

The “Final Four” of Architectural Engineering

The Architectural Engineering Institute (AEI) of the American Society of Civil Engineers (ASCE) held the finals of the second annual ASCE Charles Pankow Foundation Annual Architectural Engineering Student Competition in conjunction with the 2011 Architectural Engineering Conference in Oakland, California on March 31, 2011.

The competition design circumstances were picked to elicit the kinds of ingenuity, innovativeness, and originality of work approach that have characterized the Charles Pankow legacy. The Charles Pankow Foundation was established to provide the public with buildings of improved quality, efficiency, and value by advancing innovation in building design and construction. The foundation now focuses on research grant making in two research goal areas: Structures and Project Teams - Tools and Practices.

The competition project was the design and construction management of the engineered aspects of a high performance building including the structural systems, building envelope, mechanical systems and electrical systems. The competition challenged students to address the design issues for a new Contemporary Art Museum located in San Francisco, California. Space programming for the new museum was shown on the provided schematic plans and teams were challenged to be sensitive to the local architecture and history of the area. The design submittals addressed the challenges of best practices in sustainable design as related to green building design and construction along with construction and design issues for a site located within a high seismic area.

The emphases of the competition are integration of the engineered systems for a high performance building, collaboration, competition, and peer review, all of which are important in the development of designs in the professional world. Students are encouraged to work together in multi-disciplinary teams and consider how the engineered systems work with or enhance the architecture of the building. Students demonstrated the knowledge and many of the skills that will make them valuable additions to their future employers. The challenging conditions specified for the project building to be designed forced the participants to think of different solutions and to explore innovative solutions.

The competition is open to both graduate and undergraduate students in accredited architectural engineering programs and programs actively seeking accreditation by EAC/ABET, supervised and advised by faculty. Submissions are to be entered in the building systems integration category and one or more of the following four categories: structural systems design; mechanical systems design; electrical systems design; and innovative construction management and construction methods.

The jury consisted of volunteer building industry practitioners and a representative for the Charles Pankow Foundation.

The 2011 jury members were:

- Mark Sarkisian, P.E., S.E., LEED AP- Director, Skidmore, Owings & Merrill LLP, San Francisco, CA

- David Kaneda, P.E., Principal, Integrated Design Associates, Inc., Santa Clara, CA
- Erin McConahey, P.E., LEED AP, ASHRAE, HBDP- Principal, ARUP, Los Angeles, CA
- Mason Walters, S.E., Principal Forell/Elsesser Engineers, Inc., San Francisco, CA
- Patrick Crosby, S.E., President, Crosby Group, Redwood City, CA

The AEI competition committee members were:

- Kenna Chapin (Chair), P.E., Associate at Wallace Engineering, Tulsa, Oklahoma
- Craig Baltimore, PhD, S.E., Associate Professor at California Polytechnic State University, San Luis Obispo, California
- Ray Yunk, P.E., LEED AP BD+C, Architectural Engineering Program Coordinator at Kansas State University, Manhattan, Kansas
- Shaun Nienhueser, E.I., QCxP, LEED AP, Mechanical Engineer at KRS Engineering, Omaha, Nebraska

Fourteen teams participated in the competition from a total of twelve universities:

- California Polytechnic State University-San Luis Obispo
- Drexel University
- Illinois Institute of Technology
- Kansas State University
- Milwaukee School of Engineering
- Philadelphia University
- Sultan Qaboos University in Oman
- Texas A&M University-Kingsville
- University of Kansas
- Missouri University of Science and Technology
- University of Nebraska, Lincoln at Omaha
- University of Texas at Austin

The information for the project was posted in early September. The teams could assemble their design teams and begin working on the project during the Fall Semester. Teams were required to register for the competition by December 22, 2010. The initial written submittals were due on February 18, 2011. The committee would like to recognize the hard work of all the design teams to complete the initial design development submittals for this project. Many hours of additional work outside of the students regular course work was required to complete the projects.

The finalist teams were chosen by the judges after review of written submittals. These finalist teams presented their projects to the judges at the competition on March 31, 2011. On Friday, April 1, the judges held a feedback session with all of the finalist team participants. The feedback session was followed by the awards ceremony at lunchtime and the announcement of the winners. The presentations, feedback session and awards ceremony was available for viewing live on the web and will be available on the website in a few weeks.

The Integrated category was won by Team #3 from Drexel advised by James Mitchell. Team members were Alexander Stadel, Alisha Strayer, James Achey, Andrea Christiani, Michael Snader, and Joshua Lessard.

Finalist Team #6 from Cal Poly, advised by James Guthrie, included team members Julie Bolander, Linda Huang, Alexandre Batista, Sarah Arrin, Philip Ost, and Brian Croshal. Finalist Team #11 from Illinois Institute of Technology, advised by William Paschal, included team members Joe Millham, Aaron Anderson, Jennifer Gibbons, Jaeha Jun, Emir Aykut Pekdemir, Ellen Gallagher, Yao Xiao, and Indira Oraziman.

The Structural category was won by Team #9 from Cal Poly advised by Peter Laursen. Team members were Dan Loesch, Brad Stevens, Luke Wegener-Vernagallo, and Tim Dieu. Finalists were Team #3 from Drexel University and Team #6 from Cal Poly.

The Mechanical category was won by Team #6 from Cal Poly. Finalists were Team #3 from Drexel and Team #10 from Nebraska, which was advised by Clarence Waters and included team members Justin Veik, Tim Gall, Dakota Kelley, Andrew Wiese, Adam Brumbaugh, Heidi Kuchta, Cary Schroeder, Tim Morrison, and Barry Albert.

The Electrical category was won by Team #1 from Kansas State advised by Blythe Vogt. Team members were Marshall Van Tuyl, Vincent Pianalto, Alejandro de Luna, Marshall Frey, Bryant Denning, Laura Geiger, Kyle Overcash, Scott Walter, Patrick Short, and Aaron Svitak. Finalists were Team #10 from Nebraska and Team #8 from Missouri S&T, which was advised by Stuart Baur and included team members Ryan Reed, Teresa Rose, Todd Richbourg, Ellen Richardson, Robert Hall, Brett Balsters, John Issawi, Stephen Schrock, and Lauren Svoboda.

The Construction category was won by Team #1 from Kansas State. Finalists were Team #11 from Illinois Institute of Technology and Team #15 from Texas, which was advised by Michael Engelhardt and included team members Joyce Chiu, Stacy Chiu, Matthew Homer, Jimmy Principe, Alan Del Olmo, Sarah Turner, Zahra Bhora, Tammy Pham, Oliver Chang, and Evan Reschreiter.

The competition was a tremendous success thanks to the committee, the AEI staff, the Charles Pankow Foundation, jurors, and all of the participating teams and faculty. Information on next year's competition will be posted in August and the finalist presentations will be held at the AEI Student Conference in Omaha, Nebraska on April 19-21, 2012.