

February 2007
Civil Engineering Department
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CIVIL ECHOES

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Chairman's Perspective

A record 50 seniors will graduate in civil engineering this year. We are now approaching 180 students in the program for all four years. Due to our rising enrollments, we are in the middle of a faculty search. We are looking for an environmental/water resources PhD with land development experience. We received 27 applicants, and their credentials were the best I have seen in any faculty search over the last 20 years. (Note: The quality of applicants is so good now that I would no longer be hired!!) It was very gratifying to do phone interviews with the top five candidates. When asked why they applied for the job, each applicant mentioned the outstanding reputation of Rose-Hulman. Currently, we are conducting campus interviews with the three finalists. We will keep you posted.

The Civil Engineering (CE) Department hosted the Board of Advisors and Associates for a day at the beginning of the winter quarter. The Board reviewed senior design projects in the morning, and attended the ASCE student chapter banquet for lunch. The keynote speaker was our own Bruce Carter (Class of '90) whose presentation was entitled "Projects and the Personalities that Build Them." Bruce is a construction manager for Hunt Construction Group in Cincinnati. He has many career accomplishments, but he is particularly proud of his role as construction manager of the Rose-Hulman Sports and Recreation Center completed in 1997. The students were very interested in his presentation, and we are glad to have him on our Board.

After the banquet, the Board participated in focus groups to:

- help sophomores and juniors evaluate summer internships,
- advise seniors on how to evaluate job offer packages, and
- discuss with the faculty computer skills necessary to distinguish Rose graduates.



BRUCE CARTER
(CLASS OF '90)

I want to personally thank the Board members who came to campus to review senior design projects and work on curriculum improvements. Those who came are:

Tony Broadnax	Bruce Carter	Fred Clayton	Judith Congdon
John Cross	Chuck Ennis	Mark Federle	Greg Henneke
Mickey Hines	Pat Martin	David Maxwell	Sheila McKinley
Glen Morrow	David Myers	Eric Smith	Jon Stolz
Mike Waldbieser	Roger Ward	David Warder	Dick Weigel

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.

2006/2007 Hot Mix Asphalt Quality Assurance/Quality Control Program

This year marked the twenty-second year of the Rose-Hulman Civil Engineering Asphalt Pavement Association of Indiana (APAI) Indiana Department of Transportation (INDOT) Hot Mix Asphalt Quality Assurance/Quality Control (HMA QA/QC) Certification Program for hot mix asphalt construction in the State of Indiana. The program came about through the diligent efforts of the former INDOT Chief Engineer—Donald W. Lucas, Rose CE, Class of 1959. All HMA contractors performing paving operations on state and federal highways in Indiana must have technical personnel certified through the RHIT-INDOT HMA QA/QC Certification Program. Twenty-six contractors and material testing laboratory personnel took part in the Certification Program this past winter on the Rose-Hulman campus—either a week-long, laboratory session or a multi-day recertification program. Since its inception in 1986, a total of 2001 people have enrolled in the HMA QA/QC Program. The program has been widely accepted by the Hot Mix Asphalt paving industry and will be repeated next year.

The HMA QA/QC Program has also allowed us to develop long term relationships with INDOT, APAI, and various hot mix asphalt contractors. This has resulted in a number of students receiving summer internships with government and industry, as well as permanent employment opportunities for graduates. Additionally, APAI has annually sponsored scholarships for two or three of our students. Since 1998, twenty-five students have received financial assistance, including this year's recipients: Erin Craft, Derek Davidson, and Matt Mead, all three seniors.

ASCE Student Chapter News

The ASCE Cecil T. Lobo Student Chapter has been very active lately with multiple community service, social, and professional activities. We have elected new officers at the turn of the 2007 year and we're excited for the potential of this next year. We have recently completed several exciting projects and events.

On December 1st and 2nd, the student chapter constructed a wheelchair ramp for a family in Terre Haute. The ramp acted as a replacement for a poorly designed original ramp. The old ramp had a slope of nearly 45 degrees which made it unusable. The design was completed by Nick Corkill, a chapter member, and allowed the World War II Veteran better accessibility into and out of his residence. The new ramp was funded by the Rose-Hulman Student Government Association. This was a great experience for the student chapter to give back to the local community.

This year, we continued our tradition of participating in the Tribune Star Christmas Basket Fundraiser. The fund provides food baskets to needy families in the Wabash Valley area during the Holiday Season. The student chapter collected from the Rose-Hulman community and was able to raise \$2936.00 for the fund. Credit is due to all of the generous students, faculty, and staff at Rose-Hulman. We hope to continue in this fundraiser year after year.

One of our largest events every year is the Winter Banquet. This event is a luncheon that consists of a keynote speaker, interdepartmental presentations, and time for the students to interact with Rose-Hulman CE board members. The keynote speaker was Bruce Carter from the Hunt Construction Group who spoke on "Projects and the Personalities that Build them." We held the event on November 29, 2006 here on campus.

We are currently on the lookout for unique and interesting projects within a couple of hours for field trip experiences. We are also currently searching for interesting speakers from the various civil engineering disciplines to present at our monthly meetings. If you have a project we could tour or something you would like to present to Rose-Hulman Civil Engineering students please contact Matt Trowbridge at (812) 249-9120 or trowbrma@rose-hulman.edu and we can discuss possible field trips or presentation times.

Senior Design Projects

The seniors are finishing up their designs as the winter quarter comes to a close. We have some great projects for our seniors to work on. Here is the list of projects and clients:

Agricultural Training Facility

Obodan Sustainable Development Center

Team: Joel Anderson (Fishers, IN), Yaw Aning (Rochester, MN),

Faculty Coach: Aidoo

Matthew Childs (Winamac, IN), Richard Franko (W. Judson, IN), Kristin Miller (Edgerton, MN)

The Obodan Sustainable Development Center (OSUDEC) is an agricultural training center for all stakeholders in rural and agricultural development in Accra, Ghana. Its mission is to provide participatory learning experiences to promote rural development. The OSUDEC facilities will consist of a computer training center, conference hall, caretaker house, hostel, poultry building, office space, and executive chalets. In addition, the center will need power (from the nearby grid), water (groundwater source), a fruit orchard, a vegetable garden, an irrigation pond, and a children's playground. The site has already been visited by the Rose-Hulman chapter of Engineers Without Borders. Key tasks include floor plans, site layout, structural design, and foundation design.

Pedestrian Bridge Design

Wabash River Development Committee

Team: Jason Bednarko (Athens, IL), Devin Cook (Greenwood, IN),

Faculty Coach: Hanson

Dustin Dvorak (Cincinnati, OH), Joshua Heigert (Sherman, IL), Adam Knaack (McHenry, IL)

The City of Terre Haute intends to build a pedestrian bridge across the Wabash River at Fairbanks Park. The bridge will allow the National Road Heritage Trail to be extended to the Illinois state border. The bridge should be a "signature gateway" for the City. As a minimum, the team will consider suspension, cable-stayed, and pre-engineered bridges. Key tasks include evaluation of potential crossing sites, development of a unique structure, hydrological study, structural design, foundation design, and development of a phased implementation plan.

Yale Social Sciences Building Excavation

Hunt Construction

Team: Robert Baldwin (Nashville, TN), Erin Craft (Wytheville, VA),

Faculty Coach: Sutterer

James Murray (Gahanna, OH), Bradley Otto (Bath, IN), Jacob Wagle (Terre Haute, IN)

Hunt Construction is in the early stages of planning excavation for a new social sciences building on the Yale University campus in New Haven, Connecticut. They would like a student team to parallel the process they follow to plan and bid the project so that the team can potentially identify better approaches for Hunt Construction to follow and/or identify details Hunt Construction might miss. The team will prepare a bid for the site utility relocation and excavation package and for the foundations package. Several Rose-Hulman alumni have agreed be resources to the team. Key tasks include utility relocation, excavation design, construction site planning, scheduling, and cost estimating.

Rogers Street Design Study

Bloomington Metropolitan Planning Organization

Team: John Baer (Nineveh, IN), Luis Pettengill (Asuncion, Paraguay),

Faculty Coach: McKinney

Nicole Sanders (Montezuma, IN), Zachary Schiff (Fisher, IL), Bryan Wienand (Pittsburgh, PA)

The Rogers Street Corridor connects several established neighborhoods including the western edge of Downtown Bloomington. This corridor is a major north/south connector of the city that serves a number of transportation needs including: transit, vehicular, truck, emergency, alternative, and pedestrian. The corridor is experiencing increases in motorized, pedestrian, and bicycle traffic. Future improvements are planned for some locations; however the corridor as a whole is experiencing a decline in appearance, character, and transportation utility which may threaten continued revitalization and private investment trends along the corridor. The engineering team will develop Context Sensitive Design alternatives for the corridor which at minimum will provide innovative solutions to meet various transportation demands along the corridor.

Senior Design Projects (cont.)

Airport Snow & Ice Removal

Indianapolis Airport Authority

Team: Chris Armstrong (Cumming, IA), Mark Johanning (Jasper, IN),

Faculty Coach: Robinson

William Kenny (Eagle, NE), David McIlwaine (Indianapolis, IN), Robert Wilson (Batesville, IN)

Snow and ice removal are essential to safe aircraft operation. However, the most common approaches require special procedures to protect the environment. The Environmental Protection Agency, EPA, plans to issue effluent guidelines for airport deicing operations by September 2009. In addition, aircraft manufacturers are proposing new deicing procedures that will prolong the life of the aircraft, but might be more harmful to the environment. In response to these concerns, the Federal Aviation Administration has initiated a nationwide design competition about "Making snow and ice removal more environmentally friendly". Key tasks include identifying alternatives that meet EPA and aircraft manufacturer requirements, and designing the best alternative for the Indianapolis Airport.

Merom Wastewater Management System

Town of Merom

Team: Brian Bibb (Hoopeson, IL), Derek Davidson (Bridgeport, IL),

Faculty Coach: Robinson

Matthew Hurst (Tucson, AZ), Daniel Lindley (Robinson, IL), James Reese (Indianapolis, IN)

The residential septic systems in the Town of Merom are failing. The town has been directed by the Indiana Department of Environmental Management to develop and implement a solution. The team will examine wastewater management system alternatives and design the best system to meet the town's needs. Funds are available to hire a geotechnical firm to perform necessary soil investigations. The team will work with a practicing engineer who will ensure that the design produced by the team is ready for PE signature right away so that construction contracts can be let as soon as possible. Key tasks include evaluation of wastewater management options and layout of recommended sewer system.

Dam Breach Analysis

Christopher B. Burke Engineering, Ltd.

Team: Richard Ballard (Indianapolis, IN), Adam Hacker (Lansing, IL),

Faculty Coach: Houghtalen

Chris Jester (Rome, GA), Daniel Lexsa (Merrillville, IN), Matthew Mead (Toledo, OH)

Christopher B. Burke Engineering, Ltd (CBBEL) has been retained by the Indiana Department of Natural resources (IDNR) to prepare Emergency Action Plans (EAPs) for 18 State-owned high hazard dams. However, the state currently can fund only two of those reviews. Therefore, IDNR has asked CBBEL to work with a student team to review two dams in the Yellowwood State Forest in Brown County, Indiana. Practitioners from CBBEL will serve as resources to the team. Key tasks include mapping the project area, slope stability analysis, hydrological study, breach analysis, and recommendations for any remedial action.

10th Street Extension and Modernization

Bloomington Metropolitan Planning Organization

Team: Robert Adolph (St. Oakwood, IL), Andrew Lopshire (South Whitley, IN),

Faculty Coach: McKinney

David Massey (Winter Haven, FL), Ryan Robinson (Danville, IN), Todd Stout (Hagerstown, IN)

The Metropolitan Planning Organization (MPO) intends to increase the safety and efficiency of multi-modal transportation along the north perimeter of the Indiana University (IU) campus with the modernization of key east/west corridors from 10th to 14th Streets. Design alternatives for the corridors will be developed to identify various infrastructure needs (e.g., new railroad underpasses/overpasses) and travel demand management (TDM) strategies that include, but are not limited to the mobility of pedestrians, bicycles, public transit service, and intelligent transportation system solutions for commercial and automobile traffic. This study represents a Phase I strategic initiative by the MPO to establish an infrastructure framework for community/campus connectivity and mobility consistent with the transportation needs identified in the 2030 Long Range Transportation Plan.

Senior Design Projects (cont.)

Residential Subdivision Development

Paragon Construction, Inc.

Team: Peter Flynn (Myrtle Beach, SC), John Kats (Worth, IL),

Faculty Coach: Thomas

Matthew Lash (Brazil, IN), Stephen Rowe (Terre Haute, IN), Ryan Schipper (Leo, IN)

Paragon is a residential construction company that has been asked to develop a plan for 48 acres of land adjacent to the Greenfield Country Club. The primary aspects of the project requiring investigation and design include subdivision plans (including roads and utilities), onsite stormwater treatment, reuse of the retained stormwater, sanitary sewer design, road design, and walking trail w/ connection to the city trail. Key tasks also include a conceptual site development plan that will maximize lot sales profit, while keeping construction costs to a minimum. Paragon will provide necessary resources such as county/city codes and guidelines for basing potential profit.

Rockville Mini-Mall

Trigent Development, LLC

Team: Bruce Boehl (Oblong, IL), Todd Clementoni (Muncy, PA),

Faculty Coach: Sutterer

Christopher Hollen (Eckerty, IN), Kellen Hurst (Nobelsville, IN)

The town of Rockville, Indiana, has very few retail stores. Townspeople travel to Terre Haute or farther for many purchases. Therefore, many residents of Rockville support the development of a mini-mall in town. The site has been chosen, but acquisition of the land cannot begin until financing is in place. A detailed site development plan, including preliminary foundation and structural designs, and a cost estimate will help persuade investors. Key tasks include identification of potential environmental hazards on the site, placement of the structure(s), parking facilities, site transportation, storm water management, site-work requirements (grading, utilities, etc), foundation design, structural design, and a 3D rendering of the developed site.

Thanks To Our Donors

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

James H. Barr (1973)

David A. Hall (1973)

Larry K. Rust (1969)

Philip R. Boller (1957)

James D. Hammon (1974)

Philip K. Salitros (1975)

John W. Briggs (1957)

Jonathan E. Holtz (1974)

Joseph R. Schmeltzer (1999)

Philip M. Catalano

Eugene J. LeBoeuf (1985)

Robert E. Shaw, Jr. (1975)

Walter E. Charles (1976)

John L. Lueken (1987)

David T. Shields (1994)

William E. Daugherty (1987)

Stephen W. Meier (1974)

S. Don Shimazu (1949)

Mark O. Federle (1985)

Jason J. Meyer (2003)

L. Eric Strickland (1996)

Kenneth L. Ferry (1978)

Raymond H. Naras (1952)

Steven D. Swanson (1986)

Rodger N. Fortune (1990)

Carl M. North (1954)

David J. Szczepanek (1969)

Leon R. Goble (1971)

Daniel J. Rich (1992)

Robert C. Waterman (1970)

Harvey A. Greene (1957)

Don Rosenbarger, Jr. (1978)

Note: If we missed your name, email Kathy.Nicoson@Rose-Hulman.edu and we will include you in our next CE Echoes.

Alumni Highlights

BRENT ROBERTSON (1962) updates us that he is enjoying retirement in Carmel while establishing his deco concrete business and working on his 1967 Pontiac GTO project. He has a new granddaughter.

DOUGLAS MEURER (1975) has been hired as Lee County utilities director in Lee County, Florida.

CHRIS THOMAS (1981) bicycled more than 540 miles in 7 days from San Francisco to Los Angeles last June as part of AIDS/LifeCycle 5, which raised more than \$8 million for HIV and AIDS service and prevention. He is an editor at The Fresno Bee newspaper.

BROCK RIDGWAY (1988) started his own civil engineering firm last year. Called Eagle Ridge Civil Engineering Services, the firm serves public clients in the planning, design and construction inspection of road, drainage and recreational path infrastructure improvements.

CRAIG MASKE (1990) is now a Vice President with Dodson and Associates in Houston, Texas.

DAVID WHITWORTH (1992) and wife Kathy, welcomed a second daughter, Megan Rose, On April 26, 2006, joining “big sister” Elise Katherine (born January 1, 2003). David is presently Consultant Services Manager at INDOT in Crawfordsville.

DAN COREY (1993) was elected to serve a four-year term as Deerfield Township Trustee in Ohio. He serves on a board serving nearly 30,000 people with a \$12 million budget. Also, he became the second employee of a startup development company called Thomas J. Ackermann Co. that develops land into residential, commercial and office uses in the greater Cincinnati Area. He reports the most significant event in his life during recent years has been a mission’s trip to Vidin, Bulgaria.

KENT ELLIOTT (1998) married Tia L. Dayhuff-Lowhorn last year.

RENEE SCHWECKE (1998) and her husband Scott announce the birth of their first child. Ainsley Caserio Coffey was born on October 9, 2006 weighing 5 lbs. 15.6 oz. and 19 ¼ inches long. **AMY HAYMAKER (2003)** gave Ainsley her first Rose-Hulman “future engineer” t-shirt.

CHAD LEINART (1999) received notification on Christmas Eve that he passed the PE exam. Congratulations Chad!!!

SUSAN HOWARD ROBARGE (2000) and her husband Nicholas announce the birth of a daughter, Amanda Rose Robarge born October 24, 2006 weighing 8 lbs. 7 oz. and 21 inches long. Congratulations to the whole family!

CHRIS BAUER (2001) has been promoted to Project Manger with BCBE Construction. He is currently overseeing the completion of two eight story condos on the water in south Sarasota.

MATTHEW KAHLE (2001) married Kelly Whittlinger last March. He is an associate engineer-structural at Opus Architects and Engineers in Minnetonka, Minnesota.

JOHN BOWEN (2002) just passed the PE exam. Congratulations John! He is working in the Scottsburg office of Hannum, Wagle & Cline Engineering, Inc.

LEO MORAND (2002) informs us that he recently passed the PE exam. Congratulations Leo!!!

ANGIE REYNOLDS (2002) is engaged to Le Tien and will be married in Colorado this summer. She lives in Broomfield, Colorado and is employed as a Project Engineer for Jehn Engineering.

LT. ERIC DIEHL (2005) is currently in Iraq at Balad Air Base. He is part of the 557th RED HORSE unit. He is a design engineer and is designing mostly PEBs, taxiways, roads, and a lot of drainage projects. He is due back in the states in May.

SCOTT TOURVILLE (2005) is leaving American Structurepoint (formerly American Consulting, Inc.) and starting a new position with the City of Westerville in Ohio on February 12th.

ZACH JOHNSON (2006) is enjoying his job with Kimley-Horn. He has been in Rancho Cordova, California for about 6 months learning land development and is now in Roseville (north-eastern Sacramento) working for a month learning traffic engineering.

Mark Your Calendar

May 19, 2007—ASCE Golf Tournament (Tentative) Rea Park Golf Course

May 26, 2007—Commencement