The Partnership for Achieving Construction Excellence

The 20th Annual PACE Roundtable

Building Innovation into Practice: Keeping What Works

The new Penn State Millennium Science Building, near completion. Photo credit Nabil K. Mark

November 8-9, 2011

Department of Architectural Engineering

The Pennsylvania State University
Dear Friends of PACE,

As firms have come to adjust to the economy and the recent advances in technology and practice, the discussion at this year’s Advisory Board focused on the balance struck between need to differentiate and innovate in the current market to win work, while still maintaining the core capabilities and practices of the building industry as efficiently as possible. In this year’s Roundtable meeting, we will examine methods to keep moving forward while integrating new tools, processes, and industry drivers - how the industry is:

“Building Innovation into Practice: Keeping What Works”

The PACE Roundtable has a mixed format that will include two break-out sessions in which critical industry issues will be discussed, a team collaboration exercise, and joint industry-student panel discussion.

Break-Out 1 & 2: Attendees will break into groups that examine specific topics in 1) sustainability and green building, 2) process innovation, and 3) technology applications.

Research Topics: Attendees will break into small groups with coupling industry members with a few students to allow the students to explore the ways they can capture one of the morning topics to research.

Panel discussion: Combined Industry and Student Panel - Creating Hands-on Experiences for Construction Students, moderated by Professor Robert Leicht

The main discussion topics, identified by The PACE Advisory Board, are:

<table>
<thead>
<tr>
<th>A. Sustainability / Green Building</th>
<th>B. Process Innovation</th>
<th>C. Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session 1A:</strong> Energy management services</td>
<td><strong>Session 1B:</strong> Assembling/procuring an integrated team</td>
<td><strong>Session 1C:</strong> BIM Services for the Owner- the role of the design and construction professional</td>
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<tr>
<td><strong>Session 2A:</strong> Learning systems for training a sustainable workforce</td>
<td><strong>Session 2B:</strong> Integrated decisions for high performance retrofit projects</td>
<td><strong>Session 2C:</strong> Strategies and opportunities for taking BIM into the field</td>
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</table>

After the Roundtable, students will conduct research on the topics raised during the discussion and present their results at our PACE Research Seminar and Awards Banquet on April 16-17, 2012 at the Penn Stater Conference Center Hotel. Please plan on attending this important event!

Sincerely,

Robert M. Leicht; Assistant Professor of Architectural Engineering
Director, the Partnership for Achieving Construction Excellence
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Tuesday November 8th - Agenda

6:00 p.m.  Roundtable Registration and Opening Reception
Dean’s Hall 1 & 2

7:00 p.m.  Welcome Address and Banquet
Dean’s Hall 1 & 2 - Professor Robert Leicht
All events will be held in Deans Hall 2, unless otherwise specified.

7:30 a.m. **Registration and Continental Breakfast**

8:30 a.m. **Kick-Off**
*Professors Robert Leicht, David Riley, and John Messner  Update on PACE/AE*

9:00 a.m. **Overview of Session I Topics**
- Move to Breakout Rooms

9:15 a.m. **Break-Out Session I**

1A. Energy Management Services  
(Room 203)

1B. Assembling/Procuring an Integrated Team  
(Room 204)

1C. BIM Services for the Owner- The Role of the Design and Construction Professional  
(Room 205)

10:30 a.m. **Break**

10:45 a.m. **Overview of Session II Topics**

11:00 a.m. **Break-Out Session II**

2A. Learning Systems for Training a Sustainable Workforce  
(Room 203)

2B. Integrated Decisions for High Performance Retrofit Projects  
(Room 204)

2C. Strategies and Opportunities for taking BIM into the field  
(Room 205)
<table>
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<tr>
<th>Time</th>
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<tr>
<td>12:00 p.m.</td>
<td><strong>LUNCH IN THE GARDENS</strong></td>
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<tr>
<td>1:00 p.m.</td>
<td><strong>INDUSTRY PANEL: DIFFERENTIATION IN A DOWN ECONOMY</strong> Moderated by</td>
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<tr>
<td></td>
<td>Professor John Messner</td>
</tr>
<tr>
<td>1:45 pm</td>
<td><strong>INDUSTRY / STUDENT PANEL: HANDS-ON LEARNING IN DESIGN AND CONSTRUCTION</strong></td>
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<tr>
<td></td>
<td>Moderated by Professor Robert Leicht</td>
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<tr>
<td>2:30 p.m.</td>
<td><strong>AFTERNOON BREAK</strong></td>
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<tr>
<td>2:45 p.m.</td>
<td><strong>FOCUS GROUP: STUDENT RESEARCH TOPICS</strong></td>
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<tr>
<td>3:30 p.m.</td>
<td><strong>SUMMARY AND ADJOURN</strong></td>
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INDUSTRY SPONSORS

We would like to thank the following companies for sponsoring student attendance at this year’s PACE Roundtable:

Balfour Beatty Construction
Barton Malow Company
Foreman Program and Construction Managers
Gilbane Building Company
Hensel Phelps
Holder Construction Company
Jacobs Engineering
James G. Davis Construction Corporation
Leonard S. Fiore
McClure Company
Southland Industries
UPCOMING PACE EVENTS

Generations 10-20-30 Reunion

April 17, 2012

An annual event that provides an opportunity to meet with your fellow Penn State AE construction management alumni, the “PACE Generations 10-20-30 Reunion” highlights the classes of 1980, 1990 and 2000.

PACE Research Seminar

April 17-18, 2012

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

PACE Advisory Board Meeting

June 1, 2012

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

LEADER

An annual contribution to the PACE program of $20,000 or more.

Benefits: In addition to the benefits of a Partner, Leaders will be recognized as named sponsors of a distinctive student program in the construction management and/or AE curriculum.

PARTNER

An annual contribution to the PACE program of $10,000-$19,999.

Benefits: In addition to the benefits of an Associate, Partners will be invited to participate in an annual Internship Workshop held for AE undergraduate students in conjunction with the PACE Roundtable meeting.

ASSOCIATE

An annual contribution to the PACE program of $5,000-$9,999.

Benefits: In addition to the benefits of a Donor, Associates will be offered first right of refusal for a premium booth location at the AE career fair and will receive an annual invitation to provide a guest presentation in an AE course.

DONOR

An annual contribution to the PACE program of $1,000-$4,999.

Benefits: Free advertising in the form of the company name and logo included on the Active PACE Member list on the PACE Web site and an invitation to PACE Advisory Board Meeting where companies gain the ability to influence the direction of AE student research.
2011-2012 PACE CONTRIBUTORS

Thank you for your support!

LEADERS

Balfour Beatty Construction
James G. Davis Construction
Penn State Office of Physical Plant
Southland Industries

PARTNERS

Barton Malow
Benchmark Construction Company
Clark Construction Group
Forrester Construction Company
Truland Systems Corporation

ASSOCIATES

DPR Construction, Inc.
Gilbane Building Company
Hensel Phelps
The Haskell Company

DONORS

Foreman Program and Construction Managers
Langan Engineering & Environmental Services
McClure Company
Massaro Corporation
Reynolds Construction Management
Trammel Crow Company
Graduate Student Research Topics

**Lean and Green**

Fatma Idil Akcetin (MS) *Impacts of green construction on safety performance*

Safa Eslambolchi (PhD) *Impacts of BIM uses on project outcomes*

Bryan Franz (PhD) *Evaluating the selection process of integrated project teams*

Pelin Gultekin (PhD) *Developing a decision support for green retrofits*

Jiang Li (PhD) *Modeling for constructability*

**Gretchen Macht (PhD) Human metric based assignment of high-performance design teams***

Tabitha Sprau Coulter (PhD) *Energy audit process and decision support*

**Computer Integrated Construction**

Abiola Akanmu (PhD) *Wireless sensing and building information modeling*

Steven Ayer (PhD) *Utilization of augmented reality to improve engineering education*

Sreelatha Chunduri (PhD) *Information exchanges for lighting systems*

Colleen Kasprzak (MS) *BIM project planning*

Ralph Kreider (PhD) *An ontology of the implementation strategies of building information modeling*

Sonali Kumar (PhD) *Enhancing creativity through experience-based design for healthcare facilities in virtual environments*

Fangxiao Liu (PhD) *Knowledge management*

Yifan Liu (MS) *Process model for design of building mechanical systems within integrated design process*

Russ Manning (PhD) *Delivery methods for healthcare facilities*

Atefeh Mohammadpour (PhD) *Relationships between energy efficiency and patient health in healthcare facilities*

Miaomiao Niu (MS) *Change and dependency management*

Eric Nulton (MS) *Legal aspects of BIM implementation*

Ashwin Ramesh (MS) *Quality assurance and control planning for facility information handover*

**Morningstar**

Jason Hinsey (MS) *Start-up of community based energy audit and knowledge resources*

Natalie Mohr (MS) *Reliable energy audits in residential practice*
# Roundtable Evaluation Form

*Please complete the following questionnaire in order to help us plan future PACE activities.*

**Circle appropriate response**

<table>
<thead>
<tr>
<th>Seminar Content</th>
<th>Poor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Additional comments</th>
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</thead>
<tbody>
<tr>
<td>Overall quality of sessions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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</tr>
<tr>
<td>Quality of discussion</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Relevance of subject matter</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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**Seminar Format**

| Length of sessions                     | 1    | 2 | 3 | 4 | 5 |    |                     |
| Breakout sessions                      | 1    | 2 | 3 | 4 | 5 |    |                     |
| Student / Industry interaction         | 1    | 2 | 3 | 4 | 5 |    |                     |

**Organization**

| General organization                   | 1    | 2 | 3 | 4 | 5 |    |                     |
| Clarity of handout materials           | 1    | 2 | 3 | 4 | 5 |    |                     |
| Food & beverage service                | 1    | 2 | 3 | 4 | 5 |    |                     |

List one topic for student research that is most critical to your business:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Please give one suggestion to improve this roundtable:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
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If you are interested in becoming more involved with the PACE organization, please leave a business card with the word PACE written on the back.

**Please return this form at the registration table.**