

December 2007
Civil Engineering Department
5500 Wabash Avenue, CM 58
Terre Haute, IN 47803-3999
www.rose-hulman.edu/ce/

CIVIL ECHOES

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

ASCE Winter Banquet



Tarelle Osborn (2001), President of Osborn Consulting, Inc. in Bellevue, Washington

The largest on-campus event of the year for the ASCE Cecil T. Lobo Student Chapter is the Winter Banquet. On Wednesday November 28, the Rose-Hulman CE Board of Advisors, faculty, staff, and students came together for a delicious luncheon and presentation. Our keynote speaker this year was Tarelle Osborn, President of Osborn Consulting, Inc. in Bellevue, WA. Ms. Osborn is a 2001 Civil Engineering graduate of Rose-Hulman and holds Professional Engineering licenses in both California and Washington. Her engineering approach includes utilizing natural processes along with the engineered structure to balance habitat and safety requirements with an overall goal of innovation and cost-effectiveness. She presented on "The Entrepreneurial Spirit" of young civil engineers and how to launch your own civil firm. A couple of necessities in starting your own firm she shared with us included never turning away work and learning how to play golf. Ms. Osborn's work ethic and drive for success at such a young age is a great model for all civil engineering professionals and students to strive to achieve. She and her husband are currently expecting a little Fighting-Engineer, and all those with the Rose-Hulman Civil Engineering Department wish them the best!

Interim Chairman's Comments By Dr. Jim McKinney

Two activities this fall have continued to strengthen my pride in the RHIT CE Alumni. One was our annual Homecoming Open House. We saw a record number of returning alumni, many with spouses and children, all with very interesting stories about their life after Rose - professional careers, military tours of duty/grad school enrollment, life experiences, family expansion. This has to be one of my favorite RHIT activities - even better than Commencement.

The second activity was our Fall Career Fair (October 3) - a recruiting activity for not only seniors looking for permanent employment, but companies looking for summer interns. This program has grown to such an extent that it rivals our Homecoming Open House - based on the number of CE alums who are part of a recruiting team. If you and your company have not participated in this event I encourage you to consider our Winter and Spring on campus recruiting activities.

I have always said that the most important asset that the CE Department possess is it's alumni. These two fall activities do nothing but reinforce this belief. I encourage you to make plans to attend the 2008 Homecoming Open House (October 4, 2008). If your company is considering hiring permanent employees or summer interns the Winter Career Fair is January 23, 2008 and the Spring Intern Fair is April 9, 2008. If these dates do not work for you give us a call and we will be more than happy to work with you to arrange an interview schedule.

Most of all thanks for being a loyal RHIT CE Alumnus. A major reason why I continue to be CIVIL PROUD is you, the CE Alumni.

Civil Engineering Student Wins ASCE Mead Essay Contest

Rose-Hulman Institute of Technology senior civil engineering major Rachel Howser has won the American Society of Civil Engineers' National Daniel W. Mead Student Essay Contest on professional ethics. Her article on "Eminent Domain and the Engineer's Ethical Responsibilities" will be published in a future issue of ASCE's *Civil Engineering* magazine.

A native of Scottsburg, Indiana, Howser is secretary of Rose-Hulman's Cecil T. Lobo Student ASCE chapter and has earned engineering experience as an intern with Han-num, Wagle & Cline Engineering. She is also involved in the college's Student Government Association, cheerleading team, drama club, The Thorn student newspaper and craft club, and serves as a tutor for the Homework Hotline toll-free telephone tutoring service for Indiana middle school and high school students.

This summer, as a National Science Foundation Scholar, Howser helped with an earthquake concrete research project at the University of Houston, including 10 students from universities throughout the United States. She came up with equations that describe the behavior of reinforced concrete under seismic loads. Howser's research gave her an opportunity to work with a 15-foot tall, 40-ton, \$1 million concrete cracker known as the universal element tester.

Howser has been invited to discuss her research at two civil engineering conferences, one in Vancouver, Canada; will have aspects of her research published in an international structures journal; and has been asked to work with the same University of Houston group next summer at the National Earthquake Center in Taiwan.

The Daniel W. Mead Student Essay Contest was established and endowed in 1939 by Daniel W. Mead, a former ASCE president. The specific topic of the essay contest is selected each year by ASCE's Committee on Student Activities, which selects the national winner from four district nominees and an international candidate.

Student and chapter accomplishments have helped Rose-Hulman's ASCE student chapter receive the Robert Ridgway Award as the nation's top chapter award twice during the past three years.

A news story by Houston television station, KPRC-TV, that interviewed Howser about the earthquake concrete research project can be viewed at <http://www.click2houston.com/video/13739533/index.html>.



Presenting Award: Matthew Trowbridge, president of Rose-Hulman Institute of Technology's Cecil T. Lobo American Society of Civil Engineers student chapter, proudly presents the Mead Essay Contest award to Rachel Howser, a senior civil engineering major and ASCE chapter officer.

KEEP IN TOUCH

We are always interested in how our alumni are doing. Let us know about you! Keep in touch by e-mailing us at Kathy.nicoson@rose-hulman.edu with your current contact information and what you are doing.

RHIT Team Places Third in Civil Engineering's Big Beam Design Contest

A team of senior Rose-Hulman Institute of Technology civil engineering students earned third place regional honors in the Precast/Prestressed Concrete Institute's 2007 "Big Beam" national design competition, which was comprised of leading undergraduate students from throughout the United States.

Big Beam Award Winners: Placing third in this year's regional Big Beam national precast/prestressed concrete design competition was the team of Rose-Hulman Institute of Technology civil engineering students (from left) Danielle Steinke, Jeffery Gauthier, Rachel Howser, Elitsa Voeva and Erik Dolmseth.

The competition joins teams of students with university advisors and local PCI-certified producers to design, fabricate and test precast, prestressed concrete beams up to 15 foot long. The beams are judged by such criteria as concrete compressive strength, beam performance under loads, and accuracy of the teams' calculations.

Earning \$500 for their project was the Rose-Hulman team of Erik Dolmseth, a senior from Redmond, Wash.; Jeffery Gauthier, a senior from Georgetown, Texas; Rachel Howser, a senior from Scottsburg, Ind.; Danielle Steinke, a senior from Crystal Lake, Ill.; and Elitsa Voeva, a senior from Bethlehem, Pa. The faculty adviser was James Hanson, assistant professor of civil engineering who specializes in structural design using prestressed and reinforced concrete. The team's PCI producer mentor was Phil Wiedemann of Coreslab Structures in Indianapolis.

The contest introduces civil engineering students to precast/prestressed concrete, a topic that is not addressed in most civil engineering programs. The competition has proved an effective means of exposing students to this segment of the industry and establishing relevant programs in the civil engineering curricula of participating schools.

The University of Illinois captured top regional honors and placed third in the national competition. The Ohio State University finished second in the region and West Virginia University placed fourth.

Coordinated by PCI's Student Education Committee, the competition is sponsored by Lyndhurst, N.J. based Sika Corp.

Environmental Engineering Update

ASCE Policy 465 promotes the requirement of a master's degree, or approximately 30 additional hours of education (coordinated graduate or upper level undergraduate technical and/or professional practice credits or the equivalent agency/organization/professional society courses providing equal academic quality and rigor) as a prerequisite for professional engineering licensure. The Civil Engineering Department is considering what impact Policy 465 may have on both undergraduate and graduate education. We need to insure that our graduate program will meet the needs of future students and their employers. Our current M.S. Environmental Engineering program is a traditional, on-campus, non-thesis, but graduate project, based program. We would welcome any comments you have regarding ASCE Policy 465 and how the Civil Engineering Department can address the needs of future graduate students. Please contact Dr. Robinson at michael.robinson@rose-hulman.edu or at 812-877-8286. Remember to spread the word about the graduate programs at Rose-Hulman to your colleagues.

Thanks To Our Donors

Civil Engineering alumni continue to be generous with their gifts to Rose-Hulman. Those alumni who have donated during the past three months to the Institute and designated that their gift should go to the Civil Engineering Department include:

Don Rosenbarger, Jr. (1978)

The Boeing Company (Gift Matching Program)

Civil Engineering Professional Development Activities

John Aidoo (aidoo@rose-hulman.edu)

“International Senior Design Projects” 2007 ABET Pre-Symposium Activities, Rose-Hulman Institute of Technology

“Deterioration of FRP-to-Concrete Bond Under Fatigue” ACI Spring 2007 Convention, Atlanta, GA.

“Our Second International Senior Design Project” National Conference Engineering Capstone Design Courses, University of Colorado, Boulder, Colorado.

Jim Hanson (hanson@rose-hulman.edu)

“Justification of ACI 446 Code Provisions for Shear Design of Reinforced Concrete Beams,” ACI Structural Journal, American Concrete Institute

“Why Am I Doing This?” Speaker’s Skills Training Session at the American Concrete Institute Convention, Fajardo, Puerto Rico.

“Giving Feedback to Students, Getting Feedback from Students,” First Annual August Teaching Workshop, Rose-Hulman.

“Use of Models to Teach the Behavior of Structural Concrete,” Engineering and Economics of Reinforced Concrete Buildings Seminar, Portland Cement Association, Skokie, Illinois.

“Effects of Induced Vibrations on Early Age Concrete,” Journal of Performance of Constructed Facilities

Sue Niezgoda (niezgoda@rose-hulman.edu)

National Council of Examiners for Engineering and Surveying, Fundamentals of Engineering Exam Committee, General AM Exam Module, Clemson, SC.

Michael Robinson (robinson@rose-hulman.edu)

Annual Indiana Water Environment Association (IWEA) Conference, Indianapolis, IN “Biostimulation Techniques in Activated Sludge”

Humanities and Technology Conference, Terre Haute, IN “Water, water, everywhere, Nor any drop to drink: Transformations towards global sustainable access to safe drinking water.”

Kevin Sutterer (sutterer@rose-hulman.edu)

Use of Failure Case Studies in Civil Engineering Education, Denver, CO

ASCE Practitioner/Faculty Advisor Training Workshop in Reston, VA

Aidoo, Hanson, & Sutterer

“Our Second International Senior Design Project,” National Capstone Design Course Conference, Boulder, CO.

Hanson, Houghtalen, & Sutterer

“Use of an Electronic Portfolio for Independent, Robust, Direct Measurement of Student Outcomes,” K. G. Sutterer, J. H. Hanson and R. J. Houghtalen, Proceedings, American Society for Engineering Education Annual Conference, Honolulu, HI, 2007.

“First Year Engineering Design: Incorporating Leadership Development into Real Project Experiences,” American Society for Engineering Education Annual Conference, Honolulu, HI.

Activities with students

Hanson “Effects of Induced Vibrations on Early Age Concrete,” Journal of Performance of Constructed Facilities.

Robinson JI Case Wetlands Research Project – worked with three undergraduate summer research interns conducting research on the wetland.

Alumni Highlights

DAVID WHITWORTH (1992) has accepted a consulting position with Hanson Professional Services Inc. in its Springfield, Illinois office.

JEREMY EFFING (1996) married Amber Gahimer on August 18th.

JOSH KNOEFLER (1997) was included in the 50 People to Watch in 2007 in the January 2007 issue of the San Diego Magazine.

JAMES INGE (1999) has accepted a position as a project engineer with Heritage Engineering in Jeffersonville, Indiana. He recently moved from Austin, Texas to Louisville, KY.

CHAD LEINART (1999) and his wife recently had their second child (Marci Elizabeth) born on October 16, 2007.

CHRIS KING (2002) has joined Runnebohm Construction Co. as their Executive Vice President. Runnebohm is located in Shelbyville, IN and has 40 years of commercial and industrial construction experience in central and southern Ind. He has also been elected Vice President of the Blue River Community Foundation for Shelby County Board of Directors.

ANGELA REYNOLDS (2002) reports she passed the P.E. exam in April 2007. In June she accepted a new position as a Civil Engineering-Design Analyst with the Planning and Zoning Department for Jefferson County, Colorado. On September 3rd she married Le Tien in Littleton Colorado.

JEREMY STEGEMILLER (2002) and his wife Salem had their first child (Evelyn Sophia) on October 19th.

ERIC BEIER (2003) and his wife are expecting their first child. They moved to Knoxville, Tennessee about a year and a half ago to participate in opening a new Bowen office.

ASCE Student Chapter News

Another year comes and another year goes as the ASCE Cecil T. Lobo Student Chapter winds down from a busy 2007. The participation of our students on a weekly basis has fueled the success in our community service projects and professional activities. Many thanks

are to be given to those outside of the chapter that have lent a helping hand for all of the chapter's endeavors. With strong teamwork in place, we have recently conducted several exciting events and projects.

On October 27th, the student chapter constructed a wheelchair ramp for a 7 year old boy living in Terre Haute. Funding and construction of the ramp was done in conjunction with the "Ramp It Up" program. Six student chapter members helped with manual labor along with many "Ramp It Up" volunteers. A heartfelt sense of satisfaction was felt by all those involved in the project, and we hope to continue to serve the community with similar small projects in the future.

A very exciting evening for both the chapter members and the community was our "Explore Engineering" event held on November 6th. "Explore Engineering" is a series of events in which college students at Rose-Hulman have an ongoing partnership with local elementary and middle schools to expose young people to the elements of engineering. The highlight of our night was a popsicle bridge competition in which groups of four students were given 50 popsicle sticks, a glue gun, a few small rules, and 30 minutes to make the bridge a reality. The younger students learned a little, had a lot fun, and even taught a few of the older students a thing or two about maximizing a glue gun's potential.

The chapter was also able to squeeze a field trip in before the weather turned for the winter. The McDaniel Rd. and I-641 Bypass intersection in Terre Haute provided many geotechnical engineering problems and solutions for the students to experience. Thousands of wick drains and large earth moving equipment were a couple highlights of the early morning site visit. INDOT engineers provided the tour of the site, and we are very grateful for the time they took out of their busy schedule to teach us a few things.

We as a chapter are constantly on the lookout for field trip opportunities within a couple hours of Rose-Hulman. Interesting project presentations are a highlight of our monthly meetings, and we are currently looking for presenters for the coming year. If a potential field trip to one of your projects or being a presenter to Rose-Hulman CE students at a monthly meeting interests you, please contact Andrew Pinkstaff by phone at (812)890-3667 or by e-mail at pinkstaj@rose-hulman.edu to discuss further details and date openings. Have a Merry Christmas from the ASCE Cecil T. Lobo Student Chapter!

Climate Change at RHIT (West Central Indiana)

By Dr. Martin Thomas

Climate change is often presented in terms of average temperature increases for the entire earth. While that is a nice statistic for general characterizations, it really doesn't provide a good handle about possible effects because the system is never actually exposed to averages but to continuously varying temperatures. System effects are usually governed by the system extremes. To better understand what is happening to the climate around RHIT, look at the summary below. It shows total temperature changes for Rockville, IN, (26 miles from RHIT) for the period 1891 to 2005 (115 years) broken out into monthly highs, lows and averages. The table was created from United States Historical Climatology Network data (<http://cdiac.ornl.gov/epubs/ndp/ushcn/newushcn.html>) by downloading monthly data, fitting regression lines to each data set and multiplying the slope of the line by the 115 year time span. [Note: the Monthly Average column is not directly derived from the high and low columns. It is created from regression analysis on a separate data set that is not completely internally consistent with the other two data sets.]

Total Temperature Changes for Rockville, IN			
1891-2005, °F			
	Avg	Avg	Monthly
	High	Low	Average
January	-1.40	-1.83	-0.93
February	6.19	4.22	4.76
March	2.07	1.51	1.66
April	2.97	2.52	2.42
May	1.35	1.24	1.21
June	0.02	2.32	0.74
July	-2.07	3.08	0.16
August	-2.86	2.61	-0.46
September	-2.09	-0.64	-1.44
October	-0.56	0.86	0.02
November	1.48	3.77	2.53
December	1.04	0.86	1.51
Yearly	0.51	1.71	1.01
Averages			

What the data shows:

1. January is getting colder. September is getting colder.
2. Spring is coming sooner. In fact, the most striking warming occurs in February, March and April, especially February.
3. Summer high temperatures are actually declining. I would guess that most people have never heard this mentioned but it what the data actually shows.
4. Most of the net warming (about 1 °F in 115 years) occurs at night (when most lows occur), not in the daytime.

When people are asked to "take action now" to halt climate change, they are being asked to take actions to affect the details of existing climate patterns. Citizens need to ask themselves "What would I be willing to do or pay to alter the details of the current patterns?" If we want to reverse the current trends that question translates to "What would I be willing to do or pay to make spring start later and make the highs in the summer increase?"

We'll look at rainfall trends at RHIT in another installment.