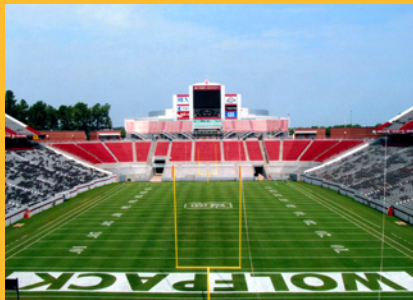


# CCEE News

A NEWSLETTER FOR ALUMNI AND FRIENDS OF THE DEPARTMENT OF  
CIVIL, CONSTRUCTION, AND ENVIRONMENTAL ENGINEERING at NORTH CAROLINA STATE UNIVERSITY



*North Carolina  
Construction Firm  
Connects NC State  
to US History ... 6*





## Inaugural Advisory Board Wastes No Time Confronting Issues

An advisory board has been created in the Department of Civil, Construction, and Environmental Engineering to assist in directing its future. "If I'm the CEO, I cannot effectively function without a corporate board of directors," said Department Head George List. He noted the board with which he worked at RPI was an extremely valuable advocate for the department both internally and externally. "Also, it's difficult to know how to best prepare our students who will soon become tomorrow's professionals unless we have a pulse on the industries we serve. The individuals on our new board are leaders of those industries so they will help guide us," said List.

The inaugural board was joined for dinner by 36 faculty members, several students and Dean Louis Martin-Vega at the Irregardless Café in March. Each inaugural member signed a framed photograph of the Constructed Facilities Lab (CFL), which now hangs in the main office of Mann Hall.

The next day the group met on campus when Prof. Vernon Matzen conducted a tour of the first floor of Mann Hall, and Prof. Francis de los Reyes led members through the Environmental Lab, which was dedicated in Broughton Hall last March. Next the group saw presentations of the undergraduate and graduate student programs from Prof. Jim Nau and Prof. David Johnston, respectively. Following these updates, they traveled to Centennial Campus to have lunch at the Constructed Facilities Lab (CFL), where members were impressed with the capabilities of the facility, directed by Distinguished Prof. Sami Rizkalla. They saw live testing of a 48-foot-long, 18-inch-deep concrete beam containing new reinforcing bars from Germany. The massive beam bowed six inches before failure.

Following lunch, members dove into learning about departmental strengths as well as the difficult challenges that lie ahead. Without staff or faculty present, two one-hour sessions were held between board members and graduate and undergraduate students to share and hear candid feedback about faculty, processes and programs. Many student suggestions were received related to advising, facilities and undergraduate research opportunities. The department, the College and volunteer alumni are working hard to improve facilities by facilitating the department's eventual planned move to Centennial Campus in Engineering Building V.

Board member Mike Gwyn (BS '80, MS '94), also a Practitioner-in-Residence for the department, explained to the group his role with students as an individual from private practice to assist with senior class projects and spend a significant amount of time around Mann Hall to answer career-related questions, provide professional direction and in some cases make connections for students and faculty. The vision for the department is to have several of these individuals to better integrate academic knowledge and practical experience. Members overwhelmingly agreed upon the value of this concept, so a task force, led by Gwyn, was created and charged to develop a business plan for the model. Another subgroup, led by Mike Creed (BS '73), was assigned the task of researching demand and providing feedback about which academic areas the department should be considering when hiring faculty.

Stacy Zeiring, director of development, announced the formation of a development subcommittee to work with volunteers not on the advisory board to assist in generating

### FROM THE DEPARTMENT HEAD



George List

Once again, I bring greetings from NC State. We continue to improve and enhance the department and its activities in order to remain at the forefront of research and education, preparing our students, both graduate and undergraduate, for successful, long-term careers. This issue of the newsletter highlights the formation of our new departmental advisory board, the new theme we have embraced – sustainability – and the image of being the primary care physicians for the earth, as well as new programmatic elements we are adding, like practitioners-

in-residence. We have shared information about our new faculty hires as well as features about the accomplishments and services of our extension professionals and awards and accolades from other members of our faculty.

We plan to feature in every newsletter a firm owned or run by one of our own. The TA Loving Company, which has provided exemplary construction and civil engineering services for over 80 years, provides us with an interesting story in this issue. We hope you will also enjoy the article about our concrete canoe team, which placed first in the southeastern region competition by dethroning Clemson, who had won the competition 14 consecutive years. Go Pack!

– George F. List  
Professor and Department Head

Front row (l to r): George List, Barbara Mulkey, Mike Creed, Stacy Zearing. Second row: Jack McDonald, Mike Walton, Elizabeth Sall, Phil Freelon. Third Row: Smedes York, John Brantley, Bob Wright, Sam McCachern. Back Row: Tom Bradshaw, Tim Clancy, Mike Gwyn. Not pictured: Tom Church.

critical private support to promote the department and fulfill its mission. Interested candidates should contact him at [stacy\\_zearing@ncsu.edu](mailto:stacy_zearing@ncsu.edu) or (919) 513-0983.

At the end of the day, members briefed Dr. List on conversations with students and later in May, several members met with Dean Louis Martin-Vega to share this feedback. The board will re-convene in Raleigh on September 11, 2007, to tackle the issue of hiring key faculty.



## EXTENSION

# Technical Expertise Shared throughout North Carolina, Extended into Developing Countries

In between teaching Construction Engineering and Management courses and advising students, CCEE Extension faculty continue to effectively help designers stay up-to-date on technology and best practices, support the career development of construction professionals and aid developing countries in adopting construction technologies.

Six years ago departmental extension efforts of Edwin Weaver and Roberto Nunez created a unique partnership between CCEE and the Materials and Tests Unit of the NC Department of Transportation to provide training and certification to concrete field technicians from all across the state. This program has developed a solid national reputation, certifying over 1,000 engineers and technicians who are actively maintaining the quality of the infrastructure in North Carolina. Roberto Nunez, with assistance from the ACI and CCEE student groups also expanded certification opportunities in Ecuador, Guatemala and Panama. Now those countries have hundreds of certified engineers and technicians working on domestic and international projects, ensuring the highest level of built quality in their concrete structures. In 2005, the Department of Civil, Construction, and Environmental Engineering was recognized by the ACI for its "Outstanding Contributions to the Development of Certification Programs." CCEE international outreach efforts also include the establishment of basic engineering libraries at universities in Ecuador and Afghanistan through donations of used books by faculty.

A need was also identified to educate North Carolina's mid-level construction professionals who, at the project manager and supervisory levels, lacked a structured background in several fundamental

areas in construction project management. Through the Office of Professional Development at NC State and expert training from CCEE faculty members Roberto Nunez, Michael Leming and Ed Weaver, six complementary noncredit courses were developed and are offered twice a year towards a university-recognized diploma covering fundamental aspects of 1) estimating and bidding, 2) planning, scheduling and project control, 3) cost, cash flow and financial controls, 4) contracts and negotiation, 5) construction safety and 6) blueprint reading. Over 500 professionals from several hundred construction-related organizations in North Carolina have benefited from this pragmatic program. The estimating and bidding class "hits key aspects and processes of estimating that are necessary to run a successful business," said J. Todd Roberts, a program student.

Last year, about 300 design professionals benefited from short courses developed by CCEE extension specialists. These were aimed to refresh and update North Carolina's professionals in best practices and technologies relevant to infrastructure design and construction as affected by elements such as wind, earthquakes and water in various construction materials like concrete, masonry, steel, wood and others.

CCEE faculty were also instrumental this spring in bringing together more than 100 construction and design firms to the NC State Design-Build Forum, which was designed to facilitate participation in an upcoming multi-million dollar military design-build construction plan.

North Carolina companies appreciate the direct one-on-one support they receive from faculty, who field calls daily to answer questions. This friendly approach to industry is reflected by the consistent support of corporations who regularly provide speakers to students. This outreach culminates annually at the CCEE Golf Tournament, which attracts over 100 alumni and friends who support students.



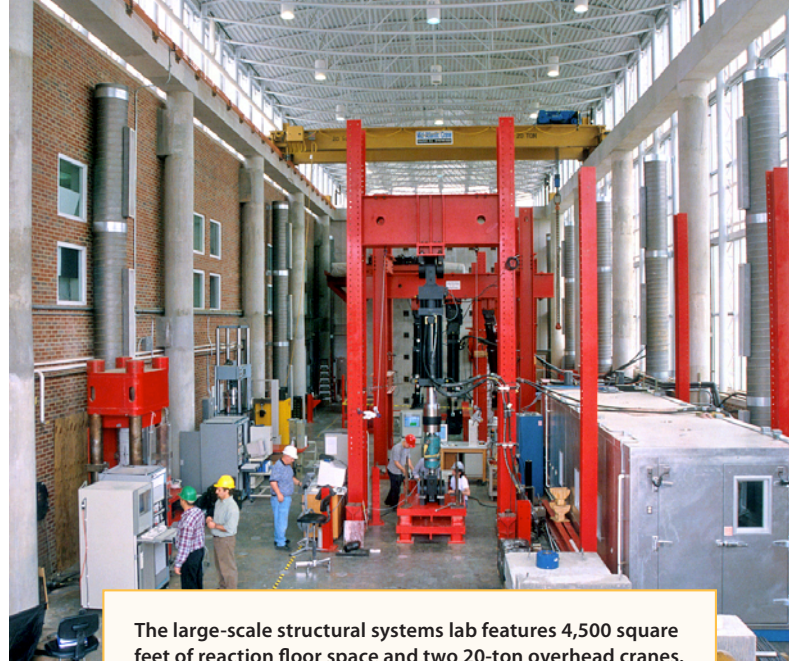
## EXTENSION

### CFL Conducts Large Scale Testing, Advanced Research on Centennial Campus

The Constructed Facilities Laboratory (CFL) on the Centennial Campus is a state-of-the-art facility that hosts departmental extension activities using its labs in large-scale structural systems, construction materials and geotechnical. Its mission is to perform advanced research and development of construction materials, structural systems and processes that enhance the sustainability and economy of civil infrastructure through innovation and vision as well as to provide unique research and training for graduate and undergraduate students for the civil engineering profession.

Recent activities include the testing of four full-scale wood-to-steel connections used in the roof structure of the new Terminal C at RDU International Airport and bond tests on 2.5-inch diameter, high-strength steel reinforcing bars being considered for use in the Freedom Towers in New York City.

In addition to accommodating approximately 30 graduate students, post-doctoral fellows, research engineers and visiting



The large-scale structural systems lab features 4,500 square feet of reaction floor space and two 20-ton overhead cranes.

faculty, the CFL integrates state-of-the-art research with undergraduate civil engineering education through activities like summer work programs. Outreach is extended to K-12 students through interactive laboratory tours while international outreach is conducted through the IAESTE Exchange Program and a three-week practicum for students visiting from Venezuela.

## ALUMNI

### Recent Alumni News

**Emily Blount** (BS '53) was inducted into the North Carolina Transportation Hall of Fame in Spencer in fall 2006. She was the first woman to graduate in Civil Engineering at NC State and was also the first female licensed PE in North Carolina (1960).

**Steven S. Welton** (BS '88, MS '92) began his own firm with wife Karen (BA '88) in July 2000. Welton Structural Design, PC currently employs six and serves Virginia, North Carolina and West Virginia.

**Noland Lewis Tipton, E.I.** (BS '04) is currently working in the traffic engineering division of the City of Greensboro Transportation Department.

**Daren Marceau** (BS '94, MS '95) recently published a new book, *Accident Reconstruction at Traffic Signal Intersections* ([www.kineticenergypress.com](http://www.kineticenergypress.com)). Daren is a forensic engineering practice builder at Kimley-Horn and Associates, Inc. in Raleigh.

**William Glenn Kluttz** (BS '67) has retired as a project manager with consulting engineering and construction management firm O'Neal, Inc. in Greenville, SC.

**Barbara H. Mulkey** (BS '77, MS '84) received the College's Distinguished Engineering Alumnae Award and was also selected to serve on the NC State Board of Trustees.

**Scott Hodges, P.E.** (BS '86) has been promoted to Vice President of Sunbeam Development Corporation in Miami, FL, where he manages construction of warehouse and office buildings and coordinates the design and permitting of other Florida properties.

**John R. Booth** (BS '64) retired from a 35-year business and military career in 1999. He received his PE in 2003 and started a consulting firm, Booth Civil Engineering, PA in Cary, NC.

**P. Porcher Gregg, Jr.** (BS '40) retired as president from Balwin & Gregg Ltd. He later went into real estate and is still active with Porcher Gregg Realty, Inc.

**Dr. William F. Marcuson III** (PhD '70) is serving as President of the American Society of Civil Engineers (ASCE) from October 2006 – November 2007.

**David Stout, Jr.** (BS '91, MS '92) is a third-generation NC State Civil Engineering (Construction Option) alumnus who has worked for the CT Wilson Construction Company since 1995. His grandfather Mack Stout was a graduate of 1931, and his father, David Stout, Sr. graduated in 1965.

**Michael Weaver** (BS '85), married, has owned and operated ML Weaver Construction in the Asheville area for over 18 years.

## Donors

**\$10,000 and above** • NC Licensing Board for General Contractors • Shelco Inc. • CH2MHILL • D. Edwin & Carla Rose • Greenville Pitt County Home Builders • Carmel Contractors • National Water Research Institute • Progress Energy • Paul M. Stephens •

**\$5,000 - \$9,999** • Geosyntec Consultants • S&ME • Withers & Ravenel • Avion Inc. • Joel Clancy • Tim Clancy • Charles Lamb • Norfolk Southern • Daniel Perry •

**\$2,500 - \$4,999** • Bryan Scott Craver • John Crigler • Landmark Builders • Kimley-Horn & Associates • NC Airports Association • NCDOT • Hannibal G. Warren Jr. •

**\$1,000 - \$2,499** • Exxon Mobil • John R. McAdams Co. • Richard D. Sanders • Subsurface Construction Co. • Cary Oil Foundation • VCSSFA • H. Stuart Nunn Jr. • Atlas Engineering • Barry W. Gardner • General Contractors Association of Raleigh • Scott Harton • Hazen & Sawyer • Donald H. Kline • Joseph B. Obusek Jr. • Philip Morris Inc. • Stearns & Wheeler • Patricia L. Stephens • Paul M. Stephens III • Carson Olin Wiggins •

**\$1 - \$999** • James N. Robinson • Rachel G. Goins • Brasfield & Gorrie • Cavanaugh & Associates • Ready Mixed Concrete • United Forming • Robert G. Wright • J. Bennett Dellinger III • Robert J. Glusenkamp • Terry L. Johnston • Richard B. Josephson • Michael A. Mueller • David C. Page • J. Steven Phifer • Eric Reichard • Archer Western Contractors • Jeffrey M. Arey • Beam Construction • Bovis Lend Lease • Fred Alexander Campbell • Norris Z. Clayton • Ronald E. Cohn • IQ Contracting • Douglas M. Journey • National Rebar Fabrication • Leo J. Stepansky • Thomas Concrete of Carolina • URS • Cinda Patrick Wathen • Latitude 18 • William G. Talley • BB&T • Carolina Stalite Co. • RMF Engineering • Barnhill Contracting • Bobbitt Design Build • M. Eric Brinker • Brown and Caldwell • Hardin Construction Co. • HDR Engineering • Kaydos-Daniels Engineers • John J. Kirlin • Charles J. Palmer • Judy M. Foley • Randolph D. Broome • Robert Crouse • Harrison William Fox • Hobbs, Upchurch & Associates • Marlene Hale Sherlock • H. Don Stephenson Jr. • Paul N. Stephenson • Bobby & Linda Weeks • Sepi Engineering Group • David M. Ball • John Stephens Barnes • Tiffany R. Goins • Nellie M. Greer • Donna H. McCachern • Brian M. Trotter • Edward E. Denmark • Robert L. McAllister • Joan McGrath • Betty M. Phillips • Jason P. Holt • Denworth H. Williams •



# achieve!

## The Campaign for NC State

We invite you to invest in the Achievement of the department by making a tax-deductible gift during the final year of the campaign. Please mail checks payable to the "NC State Engineering Foundation, Inc." to Campus Box 7901, Raleigh, NC 27695 and write "CCEE" in the "notes" or "for" line. A secure, online gift may also be made by visiting: [www.acs.ncsu.edu/scripts/Advance/af\\_makea-gift.pl](http://www.acs.ncsu.edu/scripts/Advance/af_makea-gift.pl) and designating it for Department of Civil, Construction and Environmental Engineering.

As of March 31, the College of Engineering was at 100% of its goal in the campaign at \$225,923,446.

## Alumnus Does His Part to Boost Rankings

Jimmy Clark (BS '74) of Greensboro, NC, is certainly proud to have transformed Guy M. Turner, Inc. from a trucking and rigging company into a uniquely dynamic corporation specializing in plant relocation, heavy and specialized hauling, heavy lifting and many other services. But he is quick to credit NC State's College of Engineering with giving him an understanding of basic engineering principles, which combined with his practical experience, has given him an understanding of business that he says he otherwise would not have.

Clark has established a professorship in the Department of Civil, Construction, and Environmental Engineering. "I believe alumni should give back according to their capability," said Clark, who is in his first year of service on the NC State Engineering Foundation Board. He believes it is silly to leave money on the table. "This is the only way the university can receive the one-third legislative match," noted Clark. His gift of \$334,000 will be eligible for \$167,000 match by the Distinguished Professorship Endowment Trust Fund, bringing the total value of the professorship to \$500,000.

"My love for NC State lies in the College of Engineering, so I also wanted to do something to help improve our peer rankings," said Clark. A tangible measurement used in academic rankings is giving by alumni. "Check." An intangible, subjective measurement is perception. An endowed professorship is a key to attracting and retaining the most highly sought faculty members. Having renowned faculty has a positive effect on evaluations by peers. "Check."



## North Carolina Construction Firm Connects NC State to US History

TA Loving Company is a professional construction services organization that has literally built itself into a small piece of American history. From its modest beginning in 1925, this former bridge contractor has grown into one of the nation's top 400 general contractors, and all but one member of its executive team are graduates of the Department of Civil, Construction, and Environmental Engineering.

Raymond Bryan, Sr. was the first TA Loving connection to NC State, and he would be the first of several NC State alumni to help lead the company to its current success.

He attended NC State in the College of Engineering for two years prior to going to work and would re-engage with NC State as a Director of the NC State Engineering Foundation Board. He received the Alumni Association's Meritorious Service Award in 1957, and 20 years later he received the prestigious Watagua Medal. Throughout his distinguished career, Mr. Bryan held several civic and professional service

positions and directorships. He passed away in 1982, and his nurse quoted him as saying "There are those who seek riches for riches' sake, and there are those who seek success so they may share with others." Frank Billings (BS '53, '58) is a case to his point. "Mr. Bryan paid my way through most of my time at NC State, and I can't think of a finer man than he was," said Billings. He would go on to work for TA Loving for most of his career until he left in 1974 when he co-founded Billings and Garrett Utility Contractors. "TA

**"There are those who seek riches for riches' sake, and there are those who seek success so they may share with others."**

**- Raymond Bryan, Sr.**

Loving is a great company, and I owe all of my expertise in the utility business for having worked there," said Billings.

The onset of World War II brought a call to TA Loving from a US General requesting a meeting in Washington the next morning. This led to contracts at Fort Bragg and would make TA Loving one of NC's largest employers at the time with over 23,000 employees. The agreement with the Pentagon stipulated the company would build 2,462 buildings in 180 days, including 63-person dormitories with heat, electricity and plumbing as well as a 2,680-bed hospital. Also needed were the underground water and sewer lines, power lines, telephone lines, a parking lot for 17,500 motor vehicles and weapons as well as streets and access roads. TA Loving played its part in securing our nation's freedom by meeting "the call of duty." By the end of the 180 days, a newly constructed building was averaged every 32 minutes using the newly popularized Henry Ford assembly line method. When military regiments arrived, they were greeted with warm buildings that had electricity and plumbing rather than having to live in a tent. The success at Ft. Bragg led the company to subsequent military projects in NC, like camps Lejeune, Davis, Butner and Seymour Johnson Air Force Base. Drills of over 400,000 men at these locations successfully prepared them for several encounters defending freedom, and by 1945, more men had been trained in NC than in any other state.

In 1940 the TA Loving Company had made its historical mark in Selma, Alabama, where it constructed the 1,248-foot-long, 55-foot-wide Edmund Pettus Bridge, which at the time was considered "the finest bridge between Savannah and San Diego." At its dedication, County Probate Judge Watkins Vaughan said, "Its grandeur will stand as an outstanding emblem of foresight and the progressive spirit of the people of the state." How right he came to be on March 7, 1965, when 600 people who were denied the basic civil right to vote gathered peacefully to march 54 miles from Selma to the state's capital for equality. The day came to be known as Bloody Sunday when state troopers and other civilians tear gassed and brutally beat the marchers. President Lyndon Johnson immediately claimed the marchers' cause as the nation's cause, and two weeks later, Dr. Martin Luther King, Jr. successfully led 4,000 individuals across the Edmund Pettus Bridge and onto Montgomery. This site is said by many to be the most significant in the civil rights movement.

TA Loving has become a leader in the construction of health care and university facilities. Since 1950, nine large campus projects have made the TA Loving Company no small part in the history of NC State. These include the recently added gems that made the university family proud—The Wendell Murphy Football Center and Carter-Finley Stadium improvements, as well as the Park Alumni Center on Centennial Campus. Ray Bryan, Jr. (BS '53) led many of these projects at his alma mater in various ways. After graduating from NC State in Construction, he went to Korea with the military until he returned to Goldsboro and started his career with TA Loving as an assistant

TA Loving management (from left): Sam Hunter, Steve Bryan, Ray Bryan, Michael Richter, Ty Edmondson and Al Grisette.



**Sam Hunter** - President and CEO

BS Civil Engineering, Virginia Tech, 1965  
MS Civil Engineering, Virginia Tech, 1968

**Steve Bryan** - Vice President

BS Engineering, Operations, 1982

**Ray Bryan** - Chairman

BS Construction, 1953

**Michael Richter** - Senior Vice President

BS Civil Engineering-Construction Option, 1982

**Ty Edmondson** - Senior Vice President

BS Civil Engineering-Construction Option, 1989

**Al Grisette** - Chief Financial Officer

BS Civil Engineering-Construction Option, 1971  
Masters Civil Engineering, 1974

superintendent. He worked as a project manager on the NC State campus, moved up the ranks and became president in 1969. Ray Bryan, Jr. was elected as Chairman of the Board in 1988, and Sam Hunter

became President that same year. Ray is a past member of the NC State Engineering Foundation Board, engineering advisory council, past president of the Wolfpack Club, a lifetime alumni association member, and a member of the Peele and Pullen Societies at NC State.

TA Loving is currently one of the largest privately held companies in North Carolina and is consistently ranked among the top 400 general contractors in the nation. The company is headquartered in Goldsboro, NC, and employs over 300.

## About the Cover

**Wendell Murphy Football Center** (right): The 103,254-square-foot facility houses coaches offices, a 130-seat dining room, a state-of-the-art video suite for production and editing, a modern computer/study area, 15,000 square feet of strength and conditioning space, and other features intended to help the Wolfpack win. (Photo: Roger Winstead)

**Dorothy and Roy Park Alumni Center** (upper left): The new Alumni Center's three floors include a grand staircase, reception area, 70,000 square feet of meeting rooms, Alumni Club and dining facilities. Located on the shore of Lake Raleigh on the University's Centennial Campus, the center is one of the finest alumni facilities in America. (Photos courtesy of TA Loving)

**Carter-Finley Stadium North End Zone Facility** (middle left): This project consists of construction of approximately 5400 seats, a 17,000-square-foot team locker facility, restrooms, concessions, a connecting concourse and related site improvement.

**Bowen, Metcalf and Carroll Dormitories** (lower left): TA Loving has a long history of constructing facilities at NC State. Shown here are Cox Lab and Bowen, Metcalf and Carroll dormitories rising up behind Harris Hall in the 1960s.

## UNDERGRADUATE STUDENTS



## NC State Ends Clemson's 14-Year Concrete Canoe Reign

The NC State Chapter of the American Society of Civil Engineers traveled to Atlanta in April to attend its regional conference on the campus of Georgia Tech. Members participated in several small competitions as well as the headlining Steel Bridge and Concrete Canoe competitions.

The group joined other high-achieving students from 21 other top engineering schools in June at the University of Washington for the 20th Annual Concrete Canoe Races. While there, they took care of business by knocking off Clemson University's 14-year domination of the Concrete Canoe competition and took home the America's Cup of Civil Engineering. The competition is judged on four categories: 1) aesthetics and structural integrity of canoe, 2) a technical design paper highlighting the team's planning, development, testing and construction, 3) an academic presentation covering design, construction, innovation and racing ability and 4) the canoe races.

"Engineers are problem-solvers, but as they move into the professional world, the problems these young engineers will have to solve – energy, transportation, global water supply – are going to require 'outside the box' solutions. By giving them a seemingly impossible task, Concrete Canoe challenges students to use their natural creativity to apply classroom principles and methods. So they will be better prepared as the world's future problem solvers," said ASCE National President William Marcuson III (PhD '70).

NC State ASCE Concrete Canoe champions ended Clemson's 14-year dominance of the event.





### CCEE Students, Faculty Play Critical Role in International Outreach

Ninety percent of the population of Bolivia lives in poverty, and its extreme incidence of water-borne diseases is the cause for its having the highest child death rate in South America. The NC State Chapter of Engineers Without Borders (EWB) is changing this with leadership from faculty and students in the Department of Civil, Construction, and Environmental Engineering who play a key role with expertise in water resources and design.

Following a year of fundraising from multiple sources, several students traveled last December to the Arampampa district of Bolivia with objectives to collect engineering design data and determine needs for improving water quantity and quality. Also with the goal of providing basic health and hygiene education, the group collected community assessment information in compliance with EWB guidelines.

CCEE faculty Roberto Nunez, Matt Evans, Detlef Knappe and Francis de los Reyes provided essential technical information about international project planning, surveying, soils, water quantity and water quality issues. Students tested for *E.coli* and coli form, a fecal bacterium, on 24 sites in six different communities, each with its own water distri-

bution system. They discovered that 96 percent of the sites tested positively for coli forms while 17 percent contained *E.coli*, and all communities were determined to have a high risk of contamination by pathogenic sources such as spring boxes, taps, tanks and household practices.

The group found the dry season caused an inadequate water supply for personal hygiene and agricultural practices and that most families lack the education and resources to produce healthful food for a population of about 5,000. This results in malnutrition and intestinal illness among children.

In addition to their technical involvement, the students were able to provide the Bolivian community with basic health education and training using the area's capacitation center, which is a year-round school for 20 young adults in the region. The students incorporated this center into the sustainability portion of their project. EWB plans to utilize it to disseminate project information to local students and teachers who will share it with their constituents and serve as liaisons with local government officials.

EWB students are currently working on a plan that would allow future student teams to implement resulting recommendations such as installation of a basic water treatment system, optimization of the water distribution system, implementation of simple solid waste management practices, incorporation of sustainable hygiene education and home water use education programs, and the building of bridges for better community access. EWB plans to raise additional funds and resources so student teams can work on these projects over the next five years along with local leaders who will be trained to take over these projects to ensure sustainability.

"Our overall goal with these projects is to acquaint students with another culture, teach them to manage with constrained and varied resources, learn ingenious and practical ways to implement engineering technologies; all of which can help our students to simply be better people and better engineers," said Nunez.

### North Carolina's First Student ACI Chapter in Full Swing

Roberto Nunez understands the high demand for students who are immersed in concrete technology. He also knows that success in the concrete industry requires exposure, involvement and active participation in the world's premiere concrete technical organization – the American Concrete Institute (ACI).

Nunez took four Construction Engineering and Management students with him to the national ACI convention in Colorado last year – Alison Miller, Kara Henrion, John Lambert and Jessica Cantrel. The rest is history because each of the students wrote letters to the national ACI to request establishment of the first student chapter of ACI in the state of North Carolina.

The student's enthusiasm was so infectious they recruited 30 other members for the new organization. The group sent 20 members to Atlanta in April to participate in the ACI's "Fiber Reinforced Polymers Beam Competition," which was the largest ever student delegation at an ACI national competition.

The group is assisting with the renovation of the concrete lab in Mann Hall 122. Students have pitched in to clean the lab, paint its equipment and conduct an inventory and needs assessment. Purchase orders have been made based on the student's findings, and soon the concrete lab will become a showcase of pride for the department.

### Chi Epsilon Inductees

**Fall 2006** • George Blackard • Brandon Bowland • Wonchang Choi • Matthew Clarke • James Crouse • Kent Dickens • Paul Duncan • Orion English • Mark Honeycutt • James Huggins • Thomas Knight • Andy Krebs • Nick Lutzweiler • Francesco Viola •

**Spring 2007** • Tyler Barker • Bryan Burnitt • Blake Bush • Nate Harvey • Catherine Hoffman • Brad Little • Brent McClain • Adolfo Javier Obregon-Salinas • Nick Shultz • Mary Williams •



## Graduate Program Report

In the fall semester of 2006, the number of CE graduate students increased to a record 247. The number of master's students jumped to 164, and the number of PhD students was 83. This increase in master's students is largely a result of enrollments in the master of Civil Engineering degree offered by distance education. Since the start of the MCE distance program in fall 2002, 19 distance students have graduated, 48 admitted students are in process, and about 15 are expected to start in Fall 2007. More than 120 individuals located in more than 20 states were enrolled as distance students in CE graduate courses during each semester of the 2006-2007 academic year. Some were admitted to the MCE degree, and others were enrolled as PBS students trying the program or taking a course to meet PDH requirements of PE licensure.

The research done by our graduate students and faculty resulted in 230 publications and 196 conference presentations during the 2006-2007 academic year. Some of our PhD students have aspirations for academic careers and are encouraged to participate in the NC State Preparing for the Professoriate Program which provides specialized seminars and mentored teaching experiences. Our PhD students were selected for 4 of the 10 university-supported positions funded during the most recent year.

About 120 of the current graduate students are supported during their studies. Research contracts and grants garnered by the faculty supported about 85 as research assistants; teaching assistantships supported about 30 during their studies. In addition, the following students are supported fully or partially as recipients of prestigious fellowships awarded in national or university competition.

**National Science Foundation Graduate Fellowship** – Elizabeth Harris • **Eisenhower Fellowships, U. S. Department of Transportation** – Brent Robinson, Bastian Schroeder, Benjamin Shane Underwood • **Fulbright Graduate Fellowship** – Cesar Leon • **PCA Graduate Fellowship** – Luis Meta • **National Water Research Institute Fellowship** – Ana Carolina Baeza • **Emol Falls Graduate Fellowship in Construction** – Andrew Jerome • **Sean McGrath Memorial Fellowship** – Benjamin Posseil • **College of Engineering Dean's Fellowships** – Zachary Clark, Lauren Hart, Bernard Frankl, Joshua Griffin, Andrew Jerome, Caleb Pike, Benjamin Possiel, Beth Visintine, James Levis, and Aaron Weispfenning • **Transportation Founders Fund Fellowships** – Henri Belrose, Bastian Schroeder • **Kimley-Horn/Ed Vic Fellowship** – Zachary Clark • **Charles Smallwood Fellowships** – Scott Alpert, Vivi Nguyen • **NC Licensing Board for General Contractors Fellowship** – Donna Hollar • **Southeastern Transportation Consortium Fellowships** – Ilhyoung Shin, Ting Yi, Chun Chen, Zachary Clark, Daniel Findley, Elizabeth Harris, Hyejung Hu, Harikrishnan Krishnankutynair, Jisun Lee, Sangyum Lee, Jaepil Moon, and Bharath Paladugu •

## Prestigious PCA Fellowship Awarded to CEM Student

**Luis Mata** was awarded one of six 2006 Portland Cement Association (PCA) Education Foundation Research Fellowships in Chicago. The \$20,000 fellowship supported his work on "Serviceability of Pervious Concrete Pavements" under Professor Michael Leming. The PCA fellowship goal is to identify and reward outstanding master's and doctoral students in the fields of engineering and physical sciences who are studying areas that advance the science and technology of cement and concrete.

## CCEE Scholar is Only Student Fulbright Recipient from NCSU

Donald Katz, BSCE, May 2007, summa cum laude, received a 2007 Fulbright Scholarship to spend one year in Bangladesh to conduct research on large scale transportation projects. He was the only Fulbright student recipient from NC State for the year. The last NC State student Fulbright recipient was also in Civil Engineering, Adam Rush in 2005, for his studies in earthquake preventative restoration and design of concrete in Italy.

Donald Katz



## New Appointments

**Jie Yu** joined the Department as an Assistant Professor in February 2007. She comes to us from the University of Manchester, UK, where she held a position of university lecturer in the School of Mechanical, Aerospace and Civil Engineering. Her research interests are fluid mechanics in natural environmental systems, presently focusing on coastal waves, currents, morphology and their multi-scale interactions. Dr. Yu received a PhD in Civil and Environmental Engineering at MIT, an MS in Computational and Applied Mathematics at Florida State University, and a BS in Mechanical Engineering at University of Science and Technology of China.

**Min Liu** joined the department as an Assistant Professor in August 2007. Min Liu received a BS degree in Structural Engineering from Tsingdao Institute of Architecture and Engineering, China, in 1994, an MS degree in Construction Management from the National University of Singapore in 2001, and a PhD in Civil Engineering, specializing in Project Management, from the University of California, Berkeley in 2007. She worked in the China Construction Bank from 1997 to 1999. Her current research interests include construction performance and productivity improvement, lean construction and international project management.

## Promotions

The following faculty were promoted to Associate Professor in July 2006 • **Francis L. de los Reyes III** • **Murthy N. Guddati** • **Kumar G. Mahinthakumar** •

## Departures

**Edwin Weaver**, Lecturer and Senior Construction Extension Specialist, left the department in June to join the faculty in the Del E. Webb School of Construction at Arizona State University in Tempe as a Senior Lecturer. In addition to teaching in the construction management program, one of his main duties will be to focus on teaching and course development for the new Concrete Industry Management (CIM) degree program. We will miss Ed, both as a colleague and for his contributions to the department and its CEM program.



Edwin Weaver

## Awards and Honors

**Sami Rizkalla** received the IIFC Lifetime Achievement Award in December 2006 for his outstanding contributions to the field of FRP composites for construction.

**Sami Rizkalla** was a Key Note Speaker at the International Construction Innovations Conference, Peoria, Illinois, in October 2006. The title of his presentation was "Application of Fiber Reinforced Polymer in Infrastructure."

**Sami Rizkalla** has been selected to serve on the International Advisory Board of Korea Concrete Institute.

**Richard Kim** won the 2006 Walter J. Emmons Best Paper Award for the paper titled "A Simple and Reliable Testing Method to Evaluate Fatigue Fracture and Damage Performance of Asphalt Mixtures" by the Association of Asphalt Paving Technologists. Walter J. Emmons was the Secretary-Treasurer of AAPT from 1933 through 1948. He was the Dean of Engineering at the University of Michigan.

**Roberto Nunez** was selected by the President of the American Concrete Institute to serve on the International Activities Committee of ACI.

**Mo Gabr** has been appointed editor of the ASCE *Journal of Geotechnical and Geoenvironmental Engineering*.

**Mo Gabr, Francis de los Reyes** and **Edwin Weaver** have won the Kimley-Horn and Associates Faculty Award.

**Chris Frey** was selected as a Fellow of the Society for Risk Analysis in December 2006.

**Murthy Guddati** received the 2006 John Argyris Award from the International Association for Computational Mechanics. The award is given once every two years for the best work in computational mechanics by a young researcher.

**Vernon Matzen** served as President of the International Association of Structural Mechanics in Reactor Technology and Chairman of the Structural Mechanics in Reactor Technology Conference from August 2005-August 2007.

**David Johnston** was selected by the American Concrete Institute to chair its Technical Specifications Committee.

**David Johnston** was selected by the National Council of Examiners for Engineering and Surveying to chair the team developing the new Construction Engineering depth module for the Civil PE exam.

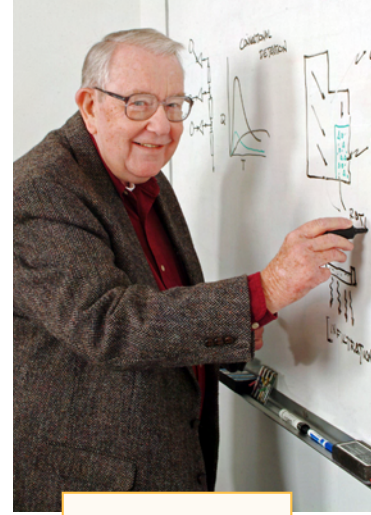
A multi-university team led by **George List** and **Al Wallace** received the Best of ITS award from the Intelligent Transportation Society of America in the category of Research and Innovation for his USDOT/NYSDOT-sponsored research "Advance Traveler Information System."



# CCEE Family Remembers Rooney Malcom

Dr. Herbert Rooney Malcom, Jr. passed away September 1, 2007. We may never know if it was he who received more satisfaction from his carefully committed teaching and mentoring – or the 9,000 individuals he reached over three decades. After 31 years on the NC State faculty, he retired

as Professor Emeritus in 2004. At his reception, over 35 past students showed for a large group photo, which was later framed and given to him. His honors include Academy of Outstanding Teachers and the Outstanding Extension Award from the NC Section of ASCE Outstanding Civil Engineer. But the dearest to him was the Outstanding Faculty Award from the senior class in 1981.



Rooney Malcom

He loved mentoring young engineers and teaching short stormwater courses to professionals in 23 states. After retirement, he spent several years consulting to top private companies.

He received a BS in 1963 and a PhD in 1973 in Civil Engineering from NC State.

Upon his retirement, many former students rallied to create the H. Rooney Malcom Undergraduate Teaching Endowment in his honor. If you would like to contribute, please make your check payable to “The NC State Engineering Foundation, Inc.” and write “Malcom Endowment” in the memo portion.

Prof. Malcom once said, “My purpose has always been to serve; to prepare engineers for the first four years of practice and to serve the stormwater management needs of the people.” Not only did Rooney meet his calling, but he did so with passion and grace.

## CCEE Adds Practical Expertise to Its Programs

This spring the department took a bold new step in hiring a practitioner-in-residence (PIR), Mike Gwyn (BS '80, MS '94). Mike is also Vice President of Benham Constructors, LLC and was formerly with JA Jones Construction Company and Fluor Corporation. He gave students someone new to talk to by sharing his many years of private sector experience as he assisted with Ed Weaver's CE 469 Senior Project Capstone class, focusing on supply chain management and its relationship to project delivery in construction. This gave students a broader perspective and added depth to the curriculum.

This model also allows students to interact with individuals from industry in a more direct and consistent manner than simply hearing a seminar. Gwyn was often approached after class to discuss career paths, continuing education, specific companies and how to balance career and personal goals and needs. “Now that the students have become more familiar with me, they don't have a problem asking for advice. The interaction is free-flowing, so I'm no longer just Mr. Gwyn, but now I'm Mike,” said Gwyn.

“Teaching hospitals cannot effectively teach without the clinical practitioner side of the business, and the profession of engineering should be no different, so I envision a collection of five to ten of these individuals in Mann Hall,” said Department Head George List. Among many tasks, a practitioner would have consistent office hours, provide guidance on senior projects and would coordinate actual project site visits.

Industry sponsors benefit through departmental relationships while PIRs enjoy the opportunity to identify students as future employees they may want to hire. “Interaction with the faculty has been positive for me while being in a position to identify talent is certainly a plus as well,” said Gwyn.

“This has been a truly enjoyable learning experience for me, and I appreciate Ed Weaver's counsel as well as feedback from the students. I strongly believe that it is important for industry to participate in the education process by giving back to institutions that are preparing our future engineers, so this experience has been very satisfying,” concluded Gwyn.

## Staff News

**Greg Lucier** began in May 2006 as a Research Scientist in the department. He graduated from NC State in 2004 with a master's degree in Civil Engineering with a specialty in Structures Engineering. He holds a BS in Construction Engineering and Management, also from NC State. Among his many research activities, he primarily focuses on end-region design of slender, pre-cast concrete spandrel beams. Greg is part of a joint university team that recently visited the site of the collapsed I-35 Bridge in Minneapolis for an NSF project. Traditionally bridge health assessments are done visually, but Greg's team is working on advanced methods, materials and technologies to more effectively predict and prevent bridge failures.

**Bonny Downing** joined the department as an administrative support specialist in February. She is originally from Gaylord, Michigan, but Bonny spent most of her Air Force career in the Washington, DC metropolitan area. She relocated to NC from Virginia last summer.

**North Carolina State University**

Department of Civil, Construction, and Environmental Engineering

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Please send us an update so we may include you in future issues. Send your contact information and news to **stacy\_zearing@ncsu.edu** or mail this form to the CCEE Department, Campus Box 7908, NC State University, Raleigh, NC 27695-7908.

Name \_\_\_\_\_ Degree and Class Year \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Home Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone \_\_\_\_\_ Cell Phone \_\_\_\_\_

Company Name \_\_\_\_\_ Work Phone \_\_\_\_\_

Company Address \_\_\_\_\_

Announcements \_\_\_\_\_



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