

THE PARTNERSHIP
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CONSTRUCTION
EXCELLENCE

PACE



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The PACE Newsletter highlights activities and noteworthy events in the PACE program. For more information or to submit prospective articles, contact the PACE Program Team at:

PACE@psu.edu
or
814.865.3369



CELEBRATING A LIFE

Penn State, the Architectural Engineering Program, and PACE lost a great friend and colleague with the untimely passing of Dr. Michael Horman on Tuesday September 15, 2009. Mike is survived by his wife Cheryl, son Joshua (6) and daughter Olivia (10). As we take the time to reflect upon this loss and its impact on our program, we will also take the time to celebrate Michael's life and his accomplishments at Penn State.

Upon arriving at Penn State in 2000, Mike made great efforts to connect with industry. He built a relationship with the Pentagon Renovation team that eventually lead to multiple research projects and publications. Soon after, Mike shaped his research as a "Lean and Green" approach to project delivery, and completed a two year research project to help Toyota advance their green building goals. Most recently, Mike built a relationship with Penn State's Office of Physical Plant, who supported multiple graduate research projects to improve Penn State's project delivery processes. In 2006 Mike was awarded a

CAREER Award from the National Science Foundations for his contributions in research.

Beyond research, Mike's role as a teacher, advisor, and mentor to our students will be missed. His jovial spirit and passion for teaching made strong impressions among his students. As a colleague, Mike was a great sounding board and quick to chip in when assistance was needed. He very much enjoyed collaborative projects and working on teams.

Mike Horman played an important part in re-shaping a new and stronger Construction Management option in the AE program. His contributions over his eight years at Penn State will make a lasting impact, and will be honored as we move forward.



Dr. Michael Horman
1971-2009.

2009-2010 PACE THEME: CREATING OPPORTUNITIES

David Riley; Director

In recent months we have heard from many Penn State alums and PACE members who have been affected by the slowdown in the construction industry. Our hearts go out to each firm and that has been forced to downsize their employee ranks.

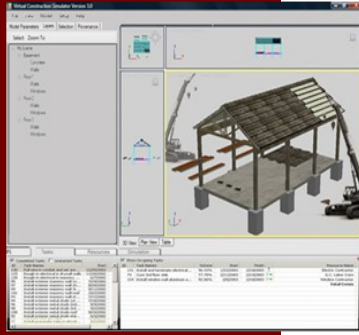
Challenging economic times can also bring out the best ideas to improve business models and seek new opportunities to keep moving forward. Categories of innovation making headlines lately include stronger efforts to improve the energy performance of buildings, new ways to utilize technology

such as Building Information Modeling, and new partnerships and joint ventures that improve collaboration and supply-chain integration.

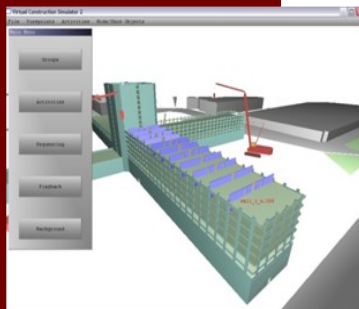
Our hope this year is to highlight examples innovation and new approaches that will help the construction industry make a strong come-back. We welcome interaction between industry and our students to test such ideas through the senior thesis process this year. In April, we will endeavor to featuring the best ideas we find at the PACE Research Seminar.

Keep Innovating!

VIRTUAL CONSTRUCTION SIMULATOR 3-D PROJECT



The VCS 3-D simulation game prototype currently being developed



The VCS simulation module developed in 2007.

This spring, the project “Virtual Construction Simulator 3D: A Simulation Game for Construction Engineering Education” led by **Dr. John Messner** and a Ph.D. student **Dragana Nikolic** received a grant from the **National Science Foundation**. This project represents the continuation of the previous 4D simulation platform developed to improve teaching construction scheduling to engineering students.

CPM schedules and 2D drawings have been predominantly used for developing construction schedules, but remain challenging for construction engineering students lacking experience to understand the dynamics of the construction processes and make important decisions about resource utilization, sequencing, and site layout. In the previous research, the VCS was developed as a 4D learning module to visually immerse students allowing them to interactively create a sequence for

constructing a building project.

The project goal is to extend the functionality of the existing VCS application into a more comprehensive *simulation game* with project based constraints, rules, variability and system feedback. The goal is to create an experiential simulation environment where students can make decisions about resources, methods, cost/time trade-offs and related risks; and observe the impact of these decisions over time. The immediate feedback will allow students to track their own progress, while the competition and scoring will introduce fun for more engaged, deeper learning of complex construction concepts.

For more information on this project please contact Dragana Nikolic at: dragana@psu.edu

EXPANDING SOFT SKILLS INITIATIVE

S:PACE officer and graduate student representative, **Sonali Kumar** aims to further the networking and soft skill development of Architectural Engineering students. While classes prepare students with the technical skills needed to succeed, it is just as essential to develop social competency and leadership outside the classroom.

Both undergraduate and graduate students will benefit from this effort. Sonali will assist with the leadership development initiatives in the Building Construction Competencies program in the **Architectural Engineering Department**. She will also encourage

meaningful graduate student participation at PACE events.

Her first step in this initiative is to facilitate ongoing graduate research projects that are mutually aligned with the emerging issues in the construction industry. Sonali will also help manage the Emotional Intelligence Assessment program initiated in 2007 through support of PACE member Balfour Beatty.

Industry members can look forward to increased communication and networking with AE students who are equipped with the skill sets needed to be successful leaders and future business owners. Sonali can be reached at: suk189@psu.edu.

PACE WELCOMES NEW MEMBER:
DPR CONSTRUCTION

S:PACE INCREASES INVOLVEMENT

S:PACE got off to a strong start this fall under the leadership of president Tom Horensky. Recent events include the first General Meeting, AE Major Night, and numerous PACE company events. The next event on the club's agenda is the Fall S:PACE Trip to take place in late October. S:PACE currently has over 70 members. One of S:PACE's primary goals this year is to increase 1st and 2nd year AE student membership .

The recently added student chapters of NECA and MCAA continue to grow successfully. A group of NECA students had the opportunity to visit Seattle for the NECA convention this past September. Also, the Renew Crew Honduras team within NECA is making plans for their renewable energy service project this coming year. The MCAA chapter just returned from Denver where they received the description for this year's national design competition. They will be very busy throughout the fall semester as they work on developing their design.

S:PACE has hosted company information sessions for **Forrester Construction, Davis Construction, Hensel Phelps Construction, Southland Industries, Grunley Construction** and **Barton Malow** who also sponsored an S:PACE tailgate. **McClure Construction** and **Clark Construction** and will host information sessions this fall as well.

SPACE is very excited about the upcoming year and looks forward to introducing the construction industry to more students than ever before!



ONE HUNDRED YEARS OF EDUCATION

The AE department is not wasting any time in making its next 100 years just as successful as its first. Planning is well underway for a year-long celebration filled with a variety of activities. Suggested events include an All-Year Homecoming Reunion and an exhibition on the influence of AE alumni on the built environment over the last 100 years.

In addition to honoring its history, the department will look toward the future as it hosts the 6th **International Conference on Innovation in Architecture, Engineering and Construction** from **June 9-11, 2010**. The conference will feature industry-related topics and panel discussions. Industry members are encouraged to attend!

Help determine which events will be part of the centennial celebration. The online survey can be found at:
www.engr.psu.edu/ae/Centennial-Survey

More information about the AEC conference can be found at: <http://www.engr.psu.edu/ae/AEC2010/>

COME OUT TO ECOBUILD AMERICA 2009!

Ecobuild America, which is sponsored by the **National Institute of Building Sciences**, educates design and construction professionals and students on how to improve our built environment. This unique conference and exhibit not only introduces new strategies and materials to create high performance, sustainable structures, but also introduces the technology to do it faster and more profitably. The conference and show will be held at the Washington Convention Center in DC, **December 7-10, 2009**. PSU students, alumni and faculty are eligible for a special VIP registration and will receive a FREE exhibit and keynote pass!

Register at www.aecEcobuild.com and enter promotion code **PSU9EKC**. Also, check out the special conference Passport pricing available to students and educators.



CONSTRUCTION MANAGEMENT FACULTY

David Riley, PhD - driley@enr.psu.edu

Director of PACE & Executive Director of the Center for Sustainability
www.enr.psu.edu/PACE | www.cfs.psu.edu



John Messner, PhD - jmessner@enr.psu.edu

Director of Computer Integrated Construction Research Initiative
www.enr.psu.edu/ae/cic/facilities/ICon/

Chimay Anumba, PhD - anumba@enr.psu.edu

Head of Architectural Engineering Department
www.enr.psu.edu/ae/cic/facilities/ICon/

Upcoming S:PACE Activities

The annual S:PACE field trip is set to take place again this fall! The club will be traveling with 40 to 50 AE students to Baltimore and Washington, D.C. While in the area, they will visit PACE companies such as Forrester, Barton Malow, Clark, Davis, Balfour Beatty and Truland. This will offer students the ability to see current projects in process and to learn more about what each company is doing. The trip will take place over the weekend of **October 30 and 31, 2009**.

Upcoming PACE Events

PACE Research Seminar — April 21-22, 2010

Held each spring, the research seminar combines presentations of research results and timely industry speakers for a diverse audience of building industry professional and university students.

Advisory Board Meeting — June 3, 2010

Representatives from PACE Member companies meet to discuss key issues facing the building industry, and establish a research agenda for the next year.

WE WOULD LIKE TO THANK THE FOLLOWING COMPANIES FOR THEIR SUPPORT OF PACE

Thank you for your support of PACE's 2008-2009 activities!

Leaders

Balfour Beatty Construction
Penn State Office of Physical Plant
Southland Industries

Partners

Barton Malow Company **James G. Davis Const. Corp.**
Benchmark Const. Company **The Roofing Industry**
Clark Const. Group **Alliance for Progress**
Forrester Const. Company

Associates

Gilbane Building Company
Haskell Company
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Skanska USA
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