The Construction of the United States Air Force Memorial

Details on page 8
Alumni Corner

K. Scott Sine '91, I manage the technical team of design builders for H. T. Lyons. I have had the opportunity to bring "Green" Leed Gold Design to the Lehigh Valley with the PPL Plaza Project (2001-2). I've been recognized as a "DaVinci" of the community and integrate the best of high tech designs in a large mechanical contracting firm. Lynne (Zimmerman) Deutschbauer '99, Adam and I are overjoyed to announce the arrival of our son, Luke David, born May 6, 2006. I am halfway to earning my California S.E. license, having passed the National Exam in April. I will sit for the California portion in October and return to Forell/Elesser designing earthquake-resistant green building.

Jeff Caldwell '96, '97g, has been made an Associate Principal and stockholder in the James Posey Associates, Inc. Consulting Engineers firm. Jeff has managed the Frederick Douglass-Isaac Myers Maritime Park at Living Classrooms Foundation, Brooks Hall renovation at West Virginia University, Carey Hall renovation at Gilman School, and the Fairfax County Public Safety Operation and Transportation Center. Gary Ehrlich '90, has had a busy year. This year he started an acoustical consulting firm, Hush Acoustics LLC in Falls Church, VA and he and his wife Michele LeTourneur are excitedly preparing for the birth of their first child in February '07.

Peter A. Humphrey, P. E. '91, has joined Schoor DePalma Inc., a national engineering and consulting firm, as a Senior Project Manager of the Structural Department, in the Columbia, Maryland office. Scott Auker '88, After PSU, I worked in the Washington, DC area (with OMNI Construction, Clark Capital, and JPI) until 1999, and completed my MBA at the American University. I then moved to South Florida and started Auker Developments, Inc., a multi-family real estate development company. We are currently finishing sales and construction for a 200 unit, 16 story condominium building in Coral Gables, Florida (outside of Miami), as well as numerous other projects throughout Florida. Would love to hear from all my old friends, so feel free to e-mail me at SDAuker@aol.com! Channing Strom '94, I worked with Clark Construction, and Penn State AE Daniel Patete '96, on the $30 Million stone and block work for the National Museum of the American Indian, on the mall in DC, which was completed in the fall of 2004. I am currently working on several institutional projects in Florida. My wife & I just purchased my home farm in Guelph and are running an agri-tourism business. Check it out at www.strom.ca.

Wade Conlan '95, The Conlan family has grown again this year with the addition of Gretchen Louise in July 2006. Her older brother, Padraic Ford - born December 2004, is coming to grips with the fact that she isn't just visiting. Willa and Wade recently moved to a "family" neighborhood in Winter Garden, FL (about 25 minutes from Orlando). Wade was made Shareholder in July of 2006 at GRG, Inc. where he has accepted a position as Director of Engineering for Science & Technology. George Huang '97, I just moved to Las Vegas about a year ago and now working for Paul Steelman Design Group, an Architecture, Interior Design, Lighting Design, and Graphic Design company, designing mostly major Hotel Casino Resorts. We’re working on several multi-billion dollar projects right now in Las Vegas and have multiple projects nationwide and worldwide in Macau (China), Atlantic City, Reno, California, Vietnam, London, etc. These are very exciting times and the opportunities are endless! I hope to bring in some PSU AE graduates to join our team. I am also married now and have a 15 month old daughter named Olivia. She’s a cutie but very nosy and loves to get into everything! It doesn’t help now that she’s very mobile and we have to chase after her. Paula P. Gillette, ’79, As of May this year, I have re-joined Ellerbe Becket. James Yin, ’97, I am involved with the single largest construction project by the City of Los Angeles, the Los Angeles International Airport/Tom Bradley International Terminal upgrades. The project costs $503 Million and will last for 38 months. This complex project requires us to perform the work in phases so that the 34 airlines that operate out of the Bradley terminal can continue flying their 10 million customers throughout the construction process. The terminal upgrade will be the first major construction in LAX Concourses since the double-deck roadway and the Bradley building were built for the 1984 Olympics. The project is necessary, since it will help LAX compete against modern airports for the lucrative international service. I would like to say HI to all my AE friends and when you are in the L.A. area, drop by for a job visit.

Valerie Gillespie, ’85, Valerie is the owner and chief engineer at Gillespie Engineering. Gillespie Engineering has moved from Point Pleasant to Brielle New Jersey. The office is located in the business center of Brielle which is only 5 blocks from my house. The move has fulfilled both business & personal goals to provide engineering services to small businesses, architects, and home owners. With most engineering firms focused on large corporations for projects, the small business and residential market has been mostly ignored. Recognizing this need has made it possible to increase our billings 227% from last year. The work environment and lifestyle here is a great alternative to the "corporate" engineering machine. Been there, done that, started my own.

Have a message you want to share Fill out and send the form on page 15, or complete the Alumni Update Form on-line at the AE website at www.engr.psu.edu/ae/contact/Alumni-Update-Form.asp.
Kevin Sommons, '88, is a Principal in the firm of KSI Professional Engineers. KSI was established seven years ago, when, with the help and encouragement of Pam, his wife of 20 years, Kevin decided to embark on the crazy notion of running his own firm. Now, seven years later, KSI has grown to a staff of 13 and offer both structural and MEP service. Bennie Kovach, '02, is a Preconstruction Manager with Centex construction in Fairfax, VA. Daniel Packer, '03, is with Tishman Construction, in Las Vegas, NV. Christopher H. Raebel, '00g, is an Assistant Professor in the Department of Architectural Engineering at the Milwaukee School of Engineering in Milwaukee, WI. Mark Tome, '01, is a Mechanical Engineer with Barton Associates in York, PA. Randi Sidik, '99, is an Energy Group Estimator with the M. A. Mortenson Company in Plymouth, MN. Scott Walthour, '00, is an Associate Engineer with Arium AE in Columbia, MD. His job includes managing the Engineering Department and working as a Mechanical Engineer (HVAC & Plumbing). John F Almquist Jr., '00, passed the LEED-AP exam in November and has since joined Grunley Construction, working on the Eisenhower Executive Office Building (EEOB) upgrades and historical renovations in Washington, DC. John recently worked for Turner Construction on the Freedom Forum Newseum in Washington DC, and the Howard Hughes Medical Institute (HHMI) campus in Ashburn, VA. John is also engaged to An Truong, a 2002 graduate of Gettysburg College.

with a Masters from American University, and Teach for America graduate. The wedding will be held at the Zion Lutheran Church in Harrisburg, Pennsylvania. Robert Fedulk, '74, I've been with the Carrier Corporation in Syracuse, N.Y., since 1978. My current position is a Software Systems Manager in which I do software training for HVAC System Analysis. Ari Tinkoff, '95, his wife and son Jacob, welcomed a new member to their family on November 14, 2006. Noah John Tinkoff was born weighing in at 8 lbs, 7 oz and 19" long. Jacob is so excited to be a big brother. Mary Jo (Wozniak) Szczublewski, '00, and her husband Joe, welcomed their first child, Lucas Joseph, on July 24, 2006. Robert Bolin, '94, has accepted a position with the Syska Hennessy Group in Chicago. He will be assisting in the opening of a new office. Prior to beginning this new position in April, he and his wife, Jackie, will enjoy a few months of travel, primarily through India. David Dale Eckman, '99, is employed as a Project Manager by R. A. Nelson & Associates of Telluride, Colorado. He is also a board member of the Town of Mountain Village Design Review Board (planning commission). Todd Garing, '93, has been promoted to Vice President at Mueller Associates, a consulting firm in Baltimore, Maryland. An engineer and project manager with Mueller since 1993, Todd has overseen many of their most prominent and challenging projects, including the Towson University Center for the Arts, University of Delaware Performing Arts Center, renovation of the Eisenhower Theater at the Kennedy Center, the new Monticello Visitors Center, and the renovation and expansion of the Enoch Pratt Free Library. Jason Decheck, '97, has settled into a position as an electrical engineer with MEP Consultant in Pittsburgh. With three boys under the age of six and a new home, Jason and his wife Denise are kept pretty busy! Michael Cassidy, '02g, Associate with J.P. Morgan in New York, NY. I work on a fixed income trading floor structuring leveraged debt transactions. Many banks in New York are actively seeking individuals with quantitative, engineering backgrounds. Henry W. Hudson IV, '80, has been promoted to Chief Operating Officer at Bala Consulting Engineers, Inc. He has been with Bala for 10 years, and a partner in the firm for the past 7 years. Channing Strom, '94, project manager with G-A Masonry Corp. in Ontario, Canada. My wife, Amy (Goetz) Strom (HHD '92) and I, with our two sons Lucas & Evan also run our 65 acre sweetcorn and pumpkin farm. Our agritourism includes a corn maze and bakery at www.strom.ca. Billy Hodges, '95 and wife Denise, have a new daughter, Lillian Bea born on March 25th, (8 lbs. 11 oz. 21 in.) She joins her siblings Grace, Rose and Nathaniel.
Faculty Honors

Dr. Stanley Mumma was an invited ASHRAE Distinguished Lecturer in Memphis and Boston this fall, and will speak in Davenport, Grand Rapids, New Jersey, Hong Kong, Thailand and Singapore over the next few months. He has lectured on Dedicated Outdoor Air Systems and Chilled Ceilings, Floors, and Beams.

Dr. William Bahnfleth has been selected to serve as a committee member for the Committee on Protecting Occupants of DOD Buildings from Chemical or Biological Release. The National Academies will provide advice to the Defense Threat Reduction Agency (DTRA) to assist it in its capacity to plan, design, construct, and operate future chemical and biological resistant facilities for the Department of Defense.

Dr. Andres Lepage has been elected a Fellow of Institute in recognition of his contributions to the work of the American Concrete Institute (ACI). The American Concrete Institute is a technical and educational society dedicated to improving the design, construction, manufacture and maintenance of concrete structures. With 20,000 members worldwide, the ACI acts as a conduit for sharing innovative ideas and promoting superior concrete technology. An ACI member for more than 20 years, Lepage is a member of ACI Committees 318-H, Seismic Provisions; 335, Composite and Hybrid Structures; 369, Seismic Repair and Rehabilitation; 374, Performance-Based Seismic Design; and 375, Performance-Based Wind Design. He also served on ITG-4, High-Strength Concrete for Seismic Applications. His research interests include the design of concrete, steel, and hybrid structural systems subjected to extreme events.

Turner Construction Company: First Named PI Program Instructor

At a luncheon held at the Nittany Lion Inn on November 13, 2007, Turner Construction Company was recognized for their support of the Architectural Engineering Practitioner Instructor Program. Turner’s pledge of $300,000 will allow the first Named PI Program Instructor to be established.

Visitors from Japan

On November 30, 2006 a group of Japanese professionals representing several glass manufacturers visited the department to learn about the AE research programs related to curtain walls. Mr. Tetsuo Terayama (Asahi Glass), Mr. Jun Saito (Nippon Sheet Glass), Mr. Masaaki Khamiya (Central Glass), and Dr. Hajime Moroo (Flat Glass Manufacturers Association of Japan) accompanied by Mr. Shinji Kawahara (Marketing Development Manager, Solutia, Inc.) and Ms. Nanette Lockwood (Director, Legislative Affairs, Solutia, Inc.) toured the Building Envelope Research Laboratory. Dr. Richard Behr, Dr. Ali Memari, and Mr. Paul Kremer hosted the visitors and explained several of the completed and on-going research projects. The Japanese visitors were interested to learn about advancements in seismic resistant design of architectural glass curtain walls.

Department News

Dr. Thomas Boothby’s entry to the Art Alliance of Central Pennsylvania 2006 annual juried show, entitled Katie Standing, won the Best Figurative award for the show. The work was on display at the Art Alliance’s studio in Lemont, PA from August 25 through September 3.

Dr. Andres Lepage has been elected a Fellow of Institute in recognition of his contributions to the work of the American Concrete Institute (ACI). The American Concrete Institute is a technical and educational society dedicated to improving the design, construction, manufacture and maintenance of concrete structures. With 20,000 members worldwide, the ACI acts as a conduit for sharing innovative ideas and promoting superior concrete technology. An ACI member for more than 20 years, Lepage is a member of ACI Committees 318-H, Seismic Provisions; 335, Composite and Hybrid Structures; 369, Seismic Repair and Rehabilitation; 374, Performance-Based Seismic Design; and 375, Performance-Based Wind Design. He also served on ITG-4, High-Strength Concrete for Seismic Applications. His research interests include the design of concrete, steel, and hybrid structural systems subjected to extreme events.

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Hankin Distinguished Lecture Series

The Hankin Distinguished Lecture Series invites world-class speakers to the Penn State to address students and faculty. On November 14, 2006, Professor Peer Haller, from TU Dresden, Germany, the first guest lecturer in the Hankin Distinguished Lecture Series, presented a lecture on the “Advancement in wood construction – Examples from practice and research”. The lecture was well attended by faculty, students, and staff.

Professor Haller is a Director of the Institute for Timber Structures of TU Dresden, recipient of the 2005 Sachsishe Hosz-bau Preis – which is awarded to the best design of the year, and the 2005 European Innovation Preis. He has studied and worked in Germany, France, Japan, and Switzerland.

Additional information on the AE Practitioner Instructor Campaign can be found on our website at: http://www.engr.psu.edu/ae/pi/index.asp.
Longtime Faculty Member Retires

After 23 years of dedicated service to Penn State and the Department of Architectural Engineering, Dr. Stanley A. Mumma announced his retirement, effective January 1, 2007. Dr. Mumma has served as a faculty member in the Department of Architectural Engineering since 1984.

Dr. Mumma was a 1966 B.S.M.E. graduate of the University of Cincinnati, and earned his M.S.M.E., in 1971 and his Ph.D. in Mechanical Engineering in 1974 from the University of Illinois. Prior to joining Penn State, Dr. Mumma was a project engineer with General Motors and a faculty member with both the Ohio State and Arizona State Universities. During the first half of his academic career, his research focused primarily on solar and alternate energies, but during the second half of his career, his interest changed to innovative ways of meeting the American Society for Heating Refrigerating and Air-conditioning Engineers (ASHRAE) Std. 62 in an energy efficient fashion. That work has led him to a strong interest in dedicated outdoor air systems (DOAS). During his long and illustrious career he has published numerous papers and peer reviewed publications, and has won the ASHRAE Best Paper Award, twice.

Over the past 40 years, Dr. Mumma has received numerous honors and awards including ASHRAE’S: E. K. Campbell Award of Merit in recognition of outstanding service and achievement in teaching, the Willis H. Carrier Award for the best technical paper, the Distinguished Service Award, the Advancement to Fellow, and being named a Distinguished Lecturer, in 2002, 2005, and again in 2006.

Please join us in thanking Dr. Mumma for the wonderful contributions he has made to the Architectural Engineering Department and in wishing him a long and healthy retirement.

Return to Santa Maria Novella

After a four-year absence, a team of researchers from Penn State University returned to the Dominican church of Santa Maria Novella, in Florence Italy. As reported in earlier issues, Professors Tom Boothby and Elizabeth Smith (Art History) have joined together in a study that is based on Dr. Smith’s finding that the gothic churches of northern Italy display a structural system that can be distinguished from that of the northern gothic. Since their earlier visits in 1998 and 2002, Professors Boothby and Smith have continued to collaborate on the study of this key monument of Italian gothic design. However, administrative issues have prevented their return to the building itself until last summer.

Following an initial documentation visit in April-May 2002, the structure was visited in July 2006 by a team consisting of Dr. Boothby, doctoral student Sezer Atamturktur, and six faculty, researchers and students from Politecnico di Milano. A return visit was completed in September 2006.

The nave of Santa Maria Novella was constructed between 1279 and 1355, with most of the activity taking place before 1325. The building represents a fusion of elements of Cistercian Architecture, French Gothic, and earlier Italian exemplars into a novel and widely copied construction system. The nave is vaulted with ribbed quadripartite domical vaults, and supported by internal buttressing over high aisles.

Preliminary findings include the detailed development of a structural model of two bays of the church, validated by comparison of measured vibration characteristics to observed vibration characteristics of the structure. Detailed analysis of the construction, and patterns of cracking and damage, coupled with structural and historical analysis of the construction of the nave show the sequence of construction from the crossing to the facade of the church, and reveal some of the decisions and modifications made by the builders during construction. Future work will describe how the structural model of the two bays of the church was transferred to the construction of the nave of Santa Maria del Fiore, the Cathedral of Florence, which was executed later in the fourteenth century.

The project is supported by a grant from the Kress Foundation European Preservation Program, administered by the World Monuments Fund®.
Members of the Department of Energy’s Solar Decathlon team have returned from winter break refreshed and ready to go! We have been working closely with consultants like our own AE Alums Brennan Glantz, '97 of Bosak Construction and Mike Miller, '96 of Southland Industries to fine tune the engineering systems. Teams are building mock ups, and actual construction will begin in February at the CATO Park lab on West College Avenue. Construction should be in full swing by April and May.

In January, before classes started, ten representatives from the team had the opportunity to meet the other Decathlon teams and attend information sessions with the Decathlon Officials in Washington D.C.. The competition was INTENSE. Half of the teams have competed in the event in previous years. Germany’s team announced its $350,000 endowment from Bosch. Unfortunately, the Penn State team has only raised one third of our $300,000 goal. Please become a sponsor today to help us reach our goal and win the Solar Decathlon!

AE graduate students Sally Gimbert and Steve Grossenbacher visit the Muris Factory in Mansfield, PA to iron out details of the structural Insulated Panels the will be used in Penn State’s Solar Decathlon home. Over 90% of the home’s components will come from Pennsylvania.

Our team still needs to raise over $200,000 to compete. Please help us. Sponsor information is available at www.solar.psu.edu

The 2005 Decathlon attracted thousands of visitors. Please plan a trip to visit the Penn State Morning Star Home in October 2007. Visitors can also vote for a “People’s Choice” award given at the event (hint hint!!)

October. AE grad student Andreas Phelps is passionate about the project: "Penn State’s involvement in the 2007 Solar Decathlon has offered us a great opportunity to focus many diverse interests in sustainability that can help bring Penn State to the forefront of sustainability research and outreach."

Sponsored by the U.S. Department of Energy, the Solar Decathlon challenges collegiate student teams to design, build and operate a solar powered home on the National Mall in Washington D.C. Homes are judged in ten different Decathlon contests to promote efficient and affordable renewable technologies. Penn State’s entry, the Morning-Star Pennsylvania, will feature green design and high-performance renewable energy systems, including:

- A combination of affordable energy saving strategies and solar-electric power systems.
- Regionally sourced materials and services that help create jobs and promote local economic growth.
- A hydrogen fuel cell car that plugs into the home...no more trips to the gas station!
- Web-based controls providing feedback to occupants to help them make informed money-saving choices about energy and water use.

For those of you unfamiliar the Decathlon, Dr. David Riley of the AE Department is spearheading a university-wide effort to advance renewable energy at Penn State through participation in the Decathlon. A large team of faculty from many disciplines is supporting a diverse team of Penn State students to compete in the 2007 event next...
THANK YOU TO OUR SPONSORS (as of 1/21/07)


TEAM: Bard, Rao + Athanas Consulting Engineers, LLC, Pennsylvania Manufactured Housing Association, SSOE, Inc.

SUNRISE: Clark-Nexsen Architecture & Engineering.


The team will also build an affordable version of the home in Montana this summer on the Northern Cheyenne Reservation. Working with the American Indian Housing Initiative, also led by Prof. Riley, students and advisors will travel west in June to test the affordability and transferability of the MorningStar concept to another geographic region of the world. The Montana version will serve as a demonstration home, and a residence for visiting faculty on the campus of Chief Dull Knife College. As always, AIHI invited alumni and volunteers to join the construction this summer. For more information on this project, please visit www.engr.psu.edu/greenbuild.

Please join us in our first Solar Decathlon experience. Visit www.solar.psu.edu to stay informed and learn more about how to become a sponsor.
By Bevan Mace, Centex Construction, LLC

On Sept. 15, 2004, the Air Force Memorial Foundation held a groundbreaking ceremony on a three-acre site at the Naval Annex overlooking the Pentagon in Arlington, VA, for the long anticipated Air Force Memorial. Centex Construction, LLC, was awarded the contract to provide pre-construction and construction services on the $30 million project. Centex, represented by their Washington, DC, division, was selected over five other firms competing for the project. Bevan Mace, ’97, ’01g, project manager and Kevin Engel, ’07, project engineer with Centex, along with fellow Penn State alumnus Mike Phillips (civil engineering), vice president of operations, and Bhavin Patel, current CE undergraduate student on internship, were proud to be part of this exciting and historic construction project.

Designed by James Ingo Freed, an internationally recognized architect of Pei Cobb Freed and Partners in New York, the design includes three stainless steel spires that stretch skyward in graceful arches symbolizing flight, as well as the precision “bomb burst” maneuver performed by the United States Air Force Thunderbird Demonstration Team. The three spires also represent the three core values of the Air Force - integrity first, service before self, and excellence in all that is done.

The memorial also features an Absolute Black granite paved parade ground featuring an 8-foot tall bronze sculpture and a 9 ft by 10 ft illuminated glass contemplation Wall. The sculpture depicts a four-person honor guard that was created by the distinguished sculptor, Zenos Frudakis. The glass Contemplation Wall was constructed by laminating five layers of ½ in. Starphire glass, which were then carved to depict planes flying in the “missing man formation,” a final tribute paid to fallen airmen. The parade ground is flanked by two granite inscription walls which are each approximately 11 ft high and 60 ft long which were constructed using a 12 in. thick JetMist granite monolithic support wall faced with 2-½in. thick absolute Black granite panels. The JetMist granite was quarried in nearby Culpepper, VA. The Absolute Black was from Italy. A stone seating area, entrance gate, guard house, and a stone-clad service building are also included the memorial site.

Bevan Mace (shown right climbing at the 200 ft level of one of the spires) discussed some of the unique engineering challenges that were associated with the construction of the arched spire structure. Each spire is constructed of triangular arched sections fabricated with ¾ inch-thick plate stainless steel skin with a bead blast finish. The three spires extend vertically to 270 ft, 231 ft and 201 ft, respectively. The spire structure is supported by a system of concrete foundations that include concrete caissons, concrete pile caps and concrete grade beams. The caissons are three feet in diameter with a six-foot belled base. The pile caps are approximately 23 feet wide and eight feet deep and range in length from 32 feet to 56 feet. The pile caps are connected by a continuous triangular grade beam, approximately eight feet wide by 16 feet deep and with a perimeter of about 300 feet. The spires are connected to the concrete foundations with a 2.5 in. base plate, anchored by 1.25 in. post-tensioned reinforcing steel bars (above). Once the base section (about 40 ft tall) of each spire was set, two layers of #11 reinforcing at 6 in. o/c was installed on each face and the section was poured with 12,000 psi concrete. In total, fifteen sections, from 40 ft to 75 ft in length, were erected to construct the spires; the heaviest section weighed about 110,000 pounds. The total weight of the spires, including stainless steel, reinforcing steel and concrete, is approximately 7,300 tons (5,000 tons below ground, 2,300 tons above ground). The spires were installed with the use of a 300-ton Manitowoc “ringer” crane (left).
Mace reported that the single biggest challenge on this project was the welding, polishing and finishing of each spire section. Each section was made using individual flat plates that were milled, polished, cut and then rolled before it got to the fabricator’s shop. The fabricator constructed temporary falsework (same length and size of each spire) to support each face of the section while it was being welded together. The fabricator had to experiment with various variables (e.g., wire type, size, shielding gas) when welding the faces together to make not only a sound structural weld, but also one that minimized distortion. All welds had to pass radiographic examination. Once a section had completely passed, then the fabricator used custom tools to grind and polish the weld prior to finishing. All of this detail work had to be performed high above the ground often in a windy environment (see photos above and below).

Wind resistance was a significant challenge in the design of the tall spires. Initial wind-tunnel tests conducted on scale models of the spires verified that they were susceptible to structural failure due to wind conditions that could cause resonance, or “galloping”. To mitigate such sway, the structural engineering team used a series of sway control mechanisms within each spire. Each mechanism consists of an octagonal stainless steel box lined with a synthetic dampening material (Sorbothane) and houses a 20 in. dia., 2,000-pound lead ball. When the spires begin to sway, the free-rolling lead balls hit the dampening material on the sides of the box, which absorb the energy and help to reduce the swaying effect. Arup’s Advanced Technology Group in the United Kingdom developed this custom system and has fine-tuned the precise dimensions and position of each of the boxes within all three spires to ensure that an appropriate level of damping is achieved. One damper box was tested in Buffalo, NY prior to erection. Following construction each spire was tested to verify performance of the dampening system.

The United States Air Force Memorial was officially dedicated by President George W. Bush at an onsite ceremony on Saturday, Oct. 14, 2006. The event was open to the public and was attended by numerous military top brass, as well as several thousand spectators.

During his dedication speech, President Bush said, “Building this memorial took a lot of talent and creativity and determination. Like the aircraft whose flight it represents, this memorial is an incredible feat of engineering. Like the country whose freedom it represents, this memorial is hopeful and optimistic. By its design, this monument raises our eyes toward the vast and open skies, and focuses our mind on the endless possibilities of human flight.”

The memorial honors the millions of patriotic men and women who have distinguished themselves in the United States Air Force and its predecessor organizations, including the Aeronautical Division of the U.S. Signal Corps; the Aviation Section of the U.S. Signal Corps; the Division of Military Aeronautics, Secretary of War; the Army Air Service; the Army Air Corps; and the Army Air Forces.

Mace said, “Everyone involved on this project was very proud to be a part of its construction because of the impact it has on a large number of people traveling into Washington, DC, – either from the air, from across the Potomac, or on the memorial grounds itself. Normally, when we turn over a project to the owner they move in and go to work; on this project it was very different and gratifying to see all sorts of people, including kids, walking around and experiencing the memorial in their own way.”
On Nov. 14, 2006, the Architectural Engineering Career Fair was held at Rec Hall on campus. Once again, it created a day of upbeat excitement and energy as companies sought to secure qualified students for full-time and summer jobs.

It was a highly successful event. We had an unprecedented year with 142 companies attending the fair, 34 of which were Corporate Partners. Well over 600 students, ranging from freshmen to graduate students attended. As in previous years, we were pleased to welcome students from North Carolina A&T State University and Penn State Worthington Scranton.

The Career Fair Social was held in the beautiful Hintz Family Alumni Center on campus and was well attended. The Social gave companies and AE seniors an opportunity to mingle in an informal setting.

It is always great to see the seniors and underclassmen become excited as the day of the career fair draws near. For many students, the AE Career Fair is the primary source for meeting and securing interviews with top firms in the AE industry. And for many companies, the AE Career Fair provides the opportunity to meet some of the best prepared engineering students. We look forward to continuing this relationship in the years to come.

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If you would like to be added to the 2007 Career Fair mailing list, please email Lori Smith at LoriSmith@psu.edu.
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Karpinski Engineering, Cleveland, OH
Kimball, L. Robert & Associates, Inc., Ebensburg, PA
Klepper, Hahn & Hyatt, Syracuse, NY
KPFF Consulting Engineers, Seattle, WA
Larson Design Group, Inc., Williamsport, PA
Lehigh Valley Engineering, Bethlehem, PA
Lutron Electronics Co., Coopersburg, PA
McClure Company, Harrisburg, PA
McDonough Bolyard Peck, Inc., Columbia, MD
McKamish, Inc., Pittsburgh, PA
Notkin Mechanical Engineers, Seattle, WA
Nutec Group, York, PA
Poole Anderson Construction, State College, PA
Posey, James Associates, Inc., Baltimore, MD
Reynolds Construction Management, Inc., Harrisburg, PA
Schlenger/Pitz & Associates, Inc, Timonium, MD
Southland Industries, Sterling, VA
Structural Design Group, Ltd., Gaithersburg, MD
Structural Repair Group, LLC, Gaithersburg, MD
Trammell Crow Company, Bethesda, MD
Truland Systems Corporation, Reston, VA
U.S. General Services Administration, Philadelphia, PA
Wiss Janney Elstner Associates, Inc., Fairfax, VA

General (cont.)

Clark Nexsen, Norfolk, VA
Clark Realty Builders, Herndon, VA
Cline Bettridge Bertstein Lighting Design, New York, NY
Cornerstone Consulting Engineers & Architectural, Inc., Bethlehem, PA
EDiS Company, Wilmington, DE
Elliptipar, West Haven, CT
Exponent, Menlo Park, CA
Fabcon, Savage, MN
Facchina-McGaughan, Bethesda, MD
Facility Engineering Associates, P.C., Fairfax, VA
Fisher Marantz Stone, New York, NY
Gillespie Engineering Inc., Point Pleasant Beach, NJ
Greenman-Pedersen, Inc., Scranton, PA
Grenald Waldron Associates, Narberth, PA
Hayes, Seay, Mattern & Mattern, Roanoke, VA
Hess Construction Company, Gaithersburg, MD
HGA Architects and Engineers, Minneapolis, MN
High Concrete Group, Denver, PA
HKS, Inc., Dallas, TX
HLB Lighting Design, New York, NY
Hunt Engineers, Architects & Land Surveyors, PC, Horseheads, NY
Integrated Design Associates, Inc., Santa Clara, CA
Johnson, Mirmiran & Thompson (JMT), Sparks, MD
JPI, Atlanta, GA
John J. Kirlin, Inc., Rockwell, MD
KLG, LLC, Atlanta, GA
Kling, Philadelphia, PA
KTA Group, Inc., Herndon, VA
The Lighting Practice, Inc., Philadelphia, PA
Linton Engineering, LLC, Vienna, VA
Newcomb & Boyd, Atlanta, GA
Nitterhouse Concrete Products, Inc., Chambersburg, PA
NVR, Inc. Architectural Services, Frederick, MD
Pivotal Lighting Design / AEI, Seattle, WA
Pulte Homes, Trevose, PA
Rathgeber/Goss Associates, Rockville, MD
George Sexton Associates, Washington, DC
Simpson Gumpertz & Heger, Inc., Waltham, MA
Skidmore Owings and Merrill, LLP, Chicago, IL
SK&A Structural Engineers, PLLC, Washington, DC
Structural Group, Inc., Hanover, MD
STV, Inc., Douglassville, PA
Toll Brothers, Inc., Horsham, PA
URS Corporation, Hunt Valley, MD
Warfel Construction Company, Lancaster, PA

General

AKF Engineers, Philadelphia, PA
AMA Consulting Engineers, P.C., New York, NY
Atlantic Engineering Services, Pittsburgh, PA
Baker, Ingram & Associates, Lancaster, PA
Michael Baker Engineering, Moon Township, PA
Benchmark Construction Co., Inc., Brownstown, PA
Burt Hill, Butler, PA
Cannon Design, Grand Island, NY
Clark Construction, Bethesda, MD

Thank You!
4th Year Chicago Trip

4th Year AE Students and Professor Pier Bandini (Architecture Department) pose for a group photo in front of Chicago’s new Trump Tower project. This tour took place on November 1-3 as part of Architecture 443. During this visit to Chicago, the students toured both modern and historic examples of Chicago architecture as well as visited several professional offices.

DBIA Student Group Wins ASC Competition

A group of AE students won the Associated Schools of Construction (ASC) Region 1 Competition that was held Nov. 10-12 in Fairfield, NJ. Competing against nine other schools including, Roger Williams University, Old Dominion University, and Temple University. Penn State ranked second in the technical proposal and first in the presentation. Team members included: Travis Smith, Sean Flynn, Devin Learn, Brandon McKee and Kyle Conrad. Dr. Michael Horman was the faculty advisor of this winning team.

Student Awards

Michelle Benoit, an AE undergraduate student, was selected as the recipient of the 2006-2007 Richard Harding Scholarship. Congratulations Michelle!

D.J. DeMichele Scholarship

Sezer Atamturktur was selected as the D.J. DeMichele Scholarship recipient for the Feb. 19, 2007 IMAC XXV. Her paper was selected from a strong group of competing entries. Congratulations Sezer!!

AE Students Shine at ASHRAE Design Competition

A team of Penn State architectural engineering undergraduate students won first place in two of three categories at the 2006 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Student Design Competition.

This year’s contest focused on the mixed-use renovation of the Dallas Power & Light building in an historic area of Dallas. The renovation included converting the majority of the former office building into residential apartments, with retail space occupying the building’s first floor.

Bill Bahnfleth, professor of architectural engineering, director of the Indoor Environment Center, and the group’s advisor, says, “There are three categories in the competition: HVAC Systems Selection, HVAC Systems Design and Architectural Design. Our team won the two HVAC categories. Participating students included: Justin Bem, Kevin Kaufman, David Melfi, Jon Gridley, Jessica Lucas and Yulien Wong.

The team was honored at the 2007 ASHRAE winter meeting in Dallas and received a $1,500 prize for each of the winning entries.

Founded in 1894, ASHRAE is dedicated to the advancement of research, standards writing, publishing and continuing education of the sciences of heating, ventilation, air conditioning and refrigeration. The society boasts a membership of more than 55,000 worldwide.
ASHRAE Winter Meeting trip provides educational and professional experiences for students

The 2007 American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Winter Meeting was held January 27th – 31st in Dallas, Texas, and Penn State AE students were well represented by a contingent of 18 ASHRAE student branch members. Students had the opportunity to learn from a wide range of programs presented by highly regarded professionals and researchers about ventilation, indoor air quality, building energy simulations, sustainable building design strategies, and more.

The group also participated in student activities including the Student Breakfast Student Congress, and a variety of social events. All students attended the Student Breakfast to meet colleagues from other schools and to hear several speakers. Student branch president Patrick Murphy attended the Student Congress, which was the first chance student branches have had to provide input into the ASHRAE student program. The meeting also provided students with a chance to learn about how other student chapters, universities, and AE departments operate. The Young Engineers in ASHRAE committee also hosted a social for new HVAC engineers and students to meet and share experiences.

The world’s largest trade show, the International Air-Conditioning, Heating, and Refrigerating Exposition, was held in conjunction with the ASHRAE Winter Meeting. Nearly 2,000 exhibitors set up display booths showcasing their latest HVAC products for the nearly 60,000 HVAC&R professionals who attended the Expo. The event was an excellent learning experience where students could see HVAC equipment they are learning about in person and ask manufacturers questions.

A highlight of the trip came when current fifth-year AEs Justin Bem, Kevin Kaufman, and Jon Gridley were reunited with 2006 graduates Jessica Lucas, Dave Melfi, and Yulien Wong who made up the Penn State’s two-time winning Student Design Competition team. The students’ submissions in both the HVAC Selection and HVAC Design Competitions won first place, surpassing universities from across the nation. All six students were honored at the Plenary Session and again at the Student Breakfast where they presented their winning design.

All 18 Penn State AE students in attendance made personal donations to the “Cleaner and Greener” Program promoted by ASHRAE to purchase pollutant emission credits to offset the environmental impact of participating in the conference.

The AE Department was also represented in Dallas by professors Bill Bahnfleth, Jim Freihaut, Jelena Srebric, and professor emeritus Stan Mumma. The faculty gave a number of program presentations and also participated in technical, standards, and other committee meetings.

(continues on page 14)
Honoring the Pillars of AE

Professor Emeritus Gifford H. Albright graduated from Penn State University in 1953 with a BAE degree and received his S.M. degree from M.I.T. in 1955. Professor Emeritus Albright joined the faculty of PSU-AE in 1958, and from 1963-1983 held the position of founding Department Head of Architectural Engineering. He was responsible for developing a master plan for Penn State’s B.A.E. professional degree program.

During his time with Penn State, Professor Emeritus Albright also originated the teaching of computer applications in AE education and obtained NSF funds to establish the CAD lab in the AE department, procured computer equipment, performed research in computer design of buildings, and initiated the nation’s first course in “Integration of Building Systems” based on computer applications. These innovative concepts are now used throughout the building industry.

During his twenty years as Head of the AE Department, Albright set in place one of the most successful undergraduate programs in the U.S. Albright left his position as Department Head in 1983 to serve as a program director for the National Science Foundation’s Structures and Building System Program. He also served three years as executive director of the Penn State Consortium for the Advancement of Building Sciences.

In 1996, he was named the Department of Architectural Engineering’s Outstanding Engineering Alumni, which is the highest honor conferred by the College of Engineering and recognizes graduates who have reached exceptional levels of professional achievement.

In 2000, he created the Gifford H. Albright Career Development Professorship in Architectural Engineering. This generous bequest will provide critical financial support and encouragement for outstanding AE faculty starting their academic careers at Penn State.

Thank you for all that you’ve given AE. You are truly a pillar of our department!
AEGSA Fundraiser

The AE Graduate Student Association (AEGSA) has organized the following fund raisers to help support activities for their group. If you are interested in purchasing an AE hard hat or an AE polo shirt, please read below for details:

**AE HARD HATS**

The hard hat (shown left) is white and features the AE logo in Penn State blue. Each hard hat costs $15 and can be shipped for an extra $5. Multiple hard hats can be shipped to one location for the same shipping charge. (Our adorable model is four-year old Matthew Potts, son of Drew Potts '88 and wife Tanya. Thanks for sharing the photo!)

**AE POLO SHIRTS**

Polo shirts (shown right) are dark blue and white, 100% cotton, and embellished with the classic "AE" logo. They work well for business-casual occasions or everyday use.

Available in both Men's and Women's cut and sizes. The price is $30.00. For additional information about the fund raisers, please contact our AEGSA treasurer, Robert Leicht at rml167@psu.edu.

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**Alumni Update**

Let us hear from you!

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Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce.

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