting Practice in Philadelphia, has been an involved member of the IES for the past 10 years.

This award has been presented annually since 1982 and is the highest honor the IES Philadelphia Section in collaboration with the Lamplighters of the Delaware Valley bestow. This award recognizes an individual who is an expert in the field of illumination and who upholds the spirit of cooperation and service to the lighting industry originally exemplified by the award’s namesake, Ralph R. Enghouser.

In Memoriam

Timothy W. Irvin, 56, passed away Mar. 14, 2015, at his home. He was the husband of Desiree M. (Fink) Irvin and the late David E. Irvin, Sr., he was a 1976 graduate of Greater Johnstown High School.

Tim graduated from Penn State in 1981 with his architectural engineering degree. He had worked as an Application Engineering Manager at Johnson Controls for the past 20 years. He was a member of ASHRAE. Tim had also earned his LEED Certification. He was a life member of the Penn State Alumni Assoc. and was an experienced numismatist. Along with his family, he was active with Red Lion Marching Band and its Band Parents Assoc. In addition to his wife and mother, Tim is survived by a son, Zachary P. Golden of Red Lion; and two daughters, Jamie L. and husband Michael Bresch of Lancaster, and Liz M. Irvin of York.

Robert DePuy Davis, 68, of Bellefonte passed away suddenly Wednesday, January 21, 2015, at Mount Nittany Medical Center. He was preceded in death by his parents Katherine Steffie Davis and Robert DePuy Davis Sr. Bob is survived by his wife Connie Hararin Davis and three children, Robert III Davis of Washington, DC, Anne Dixon (Ethan) of Bellefonte, and Todd Davis (Alison) of San Francisco, CA.

Bob was a 1964 graduate of Bellefonte Area High School and a 1974 graduate of Penn State. After three years at Penn State, Uncle Sam came calling and Bob was off to basic and advanced training as a military police officer. As he was preparing to ship out to Korea, word came that Martin Luther King, Jr. was assassinated, and his orders changed, keeping him stateside. He was a Specialist 4th Class, Military Police, United States Army from 1967 to 1969.

Upon discharge, with his GI bill and military experience, Bob returned to Penn State to graduate with an engineering degree. This led him to his life’s work as a professional structural engineer and architect.

After his family, his greatest pride came from his work on projects like the National Zoo and Folger Shakespeare Library Addition in Washington, DC as well as Penn State’s Bryce Jordan Center and Beaver Stadium. True to his profession, Bob lived by the motto, “Even if you only do one thing in your life, do it right. Have pride in what you do. Too few of us do these days.”

AE Alumni News

Spring 2015

Page 3
AE Alumna Receives Two Achievement Awards

Rebecca Delaney ('06 BAE/MAE) is the recipient of the Alumni Society of Architectural Engineering (ASAE) 2015 Early Career Impact Award. Jonathan Dougherty ('99 BAE, '06 Ph.D.), ASAE president, presented the award to Delaney on May 1 at the AE Senior Thesis Awards Banquet (left). The award was made possible through a grant from of the Penn State Engineering Alumni Society. The award was established to annually honor and recognize a graduate of Penn State’s Department of Architectural Engineering in the early stages of his or her career.

Awardees must have demonstrated outstanding technical expertise in the AEC industry; shown outstanding potential for continued success in their field; and have made a significant contribution to the field of architectural engineering.

This award allows ASAE to continue its mission of encouraging the sustained interest and professional development of all graduates of the AE department, while specifically highlighting the significant contributions of young alumni. The hope is that these young alumni will remain engaged with the AE department and ASAE. By focusing the award on career experience and industry leadership; community service and involvement; service to the AE Department; and potential for continued success, this is a broad reaching and significant award.

Delaney was also one of 12 prominent alumni, 35 years of age and younger, who were recognized with the Alumni Achievement Award. Recipients are nominated by an academic college or campus and invited by the president of the University to return to campus to share their expertise with students and the Penn State community. Alumni Achievement honorees demonstrate to students that Penn State alumni succeed in exceptional fashion at an early age.

At a dinner on March 27, each award recipient received a commemorative medal designed by internationally recognized artist and 2007 Alumni Fellow Jeanne Stevens-Sollman.

During her visit to campus, Delaney also provided a guest lecture for AE faculty and students, sharing insight on her successes in life and business.

Delaney is a mechanical team leader for the design firm of Skidmore, Owens and Merrill’s sustainable engineering studio in Chicago. She served as lead mechanical engineer for the recently proposed world’s tallest office tower in the Middle East and the Chicago Police Department. Rebecca partnered with the Energy Defense Fund to educate commercial professionals on opportunities for energy savings and sustainability. She mentors engineering students, both locally and globally, through the ACE (Architecture, Construction, Engineering) Mentoring Program and numerous humanitarian agencies. She is a founding member of the Penn State’s College of Engineering’s Young Alumni Advisory Board.

Harrison named a 2015 Outstanding Engineering Alumnus

Michael Harrison ’85 was a recipient of the 2015 College of Engineering Outstanding Engineering Alumni Award at a ceremony held on campus on April 14. The award recognizes graduates who have reached exceptional levels of professional achievement. Established in 1966, the award is the highest honor bestowed by the college.

Harrison graduated from the architectural engineering program with a bachelor’s degree in 1985. He went on to attain his master’s degree in 1990, in real estate development at the Massachusetts Institute of Technology.

Mr. Harrison’s career path has taken him into the real estate development and management field and he has proven himself to be extremely capable, successful, and dynamic in this field. He is the Senior Managing Director for Hines, Inc., responsible for the development and/or acquisition of projects and properties in Florida, the Caribbean, and other markets located in the Southeastern region of the United States. Since joining Hines in 1990, Harrison has been involved in all phases of the development and/or acquisition of more than $1.8 billion of projects totaling more than 5.4 million square feet and 3,800 acres. He has been responsible for establishing Hines’ presence throughout Florida and the Caribbean with projects and/or offices located in Jacksonville, St. Augustine, Orlando, Miami, Miami Beach, Coral Gables, Doral, Marco Island, St. Lucia and Puerto Rico. He has also been instrumental in establishing Hines’ land and resort development platform in the Southeast and the Caribbean, including Palencia, a 2,300-acre master-planned golf course community in Jacksonville; Troumassee, a 1,100-acre luxury resort community in St. Lucia; and Punta Gyanenez, a 450-acre luxury resort development in Puerto Rico.

Outside of his highly successful business activities, Harrison has maintained an active leadership role in a variety of professional organizations and affiliations. In addition, he has a long-standing friendship with Penn State and the AE Department. In particular, he has been an active member of the AE Industrial and Professional Advisory Council (IPAC) and served a term as chair of IPAC. His enthusiastic input on this council has been very useful to the department. In addition, he wrote an open letter to the AE alumni which was published in the Fall 2009 issue of the AE Newsletter in which he emphasized the importance of alumni support for the AE Department and of our ongoing initiatives. It is clear that he has a sincere interest in the success and growth of the AE program and he is proud of his connections here. In 2010, Harrison was named an AE Centennial Fellow.

Harrison is an excellent role model and mentor for the architectural engineering students and he is well respected by our faculty and staff. We are very pleased that he is among the college’s 2015 Outstanding Engineering Alumni.
ASHRAE 2015 New Face of Engineering

Alyssa (Adams) Wingenfield, P.E. ’09, was recognized by ASHRAE for her commitment to furthering a sustainable world through design and energy conservation projects for commercial buildings. As an account executive in SmartWatt Energy’s Mid-Atlantic Region, Wingenfield has assisted schools, municipalities and other organizations in securing approximately $3.5 million in grants, low interest loans, and utility rebates to help subsidize renewable technology installations such as geothermal, biomass boilers, solar photovoltaic and solar thermal heating systems. Her work has also led to over $40 million in self-funded energy saving programs across Pennsylvania’s K-12 schools.

Wingenfield first became involved with ASHRAE as a student member in her sophomore year at Penn State. After graduation, she continued her ASHRAE involvement and in 2012 she became the first female president of the Central Pennsylvania ASHRAE Chapter. “When I started in the profession, ASHRAE provided me with a localized network of engineers, who I relied on for questions, mentoring, and overall career development. The board members invited me to join committees, and before I knew it, I was making my way through the ASHRAE leadership chairs.”

As ASHRAE’s New Face of Engineering, Wingenfield attended the 2015 Chartered Institution of Building Services Engineers Technical Symposium in London.

PSEAS Young Alumni Achievement Award

Sean Flynn ’07g is a recipient of the Penn State Engineering Alumni Society’s (PSEAS) 2015 Young Alumni Achievement Award. He was honored during a ceremony held Apr. 23.

Flynn made significant impacts after his graduation and full time engagement with his family business, Flynn Stone. He quickly became a trusted leader of high-profile projects in Washington, DC, and also led the participation of his company in numerous international display competitions of stone and landscape design.

Currently, Flynn leads the procurement, design support, and completion of major stone projects, including the recently completed National Gallery of Art East Building, which required one of the most extensive project scopes and technical challenges of its kind in Washington, DC.

In 2007, Flynn began his first efforts to give back to the AE program and Penn State by arranging the donation of all the indoor and outdoor bluestone slate needed for the MorningStar solar home in support of the department’s entry in the Solar Decathlon competition. This striking feature of the home played a key role in communicating the value of high-mass and durable materials as contributors to net-zero energy homes. In the wake of the Decathlon, Flynn and his family extended their offer to include a variety of new stone and slate products for the MorningStar home and nine acre Sustainability Experience Center. Later, after the untimely passing of AE Professor Dr. Michael Horman, Flynn again stepped forward to support the student team that had formed to build a memorial structure to honor Dr. Horman. He helped the student team with design ideas, and ultimately helped fabricate custom stone, engravings, and veneer materials for the Horman Memorial.

Through this series of contributions at Penn State’s campus, Flynn and his father caught the attention of Design Services leaders at Penn State, and were invited to contribute ideas and stone samples for future projects on the Penn State campus. This relationship blossomed and resulted in a partnership with Flynn Stone in the design and material selection for the recently completed Nittany Lion Shrine renovation. This striking new feature on the Penn State campus will benefit thousands of students and alumni for years to come and is in part, the result of the generosity and creativity of Flynn and his family.

Flynn’s entrepreneurial skills have contributed to the growth of a small family business into a multi-million dollar international enterprise that is nationally recognized as one of the top stone design and fabrication companies.

The PSEAS Young Alumni Achievement Award recognizes engineering alumni 35 years of age and younger for their extraordinary professional accomplishments. The goal of the award is to engage and involve successful recent graduates with the College of Engineering community and to demonstrate to current students that Penn State engineering alumni can succeed at an early age and that it does not necessarily take a lifetime to make a positive impact on society.

ENR California Top 20 under 40 Industry Expert

Christopher Taylor ’00g was honored as one of ENR California’s Top 20 Under 40. The top 20 individuals distinguish themselves through their leadership abilities and commitment to their communities.

As Southland’s Southern California Division Leader, Taylor is responsible for procuring work that helps position his division as the design-build-maintain leader in the regional market, as well as ensuring projects are successfully executed by utilizing Southland’s in-house engineering and field expertise. His experience primarily focuses on obtaining operational excellence for large, complex design-build and design-assist projects within the construction industry.

Before being promoted to division leader in 2012, Taylor managed the delivery and outcome of all regional projects as operations manager of Southland’s Mid-Atlantic Division. In working with project management staff, he helped deliver each project under budget and ahead of schedule, while meeting clients’ needs. By facilitating the design, coordination, fabrication, and field installation processes, he led many projects to success, while credibly enforcing Southland’s reputation.

Taylor is actively involved in the Partnership for Achieving Construction Excellence, an industry-university alliance focused on education, research and interaction, and is a member of the Design-Build Institute of America. Additionally, he has participated as a part of the Lean Construction Institute National Capital Region’s Core Group. Taylor has been a member of Southland’s executive committee since 2012.
AE Alumna is Living Her Calling to Serve the Poor in East Africa

After growing up in Sandy Lake, a small rural community in Western Pennsylvania, graduating from Penn State, and working for a construction management firm for six years in northern Virginia, Carey Steckler ’05 had a big Craigslist sale and moved to East Africa—it’s a story from Sandy Lake to Uganda.

Carey is the daughter of Edward and Patricia Steckler. She followed a family tradition in attending Penn State. Her father was a 1971 graduate of agricultural engineering. Carey received an integrated B.A.E./M.A.E. degree in 2005 in the construction option. As an AE student, she spent fall 2003 in a student exchange program with the University of Leeds in the UK and fell in love with international travel through that experience. She also participated in the American Indian Housing Initiative building project during summer 2005, which involved the strawbale construction of a daycare center on the Northern Cheyenne reservation in Lame Deer, MT. Carey credits that experience with exposing her to collaborative multidisciplinary design, sustainable design concepts, building materials innovation, management of a volunteer team, and building in a remote site location—all concepts that are directly applicable to her now daily work in Uganda.

She gained additional experience through summer internships with Foreman Program and Construction Managers in Zelienople, PA. Carey moved to Virginia, and from 2006 -2011, she worked with Holder Construction Company.

Carey stated, “From a very young age I knew I would be an engineer like my daddy, and it became clear —and admittedly a little scary— to me while at Penn State that someday the construction field I was pursuing would align with something involving serving others.” Carey had learned about the work of Engineering Ministries International (EMI) from AE classmate Kellie Bleecker Farster ’05g. EMI is a non-profit Christian development organization made up of architects, engineers and design professionals who donate their services in response to a shortage of experienced, well-educated design professionals in East Africa and elsewhere in the developing world.

Initially, Carey reached out to EMI in 2011 with a short-term trip in mind. In 2012, she began volunteering in Uganda as a construction manager—supporting estimating, planning and management of building projects for Christian ministries who serve the poor. After nearly three years in Uganda, Carey felt God’s plan for her was to remain with EMI in Uganda, and she accepted a full-time staff position in 2014.

Currently, Carey is the construction program manager for EMI’s East Africa office, located in Kampala, Uganda. This is a full-time, volunteer position made possible by financial donations from friends and church groups. Carey’s role is to support EMI’s construction managers and foremen as they help organizations complete their construction projects. Their work includes setting appropriate budgets and schedules, hiring qualified local contractors and crews, establishing good accounting practices, and negotiating contracts. In this way, EMI helps organizations best use their funds to serve the poor, orphaned, and widowed with their buildings and properties.

Another important part of EMI’s ministry is to train and mentor the men and women who work on the building crews. Carey explained that she sees no shortage of Ugandans who are willing to work hard for a fair wage and are thankful for the opportunity to learn new trades and provide for their families. EMI is committed to training and mentoring design professionals in their Uganda office. They regularly recruit East African interns to work with them, joining a team of interns every semester (largely juniors, seniors and recent graduates from American universities.)

EMI has six offices around the world and partners with other organizations such as schools, hospitals, and ministry centers to design and construct their campuses and buildings. They also respond to water, sanitation, and health needs as well as natural disasters, such as the 2010 earthquake in Haiti and the 2013 typhoon in the Philippines. The earthquake in Haiti devastated cities and neighborhoods because of poor building design and construction methods. This is not a problem specific to Haiti. Carey said, “I believe we’re responsible as design professionals to respond to the need for our expertise around the world to design and build safe buildings.”

In late 2014 EMI completed work on a small hospital in a Ugandan village not far from Entebbe airport. The facility is located on the grounds of an orphanage campus which is home to children with HIV/AIDS who have been orphaned and abandoned, and serves these children as well as the surrounding village community. A team of EMI architects and engineers (staff, volunteers, and interns) designed the facility and Carey and others on EMI’s construction management team managed the crew of Ugandan laborers and craftsmen who executed the construction.

Friends can join Carey’s monthly support team or make a one-time contribution by visiting www.emiworld.org/donate.php and finding her name in the drop-down list of staff members. She is grateful for new supporters who desire to invest in this life-changing work.

Additionally, EMI has needs around the world for architects and engineers in various fields. If you are interested in volunteering on a 10-14 day trip or longer, you can learn more at: emiworld.org or email Carey at carey@emiea.org.
AE Student Marshal

Rachel Sommer was named the 2015 AE student marshal for the spring commencement ceremony, held on May 8. She graduated with an integrated B.A.E/M.A.E. degree. Dr. Chimay Anumba, head of the AE Department, presented the Student Marshal certificate to Sommer at the scholarship and awards banquet held at the Nittany Lion Inn on May 1.

Sommer is a past recipient of the Construction Owners Association of America National Albert E. Phillips Scholarship; the President’s Freshman Award, the Outstanding Performance in Construction Management in the 4th Year Class Award; the Pre-Eminence in Honors Education Scholarship; and the Paul Morrow Endowed Scholarship. She was also a member of the Presidential Leadership Academy, a student leadership group led by the University President and Dean of the Schreyer Honors College that focuses on critical thinking skills through social, professional, and intellectual activities.

Following graduation, Sommer began work for DPR Construction in Columbia, MD, as a project engineer.

In addition to being named student marshal, she was awarded a life membership in the Penn State Alumni Association. Sommer selected Dr. Robert Leicht to serve as faculty marshal for the ceremony.

AE Students Win Multiple Awards at National Competition

Two teams of Penn State architectural engineering students came away with eight awards at the 2015 Annual Architectural Engineering Student Design Competition on March 25.

The competition, organized by the Architectural Engineering Institute of the American Society of Civil Engineers and hosted by the Milwaukee School of Engineering, challenged students to address the design, integration and construction issues for an urban commercial farm housed in a five-story building with a basement area consisting of approximately 50,000 total square feet.

According to Kevin Parfitt, professor of architectural engineering and faculty adviser, Penn State was the only university of the five that competed, that was represented by two teams. He added, "Of the 16 possible awards, Penn State architectural engineering took eight places, the most overall awards of any school."

Students' submissions are judged by a jury of practitioners from around the country and awards are given in each of five categories – construction, electrical, mechanical, structural and integration.

Penn State’s team Total Building Design Engineering won first place in the construction category and runner up in the integration category. The team consisted of Kevin Barth, Todd Holbert, Adam Jesberger, Patrice Mulhern, Yuka Narisako, Cody Slack, James Weaver and Tommy Wei.

Penn State’s team Synthesis - Engineering for Architecture won the runner up award in all five categories. They also received the Innovation Award. Student members included Zachary Brown, Dana Burzo, Calvin Dalton, Michael Hardesty, Malcolm Murray, Tyler Poff, Kevin Reichert and Sydney Sterling.

The winning team in each category received $1,000, and the first two runner-up teams in each category were awarded $400.

Team Synthesis – Engineering for Architecture received an additional $700 for the Innovation Award.

Both teams were recognized at an awards banquet on March 26.

In addition to Parfitt, advisers were AE faculty members Charles Cox, Moses Ling, Richard Mistrick and Ryan Solnosky and AE alumnus Craig Dubler.

The competition included teams from Kansas State University, Lawrence Technological University, Milwaukee School of Engineering and the University of Nebraska.

The two Penn State teams also had the opportunity to provide an encore presentation for members of the AE Senior Thesis Jury on May 1 at the Nittany Lion Inn. (details on pages 10-11)
IPAC
The AE Industrial and Professional Advisory Council (IPAC) meetings were held in the College of Engineering on March 25-26, 2015. This year’s theme was “Strengthening Our Graduate Programs.” The group held a roundtable meeting with current graduate students as well as a plenary session to develop further strategies.

Also included in this year’s IPAC sessions were: discussions on industrial trends; an update from the AE alumni group ASAE; meetings with AE faculty, staff, and students; as well as breakout sessions focusing on curriculum, marketing, and development in the AE department.

We were pleased to welcome a few new members to the IPAC team including James Mendygral, John Sadlik, Riz Shah and Jeffrey Turconi. In addition, we bid a fond farewell to a few members who are retiring from the team this year: Glenn Bell, Herbert Duffield, Raymond Sowers and Zach Zaharewicz.

Faculty Travel
Professor Jim Freihaut traveled to Dalian University in Dalian, China, as a Dalian University Seasky Scholar to give four invited lectures during the week of May 16-24. The lectures focused on the methods of establishing continuous efficiency improvement monitoring systems for commercial buildings; the advantages of distributed energy systems to establish low carbon footprint, reliable electricity relative to central grid power systems; the significance of indoor particles in determining indoor air quality.

The titles of the four lectures were:
- Progress in Developing a Continuous Efficiency Improvement Loop (CEIL) Methodology for Commercial Buildings
- The Importance of Pervasive Sub-Metering in Developing As-Operated Simulations of Commercial Buildings
- Designing Hybrid Photovoltaic + Combined Heat and Power Systems for Low Carbon Footprint, Distributed Energy Applications
- Investigations of Indoor PM2.5 as Carrier Particles of Contaminants Causing Health Measures

Dalian University professors and staff are conducting a large research investigation of real time energy use in a number of Chinese public buildings and campus buildings. They have established a whole building and sub-system (lighting, HVAC heating, HVAC cooling, plug load) energy metering networks in a number of facilities. Analytical techniques are being developed to continuously analyze the data to determine: the energy efficiency spectrum of similar buildings; a method to continuously determine deviations from expected energy use in a specific building; practical and enforceable building energy utilization codes and regulations. There is a high degree of overlap between the Dalian University effort and the building efficiency monitoring and benchmarking R&D projects initiated at the AE founded Energy Efficient HUB (now the Consortium for Building Energy Innovation, CBEI) at the Philadelphia Navy Yard. The AE Department is seeking to establish specific collaboration and personnel exchange programs with Dalian University to pursue these important building industry research and development issues. Prof. Freihaut has been invited to continue interacting with the Dalian University program via a three-year visiting professorship appointment.

AE Department Head Chimay Anumba gave the Hong Kong Polytechnic University’s Faculty of Construction and Environment Distinguished Lecture on May 23, 2015. His lecture was titled “Context-Awareness in Construction Project Delivery,” and was very well received. (photo above)
Faculty Honors

**Dr. Chimay Anumba** has been named editor of the *Engineering, Construction and Architectural Management Journal*. The journal publishes original research work and papers on innovative developments in management and practice of engineering, construction and architecture. The international journal, which is in its 22nd year, publishes papers from all over the world, reflecting the global nature of the construction industry and the research that supports it.

Anumba is also co-editor of the *Journal of Information Technology in Construction* and editor-in-chief of *Buildings*, an open access journal.

**Dr. Tom Boothby’s** new book has been released by ASCE Press. The book, titled *Engineering Iron and Stone: Understanding Structural Analysis and Design Methods of the Late Nineteenth Century* is a detailed description of the methods used by post-Civil War nineteenth century engineers to design bridges and buildings in masonry, iron, and timber. The methods covered in the book include empirical, analytical, and graphical methods of structural design: these methods are covered to the extent that an interested engineer could reproduce them. The book speaks to the merit of preserving these methods as a means of understanding the structures that were produced by them.

In conjunction with the book release, Boothby attended the 2015 SEI Conference in Portland, OR. He spent a pleasant hour sitting at the author’s table signing books, and explaining some of the methods in the book.

The book is available to ASCE members for $51.00. Anyone wanting a signed copy may contact Boothby at teb2@psu.edu.

Former AE Department Head Passes

**Dr. Paul A. Seaburg**, age 80, passed away on Dec. 29, 2014 in Edwardsville, IL. He was born on June 6, 1934, in St. Paul, MN, the son of the late Earl and Alice (Schneider) Seaburg. Paul married Jean Dahlstrom and she preceded him in death. Then he married Jean Dix on August 22, 1972. Besides his wife Jean, he is also survived by three sons, Mark Seaburg (wife, Karin) of Minneapolis, MN; Gunnar Seaburg (wife, Teresa) of Houston, TX; and Frank Seaburg (wife, Dyan) of Phoenix, AZ; five grandchildren; two great grandchildren; and one brother, Earl Seaburg of Osakis, MN. He was preceded in death by one brother, David Seaburg.

Seaburg received his bachelor’s and master’s degrees in Civil Engineering from the University of Minnesota in 1956 and 1957 respectively. He received his Ph.D. in Structural Engineering from the University of Wisconsin-Madison in 1969.

Prior to coming to Penn State he served as general supervisor of Product Research and Development at Armco Atlantic, Inc., Cincinnati, OH, from 1979-1985. He also held academic positions at the College of Applied Science and Engineering and the University of Wisconsin Extension, University of Wisconsin-Milwaukee from 1969-1979.

Seaburg joined Penn State in 1985 as professor and head of the Department of Architectural Engineering. Under his leadership the AE Department grew in national reputation. In 1991, he was responsible for the implementation of the first Ph.D. program in architectural engineering in the nation. In addition, a proposal for a Master of Engineering program was developed during his tenure. Through his initiative, working partnerships with professional colleagues were created. He was instrumental in the formation of the Consortium for the Advancement of Building Sciences (CABS) in 1988.

In 1994, a $1 million endowment to AE established the Raymond A. Bowers Program for Excellence in Design and Construction of the Built Environment. Seaburg helped structure the program which supports interdisciplinary courses and projects among faculty and students in AE, architecture and landscape architecture. The results have contributed to a better education for students preparing for professional practice in this interdisciplinary environment.

In 1996, Seaburg left Penn State to assume the position of associate dean in the College of Engineering and Technology at the University of Nebraska. His responsibility was to oversee the engineering and technology programs offered on the Omaha campus. From 2000 until his retirement in 2005, Seaburg served as dean for the Southern Illinois University-Edwardsville School of Engineering.

Seaburg held five U.S. patents on structural systems and products. He was a registered professional engineer in three states, and was an active member of numerous professional societies and committees, including the National Institute of Building Sciences Consultative Council, the American Iron and Steel Institute Specifications Committee for Design of Cold-Formed Steel Structural Members, the American Society of Civil Engineers (ASCE), Structural Division, the first Executive Committee of the Architectural Engineering Division, and he was a founding member of the Architectural Engineering Institute (AEI). More recently, he served as chair of the AEI Standards Administrative Committee and on the ASCE Codes and Standards Committee. In addition, he served from 2009-2011 as editor-in-chief of ASCE’s *Journal of Architectural Engineering*.

**Dr. Boothby and Dr. Judy Liu**, (’95 BAE), learning how to use a slide rule.
AE Senior Thesis Awards
The 2015 Senior Awards and Recognition Banquet (above) was held on May 1 at the Nittany Lion Inn. The Department of Architectural Engineering was very pleased to present over $140,000 in scholarships and awards to deserving AE undergraduate students. We are extremely grateful for the phenomenal generosity of our alumni and friends who support the AE Scholarship and Awards Program each year.

2015/16 AE Endowed Scholarships
Gladys M. Baird Memorial Scholarship
James W. Bathgate Memorial Scholarship in AE
Clark Construction - Charles A. Merica Memorial Scholarship
Martin Dougherty Memorial Scholarship
Ewing Cole Award
John Flynn Memorial Scholarship
Louis and Judy Geschwinnder Endowed Scholarship
Gilbane Building Company Award in Memory of Ralph Petrino
Robert J. McNamara Scholarship
McKamish Family Trustee Scholarships
P.J. Dick Scholarship
Vincent L. Pass Memorial Scholarship sponsored by Joseph & Marlene Borda
Melvin H. Peters Endowed Scholarship
James M. Pohlen Memorial Scholarship
John R. Potter Memorial Scholarship
Franklin Ruth Memorial Scholarship
H.O. Smith Memorial Scholarship
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Pittsburgh Builders Exchange Scholarship
Ryan-Biggs Scholarship
Simpson Gumpertz & Heger, Inc. Scholarship
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2015 Award Winners
John J. Brinjac Memorial Award - Outstanding 5 Year Performance and Record of Study in AE (sponsored by Brinjac Engineering Inc.) – Adam Jesberger
Cannon Design Outstanding Record of Study in Mechanical - 5th year (sponsored by Cannon Design) – James Weaver
Cannon Design Outstanding Performance in Mechanical in the 4th Year AE Class – Dylan Friday
Outstanding Performance in Lighting/Electrical in the 4th Year AE Class – Paige Donnell
James G. Davis Construction - Outstanding Capstone Project Electronic Portfolio (CPEP) – Dana Burzo, Sydney Sterling, Calvin Dalton, Malcolm Murray, Michael Hardesty, Kevin Ricart, Zachary Brown and Tyler Poff
Forrester Construction Great Builder Award – Alexander Zartman
Hettema Leadership Awards (sponsored by Turner Construction) - Kenna Markele, Kevin Clement, Donald Stahlnecker and Ashley Bistline
Holbert Apple Associates - Outstanding Performance in Structures in the 4th Year AE Class - Joshua Jaskowiak
Michael Horman Memorial Award—Dana Burzo
Howard and Callie Kingsbury Award for Excellence in Architectural Acoustics – Joshua Lange
Gershon Meckler Memorial Award - Innovative Building Mechanical System Design (sponsored by Dr. and Mrs. Barry Weinstein) – Valerie Miller
Charles A. Merica Award - Clark Const. Group – Kevin Barth
PACE Group - Outstanding Performance in CM - 4th year AE Class – Kenna Markele
PACE Group - Outstanding Record of Study in CM - 5th year Class – Rachel Sommer
Peerless Lighting Award - Outstanding Record of Study in Illumination - 5th year Class – Patrice Mulhern
PSPE/PEPP - Professional Practice Award – Kevin Ricart
Thornton Tomasetti - Outstanding Record of Study in Structures - 5th year Class – Todd Holbert

AE Seniors Garner Top Honors
A panel of 32 industry professionals met to judge the top eight fifth-year thesis presentations. In addition, they watched a presentation of the first place winning Team for the ASCE National Architectural Engineering Student Competition (reported on page 7). The Senior Thesis Award winners are listed below: PSPE/PEPP - Best Overall AE Senior Thesis – Rachel Sommer
Acuity Brands/Lithonia Lighting - 1st Place Lighting/Electrical Thesis in Memory of Mickey Woods – Jackie Eury
AE Seniors Garner Top Honors  

Continued

Barton Malow Co. - 1st Place Construction Senior Thesis –  
Rachel Sommer

Cagley & Assoc. - 1st Place Structural Thesis – Caroline Klatman

1st Place Mechanical Thesis - sponsored by William Glassmyer – Marissa Caldwell

Balfour Beatty - 2nd Place Construction Senior Thesis – Joseph Roush

Barton Assoc. - 2nd Place Mechanical Thesis – Courtney Millett

Barton Assoc. - 2nd Place Lighting/Electrical Thesis – Maggie Goldman

Hope Furrer and Assoc. - 2nd Place Structural Thesis – Nick Dastalfo

Southland Industries - Outstanding Senior Thesis in the Area of Specialty Construction – Brian Sanvido

Top 8 Senior Projects

Marissa Caldwell focused her senior thesis on the Carl R. Darnall Army Medical Center on the military base of Fort Hood in Texas. The main objective was to redesign the mechanical system in order to conserve energy while ensuring proper indoor air quality. After graduation, Marissa joined Southland Industries as an HVAC engineer in Dulles, VA.

Nick Dastalfo completed his thesis project on 8621 Georgia Avenue, which is a 17-story apartment building under construction in Silver Spring, MD. The upper 13 floors of apartments utilize a post-tensioned system and sit atop the first four floors of parking garage which consist of mild reinforced two way concrete with drop panels. He investigated the feasibility of constructing the apartment levels in composite steel. Further analysis was performed to reduce the foundation sizes and optimize the lateral system. Nick is working for Mulhern & Kulp in Ambler, PA.

Jackie Eury analyzed the Denver Crime Lab, a 60,000 sq. ft. building used for the investigation of criminal activities, for her senior thesis. Her main focus was the lighting redesign of four different spaces within the lab: a three-story lobby/atrium, the south plaza, a multipurpose room, and a laboratory. She implemented a photovoltaic array on the roof of the crime lab, which would produce 100 kilowatts for the building. Furthermore, she studied the financial and structural impact this addition would make on the project. Jackie is working full-time for Clark Nexsen in Virginia Beach, VA.

Caroline J. Klatman focused on the redesign of the lateral system of 181 Fremont, a 56-story high-rise located in San Francisco, CA, for her senior thesis. This included the sizing of a dual concrete shear wall and steel moment frame system to address high seismic forces, and the addition of steel truss outriggers to control story drift. Caroline joined Simpson Gumpertz and Heger in San Francisco, just a few blocks away from 181 Fremont.

Courtney Millett completed her senior thesis on the Morton Hospital Expansion Project, located in Taunton, MA. Her design focused on improving the existing mechanical system on the basis of energy consumption and life cycle cost. With these changes, she also evaluated the impact on other building systems. Following graduation, Courtney is working as an HVAC Engineer at Bard, Rao + Athanas Consulting Engineers in Boston, MA.

Joe Roush’s thesis focused on the Geisinger Medical Laboratory located in Danville, PA. The project is an approximately 160,000 square foot, four-story lab with a penthouse level. Upon its completion, the lab is predicted to be one of the most advanced of its kind on the entire East coast. One of his analyses looked at the potential impact of the introduction of interstitial floors into the building. Other analyses included Last Planner System, on-site prefabrication, and a reevaluation of the earth retention system for the project. He is working with Barton Malow in their Baltimore, MD office.

Rachel Sommer completed her senior thesis project on the 500,000 sq. ft. Plaza Building located in Southeastern United States, which included a three-story underground parking garage and five-story and eight-story apartment towers. She analyzed the potential impact of redesigning the wood stud structure with steel studs, implementing a new facade type, and utilizing third-party constructability review services. She also researched the impact of personality and project delivery methods within construction teams. Rachel is employed with DPR Construction in Newport Beach, CA.
Study Abroad — Postcards from China

During Summer 2015, AE Associate Professor Moses Ling is accompanying AE students for a seven-week China Study Abroad program. AE students, Brendan Barrett, Brianna Basile, Alexander Boots, Lauren Boyle, Megan Farrell, Joe Hacker, Lukas Hoffman, David Kinsley, Amy Pennebacker, Abbey Scanlon, Aaron Shapiro and Penn Whitlow are participating in the 12-credit program that includes architectural design, study of Chinese urbanization, and building project case studies offered jointly by the University of Hong Kong and the Tsinghua University Summer School for International Construction in Beijing. Most lectures involve site visits to different architectural buildings in China. In addition, the program includes the opportunity for students to visit Shanghai to meet with various U.S. firms and businesses involved in development projects.

Students from a number of universities in Asia, Australia and the United States regularly participate in this international/intercultural experience. The program offers a unique academic and cultural experience with a rich historical perspective on this beautiful country.

About the above photo, Ling said, "Most of those kids just happened to be visiting Tsinghua University from another location in China. As with many Chinese tourists they asked to have a picture with us!"
Students Take Annual Trip to Washington, DC

Third-year AE students enjoyed the annual trip to Washington, D.C. Mar. 20-23. Several companies hosted site visits for the group including: Clark Construction, James G. Davis Construction, AECOM, Southland Industries, SmithGroupJJR, and the U.S. Green Building Council. Students visited the World War II Memorial, Lincoln Memorial, Vietnam Memorial, among others. They also had the opportunity to attend services at the National Cathedral and tour the National Building Museum.

Penn State Race to Zero Team Wins Two Excellence Awards!

Penn State’s H4: Heritage Homes Team, composed of more than 25 architecture and engineering students, strongly impressed the judges of the 2015 US Department of Energy (DOE) Race to Zero Student Design Competition. Penn State won awards in two of the three excellence award categories: Design Excellence and Systems Integration Excellence. The competition was held April 18-20, 2015 at the National Renewable Energy Laboratory in Golden, CO.

Thirty-three teams from 27 schools across the United States and Canada competed in the 2015 competition. Student Team Leader, Kyle Macht (’09 B.A.E./M.A.E., a graduate student in Architecture) and Student Marketing Coordinator, Chauntel Duriez (fifth-year student pursuing an integrated Masters in Architecture) represented the Penn State team. Lisa Domenica Iulo, associate professor in architecture and a head competition faculty advisor, lauded Macht and Duriez’s winning presentation. “Their chemistry, professionalism, and how they engaged with their audience was amazing. Many of those watching shared the confidence that the Penn State team would be successful based on their presentation.”

“The competition was fantastic. We did really well, and many people – students, industry partners, and jurors – were really impressed with the project,” said Macht. “It was incredible to meet some of the best building scientists in the country and for them to be impressed with us. The entire competition was inspirational, giving me the motivation to make a difference in housing industry.”

Fellow head faculty adviser Scott Wing, associate professor in architecture, reinforced the interdisciplinary and extensive educational benefits of Penn State’s participation: “The Race to Zero competition provides an ideal challenge combining architectural design excellence with high performance building science expertise. Students from architecture and engineering worked closely with their peers to leverage the talents of both programs.” The competition challenged and inspired students to design an affordable, net zero energy home that meets DOE’s Zero Energy Ready Home guidelines. The design concept, “H4 | Heritage Homes: High Performance Living in Harmony with Community” was created in collaboration with the State College Community Land Trust (SCCLT) as the pilot project of their new GREEN-BUILD initiative. The SCCLT urged the team to not only consider the competition’s mandates but also to design an owner-occupied, net zero energy duplex home that will be constructed within close proximity to Penn State’s University Park campus in State College Borough on University Drive. Wing noted, “The SCCLT challenged students to consider affordability both in initial construction costs and long term energy costs.”

The resulting design was a two-story, 3 bedroom, 2 bath, 1,440 ft² per living unit net zero energy duplex that integrates with the surrounding landscape and neighborhood. The home incorporates Visitability features, such as a bedroom and full bathroom on the first floor, and its floor plan is adaptable for both young families and empty nesters. It also features solar photovoltaic systems that produce 100% of each home’s energy onsite, significantly reducing the resident’s annual utility bills.

The team worked closely with the SCCLT throughout the design process through design charrettes and visual preference surveys. “I was extremely impressed with the knowledge the students brought to the discussion,” said SCCLT Board Member Ron Filippelli. “They were well informed and very professional.”

Additionally the team engaged with more than 14 industry mentors to receive real world insight on buildability, cost estimates, HVAC design, solar photovoltaic system design, and marketability. “I applaud all of [the] students for taking the initiative to pursue designs that are both high-performance and affordable by developing thoughtful solutions that account for not only the aesthetic value of homes, but the energy efficiency and cost effectiveness of the materials and construction methods, as well,” stated industry mentor Chad Owens, owner of Timber Rock Homes of Bellefonte, PA. “I have been equally impressed by the [construction] documents produced thus far.”

As proud as the team is of their competition success, the hard work is still in progress. Students in the ARCH 497 Net Zero Housing class (a sub-group of 17 students of the competition team) will present four design options to the SCCLT to evaluate and make final selections. Cost estimates, fundraising, and selection of a builder will follow. The team and their stakeholders anticipate this story, as well as actual construction, to develop over the next few years.

It is the H4 Team and the SCCLT’s hope that this project will be a model for the development of future affordable, sustainable housing in the State College Borough and the Centre County Region. “It’s already a success story which will only get better as we move ahead,” stated SCCLT Vice President Susan Venegoni.

The competition team was supported in great part by the Pennsylvania Housing Research Center. Ongoing coordination with the SCCLT as the project moves to the next stage of development will continue to be supported by the Hamer Center for Community Design’s design-build arm, the Energy Efficient Housing Research Group.
First Place Win at the International Builders Show

The Penn State Student Chapter of the National Association of Home Builders (NAHB) took first place in the Student Chapters’ Residential Construction Management Competition (RCMC), held during the NAHB International Builders Show Jan. 20-22 in Las Vegas.

A total of 34 four-year schools participated in the competition, which gives students the opportunity to apply skills learned in the classroom to a real construction company by completing a management project/proposal.

This year’s project consisted of a 40.7 acre site in Lebanon, TN. Named Hamilton Centre, the site was designed as a Transit Oriented Development and involved the design of four home types and nine floor plans.

"Penn State’s proposal included a total of 692 units including mixed use and commercial spaces. The combination of high density development [24.64 units per acre] and mixed product types allowed Penn State’s team to market their development to a wide variety of buyers," said Chris Guyan, a senior in civil engineering.

The team included Naci Al, senior in civil engineering; Stephanie Archer, senior in finance; Emma Dickson, sophomore in finance and economics; Paige Donnell, a fourth-year architectural engineering student; Alec Galanti, senior in finance and economics; Jillian Grzywacz, senior in risk management; Guyan; and Victoria Riedinger, a fourth-year architectural engineering student.

"I credit the NAHB Residential Construction Management Competition as being one of the best parts of my Penn State experience," said Guyan. "It has expanded on what I have learned in the classroom through a challenging, real world project. I have learned many valuable skills that will benefit me in my career, including collaboration and management."

They were advised by several members of the Pennsylvania Housing Research Center staff, including Katie Blansett, Bryan Heitzmann, Chris Hine and Brian Wolfgang, as well as Tom Skibinski, instructor in civil engineering.

Penn State was recognized at the NAHB Student Chapters Award Ceremony on Jan 21. The team received a traveling trophy, a $1,000 check and digital scales from Calculated Industries.

ASHRAE Scholarships

Congratulations to Penn State AE mechanical option students Victoria Brinemugha and Andrew Brouwers, who have been awarded ASHRAE undergraduate scholarships for 2015-2016. Andrew will receive the Region III Boggarm Setty Scholarship, a one-year $3,000 scholarship available annually to an undergraduate pre-engineering or engineering student enrolled full time in a post-secondary educational institution within the geographic boundaries of ASHRAE Region III (Delaware, Maryland, Pennsylvania, Virginia, Washington, DC).

Victoria is the recipient of the David C.J. Peters Scholarship, a one-year $5,000 scholarship available annually to a qualified undergraduate architectural engineering or mechanical engineering student enrolled full-time in a four- or five-year bachelor degree program.

The scholarship was created by Southland Industries in honor of David Peters, a tireless advocate of recruiting quality and ASHRAE member.

Jesberger Receives Thornton Tomassetti Scholarship

Adam Jesberger was selected to receive a $10,000 Thornton Tomassetti Foundation National 2015-16 Scholarship for his exceptional academic success and demonstrated interest in the integration of engineering and architecture.

Since 2008, the Thornton Tomasetti Foundation has funded more than $630,000 in grants and fellowships, scholarships, and internships for undergraduate students, and those planning to pursue graduate studies in building engineering, design, or technology.

Student Design Challenge

Four fourth-year mechanical and lighting/electrical students Doris Ho, Drew Friday, Drew Nicholas, and Rosemary Hwang participated in the Student Design Challenge hosted by the AIA Academy of Architecture for Health and the American Society for Healthcare Engineering. The competition was held in San Antonio, TX on Mar. 12-14. Prof. Moses Ling served as faculty adviser.

Each AE student participated in a mixed group with two architecture students from Clemson University and Texas A&M, and a construction management student from Purdue University for the 48-hour design challenge. Faculty members from the four schools served as coaches to the teams. Again, our AE students let their Penn State AE heritage shine.
Your support is makes a difference!

We are extremely grateful for the outstanding support that we regularly receive from our alumni and friends. We acknowledge the below gifts made between Jan. and Dec. 2014. If your name has been inadvertently left out, please notify us and we will rectify it.

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