

Timothy Wayne Mays, Ph.D., P.E.

Career Summary

Professional Engineer with sixteen years of experience designing building, bridge, and marine structures. Academic experience centers on undergraduate education in structural engineering and education for the practicing structural engineer. Research interests focused on finite element modeling, seismic design and retrofit of structures, steel design, steel connections, coastal structures, deep foundation systems, and various civil engineering aspects of antiterrorism. Professional experience focused on routine design of buildings, bridges, and marine structures. Expertise in seismic design, coastal design, structural dynamics, and building code applications.

Education

B.S. Civil Engineering, University of Memphis, 1996 (4.0 GPA – Student Marshal)
M.S. Civil Engineering, Virginia Tech, 1997 (4.0 GPA – Graduate Student Marshal)
Ph.D. Civil Engineering, Virginia Tech, 2000 (4.0 GPA – Graduation Speaker)

Registration

Professional Engineer, South Carolina (2003), No. 22812

Experience Summary

The Citadel, Professor, Charleston, SC, 2015-Present
The Citadel, Associate Professor, Charleston, SC, 2008-2015
The Citadel, Assistant Professor, Charleston, SC, 2002-2008
SE-ES, LLC, President, Charleston, SC 2004-Present
The Citadel, Adjunct Professor, Charleston, SC, 2002
Lindbergh & Associates, LLC, Associate Structural Engineer, Charleston, SC, 2000-2002
National Science Foundation, Graduate Research Fellow, Blacksburg, VA, 1997-2000
Virginia Tech, Research Assistant/Via Fellow, Blacksburg, VA, 1996-1997
Lehman Roberts, Inc., Lab Technician – Summer Intern, Memphis, TN, 1994
Memphis Stone & Gravel, Inc., Lab Technician – Summer Intern, Memphis, TN, 1994

Research Activities

SC Seismic and Wind Hazard Assessment with Applications, 2015-2016, Served as PI of SC Budget Proviso funded research project aimed at assessing the impact of the 2015 IBC seismic and wind provisions on new infrastructure in the state of South Carolina.

Drilled Piers/Shafts for Building and Bridge Structures, 2015-2016, Served as PI of CRSI funded research project optimizing the design of drilled piers for buildings and bridges. Worked involved traditional analytical methods and advanced finite element modeling in accordance with ACI 318-14, the 2015 IBC, and AASHTO LRFD.

Wave Dissipation System, 2013-2016, Served as PI of research project investigating the use of structural system for wave energy dissipation and erosion control. Performed finite element modeling of the system and performed multi-year study on the beach (Isle of Palms, SC – Beaufort, SC) through OCRM.

Pile Cap Design and Detailing for Building Structures, 2013-2014, Served as PI of CRSI funded research project optimizing the design of pile caps to include the effects of high capacity piling. Worked involved traditional analytical methods using slab analysis and

strut and tie modeling of the system in accordance with ACI 318-11 and the 2012 IBC.

Seismic Design of Bridge Structures, 2007-2011, Served as co-PI of two major research projects for the SCDOT involving seismic design of bridges. Both projects involved experimental testing and finite element modeling of bridge bents under seismic loads. The emphasis of both projects was on the design of precast pile to cast-in-place/precast caps as required for a ductile response of the bridge structure.

Ductility of Precast Prestressed Piling, 2005-2006, Utilized the program XTRACT to analyze the ductility capacity of precast prestressed piling commonly used in the United States. The purpose of this study is to provide research supporting a building code change expected for the International Building Code. This research was funded by local industry and research assistants included Josh Boggs and Tom Hill.

Pile Driving Noise and Vibration Database, 2005-2006, Developed a central database on pile driving vibrations as a crucial first step towards future research examining the effects of vibrations on structures. The database incorporates peak particle velocity (PPV) data with regards to vibration frequency and distance to the driven pile, noise decibel (dB) data with respect to distance from the driven pile, pile type, pre-auger information, impact and vibratory hammer data (e.g., rated energy), measured energy (i.e., PDA results), relevant soil data, and pre/post condition survey data. This research was funded by the National Pile Driving Contractors Association and research assistants included David Falatok and Tim Perkins.

Estimating the Magnitude of the 1886 Charleston Earthquake, 2004-2005, Utilized the finite element method to consider the dynamic response of surviving structures in Charleston, SC. Analysis results are used to back-calculate the magnitude of the 1886 Charleston Earthquake that devastated the area. This research was funded by NAHB and The Citadel Foundation and research assistants included Josh Boggs and Tom Hill.

Seismic Design of Steel and Precast Prestressed Concrete Piling, 2003-2004, Performed research voluntarily during the summer of 2003 as part of a collaborative research project with Davis & Floyd, Inc. in Charleston, SC. As requested, Davis & Floyd employed cadet Jon Black for the summer to work with Professor Mays on a research project to study current design procedures for piles in South Carolina. This research was further supported by The Citadel Foundation during the 2004-2005 academic year and research assistants included Jon Black, Ray Foltz, and Josh Boggs.

Economic Design of Vehicle Barrier Systems for Impact Loading, 2003-2004, Utilized the finite element method to analyze and design various barrier systems composed of steel cables and steel tubing to provide alternatives to relatively expensive and over designed systems that are currently being used to stop moving vehicles. This research was supported by The Citadel Foundation during the 2003-2004 academic year and research assistants included Jon Black, Ray Foltz, Gentry Rust, and Joe Adams.

Advancing the Continuous Segment Method for use in Structural Analysis Courses, 2004-2005, Further developed the nontraditional analysis procedure that utilizes an organized bookkeeping methodology and results in a simplified means for solving structural analysis problems by direct integration. The resulting teaching manual provides a derivation of the CS Method, a simple outline of rules and procedures, and several application examples for beams and frames. This research has received partial support from The Citadel Foundation.

Application of the Finite Element Method to the Seismic Design and Analysis of Large Moment End-Plate Connections, 1997-2000, Dissertation research used the finite element method to design a specific type of steel connection for earthquake resistance. The research examined both the local response of the connections and the global response of buildings that contained the connections. Several recommendations from the research were

included directly in the new seismic provisions for steel framed buildings used by engineers across the United States.

Three-Dimensional Analysis of Moored Cylinders Used as Breakwaters, 1996-1997, Thesis research examined the feasibility of dissipating ocean wave energy using moored cylinders as breakwaters. Results from the research proved that such systems could be effective devices for controlling beach erosion.

Teaching Experience

2002 - PRESENT THE CITADEL, MILITARY COLLEGE OF SC CHARLESTON, SC

Serve as Professor in the Department of Civil and Environmental Engineering. Teaching responsibilities primarily include structural engineering related courses and laboratories. Administrative responsibilities include planning and organizing student events.

2002 THE CITADEL, MILITARY COLLEGE OF SC CHARLESTON, SC

Served as an Adjunct Professor in the spring of 2002 while employed full time in industry.

1995 - 1996 THE UNIVERSITY OF MEMPHIS MEMPHIS, TN

Served as Lab Instructor for the Mechanics of Materials Laboratory Course in the Department of Civil & Environmental Engineering. Taught the entire sophomore level course during both junior and senior year.

1995 - 1996 THE UNIVERSITY OF MEMPHIS MEMPHIS, TN

Served as Lab Instructor for the Fluids Laboratory Course in the Department of Civil & Environmental Engineering. Taught the entire junior level course during senior year.

1995 - 1996 THE UNIVERSITY OF MEMPHIS MEMPHIS, TN

Served as an Assistant Instructor for Statics Course in the Department of Civil & Environmental Engineering. Helped teach a few actual classes and also provided review courses for interested students.

Work Experience

2002 - PRESENT STRUCTURAL ENGINEERING CONSULTANT CHARLESTON, SC

Remain actively involved in engineering design, by working part time for several structural engineering firms and simultaneously running a small structural engineering firm, SE-ES, LLC. Representative involvement includes the following:

- Provided specialty seismic consulting services on major building and bridge structures in the United States (new design, assessment, and rehabilitation)
- Designed marinas and coastal structures worldwide
- Designed buildings, bridges, and other structures in the southeastern US
- Designed buildings and civil engineering systems for antiterrorism considerations
- Performed forensic engineering for major building and marine related failures in the Eastern United States
- Trained thousands of practicing engineers by giving short courses on structural, seismic, and coastal design (over 60 cities nationwide)

2000 - 2002 LINDBERGH & ASSOCIATES, LLC CHARLESTON, SC

Developed plans and specifications for various structures located across the United States. Performed evaluation and trial designs for new Cooper River Bridge in Charleston, SC. Performed detailed vulnerability assessments of buildings for seismic, wind, and flood loads. Performed antiterrorism/force protection vulnerability assessments of installations such as Fort Jackson and Robins AFB to include design upgrades, plans and specifications, and cost estimates.

1994 **LEHMAN ROBERTS, INC.** **MEMPHIS, TN**
Worked in the laboratory of a major asphalt company in Tennessee. Tested asphalt cores, took aggregate samples from washed location, and performed sieve analysis of field samples.

1994 **MEMPHIS STONE & GRAVEL, INC.** **MEMPHIS, TN**
Worked in the field for a sister company of Lehman Roberts that searched for aggregate locations to purchase. Performed surveying and drilling operations in search of land the company would purchase in the future.

Publications

Mays, T.W., *Design Guide for Drilled Piers*, CRSI. January 2017.

B. Prasad, D. Thompson, and R. Sabelli, Guide to the Design of Building Irregularities. **T.W. Mays** (Technical Editor). July 2015.

Mays, T.W., *Pile Cap Design Guide*, CRSI. March 2015.

Mays, T.W. and J. J. Steinbicker, *Engineering Tilt-Up*, TCA. May 2013.

Kurt Swensson, Guide to the Design of Building Serviceability. **T.W. Mays** (Technical Editor). July 2013.

M. K. El Batanouny, P. H. Ziehl, A. Larosche, **T. W. Mays**, and J. M. Caicedo, "Bent-cap Confining Stress Effect on the Slip of Prestressing Strands," ACI Journal (2012).

Mays, T.W. (Technical Editor), *Guide to the Design of Diaphragms, Chords and Collectors: In Accordance with the 2006 IBC and ASCE/SEI 7-05, ICC/NCSEA*, April 2009.

Mays, T.W., *Guide to the Design of Out-of-Plane Wall Anchorage: In Accordance with the 2006 IBC and ASCE/SEI 7-05, ICC/NCSEA*, July 2010.

Harn, R.E., **Mays, T.W.** and Johnson, G.S., "Proposed Seismic Detailing Criteria for Piers and Wharves," ASCE Ports 2010, Jacksonville, FL, April 2010.

Mays, T.W., Lead Author, *FEMA Technical Bulletin 9-08: Design and Construction Guidance for Breakaway Walls Below Elevated Buildings in Coastal High Hazard Areas in accordance with the National Flood Insurance Program*, August, 2008.

Mays, T.W., "An update on Seismic Provisions for Precast/Prestressed Piles," PDCA 11th Annual International Conference and Exposition, Nashville, TN, March 2007.

Hill, T.E. and **Mays, T.W.**, "Rethinking pile ductility," Concrete: Construction's Sustainable Option, Dundee, Scotland, September 2007.

Mays, T.W. and Hill, T.E., "Rethinking spiral requirements for precast prestressed concrete piles in areas of high seismicity," ASCE 2007 Structures Congress, Long Beach, CA, May 2007.

Mays, T.W., Bower, K.C. and Davis, W.J., "Sequential course outcome linkage: a new look at the structural engineering curriculum of a civil engineering program," American Society of Engineering Education SE Section Annual Conference, Louisville, KY, April 2007.

Mays, T.W., Bower, K.C., Dullanty, R., and Rutkowski, K., "Seismic design of piers and wharfs: A capstone course application of a new standard for designing port structures in the United States," American Society of Engineering Education Annual Conference and Exposition, Honolulu, HI, June 2007.

Mays, T.W., Bower, K.C., Settle, K., and Mitchell, B., "Using concept oriented example problems to improve student performance in a traditional dynamics course," American

Society of Engineering Education Annual Conference and Exposition, Honolulu, HI, June 2007.

Mays, T.W. and Ryan, J.C., “Structural Engineering Design Handbook,” StructurTech Construction Systems, Mt. Pleasant, SC, January 2006.

Special Inspections Committee (Mays, T.W., President and Lead Author), “Special Inspections in South Carolina: Best Practices,” Structural Engineers Association of South Carolina, Mt. Pleasant, SC, February 2006.

Mays, T.W. and Hill, T.E., “A simplified design procedure for steel H-piles in areas of high seismicity to include the effects of pile buckling,” ASCE 2006 Structures Congress, St. Louis, MO, May 2006.

Mays, T.W. and Boggs, J.T., “A bounded approach to magnitude estimation of the 1886 Charleston, SC Earthquake based on structural analysis of surviving historic buildings,” ASCE 2006 Structures Congress, St. Louis, MO, May 2006.

Dion, T., Bower, K.C. and **Mays, T.W.**, “Design throughout the curriculum,” American Society of Engineering Education SE Section Annual Conference, Tuscaloosa, AL, April 2006.

Bower, K.C., Davis, W.J. and **Mays, T.W.**, “Meaningful learning environment by design: systematic curriculum assessment to enhance sequential linkage of course goals and objectives,” ASEE/IEEE Frontiers in Education Conference, Indianapolis, IN, October 2005.

Kochkin, V.D. and **Mays T.W.**, “Magnitude estimation of the 1886 Charleston, SC Earthquake based on fragility of historic structures,” NAHB Research Center, Final Report, May 2005.

Mays, T.W., “Permanent foundations vs. traditional soil anchors: using example calculations to illustrate the relative performance of manufactured housing foundations in hurricane zones,” ASCE 2005 Solutions to Coastal Disasters Conference, Charleston, SC, May 2005.

Mays, T.W., “Illustrative examples of multi-hazard design in coastal South Carolina,” ASCE 2005 Solutions to Coastal Disasters Conference, Charleston, SC, May 2005.

Cramer, C.H. and **Mays, T.W.**, “Seismic hazard in the South Carolina coastal plain: 2002 update of the USGS National Seismic Hazard Maps,” ASCE 2005 Solutions to Coastal Disasters Conference, Charleston, SC, May 2005.

Mays, T.W., Boggs, J.T., Hill, T.E., Warren, D.B. and Kaewkornmaung, P., “Student designed experiments in a traditional mechanics of materials laboratory course,” American Society of Engineering Education Annual Conference and Exposition, Portland, OR, June 2005.

Mays, T.W., and Bower, K.C., “Incorporating multidisciplinary components of ocean and marine engineering in traditional civil engineering capstone courses,” American Society of Engineering Education Annual Conference and Exposition, Portland, OR, June 2005.

Mays, T.W., Foltz, R.R., and Black, J.M., “A simplified design procedure for precast prestressed concrete piling in areas of high seismicity to include the effects of pile buckling,” ASCE 2005 Structures Congress, New York, NY, April 2005.

Mays, T.W. and Foltz, R.R., “The continuous segment method: a more practical approach for teaching and learning structural analysis,” ASCE 2005 Structures Congress, New York, NY, April 2005.

Davis, W.J., **Mays, T.W.**, and Bower, K.C., “Implementation of a course assessment process

for continuous improvement and outcomes assessment,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Foltz, R.R., **Mays, T.W.**, and Bower, K.C., “Adding student led components to FE review courses to improve FE examination Scores at The Citadel: A case study,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Mays, T.W., and Bower, K.C., “Analyzing the effects of extra credit opportunities on student learning, motivation, and faculty perceptions,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Black J.M., Bower, K.C., **Mays, T.W.**, and Dion T. “Multi-disciplinary capstone design class: integrating specific civil disciplines, teaching styles, and teaching effectiveness to meet ABET criteria,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Bower, K.C., **Mays, T.W.**, and Miller C.M., “Small group, self-directed problem based learning development in a traditional engineering program,” ASEE/IEEE Frontiers in Education Conference, Savannah, GA, October 2004.

Mays, T.W., “Shear and moment diagrams made easy using the Continuous Segment Method,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Mays, T.W., “The Walk-Around Quiz: a novel approach to assessing student performance,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Davis, W.J., **Mays, T.W.**, Plemmons, J.K., “Rethinking capstone courses in civil engineering: a response to ABET 2003-2004 Criteria for Accrediting Engineering Programs,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Mays, T.W., Plemmons, J.K., Murden, J.A., and Brannan, K.P., “Fine-tuning the frequency of testing,” American Society of Engineering Education SE Section Annual Conference, Macon, GA, April 2003.

Plemmons, J.K., and **Mays, T.W.**, “The D-LOK assessment process,” American Society of Engineering Education SE Section Annual Conference, Macon, GA, April 2003.

Mays, T.W., “Seismic design of lightweight metal building systems.” Earthquake Spectra, Earthquake Engineering Research Institute, February 2001.

Mays, T.W., Sumner, E.A., Plaut, R.H., and Murray, T. M., “Seismic design of 16-Bolt extended stiffened moment end-plate connection.” STESSA 2000, August 21-24, 2000.

Sumner, E.A., **Mays, T.W.**, and Murray, T. M., “Heavy moment end-plate connections under seismic loading.” STESSA 2000, August 21-24, 2000.

T. Murray, E. Sumner, and **Mays, T.W.**, *Cyclic Testing of Bolted Moment End-Plate Connections*, SAC Report No. SAC/BD-00/21, 2000.

Mays, T.W., Plaut, R.H., and Liapis, S., “Three-dimensional analysis of submerged moored cylinders used as breakwaters.” Ocean Engineering, Vol. 26, No. 12, pp. 1311-1333, 2000.

Plaut, R.H., Archilla, J.C., and **Mays, T.W.**, “Snap loads in mooring lines during large three-dimensional motions of a cylinder.” Nonlinear Dynamics, Vol. 23, pp. 271-284, 2000.

Sumner, E.A., **Mays, T.W.**, and Murray, T. M., “End-plate moment connections: test results and finite element method validation.” Fourth International Workshop on Connections in

Steel Structures, Roanoke, VA., October 22-25, 2000.

Mays, T.W., *Application of the Finite Element Method to the Seismic Design and Analysis of Large Moment End-Plate Connections*, Ph.D. Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 2000.

Mays, T.W., *Three-Dimensional Analysis of Moored Cylinders Used as Breakwaters*, Master's Thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 1997.

Mays, T.W., and Helweg, O. J., "Rethinking well efficiency." ASCE North American Water and Environment Congress, Anaheim, CA., June 22-28, 1996.

Mays, T.W., and Helweg, O. J., "Effects of ignoring well losses on the specific capacity function." ASCE North American Water and Environment Congress, Anaheim, CA., June 22-28, 1996.

Presentations

Mays, T.W., "Pile Cap Design," SE-ES/CRSI Short Course, Various Cities, 2015.

Mays, T.W., "Irregular Buildings," SE-ES/NCSEA Short Course, Various Cities, 2015.

Mays, T.W., "Building Serviceability," SE-ES/NCSEA Short Course, Various Cities, 2013-2014.

Mays, T.W., Purdue University Invited Speaker, West Lafayette, IN, November, 2013. 6 Hour presentation on new textbook titled *Engineering Tilt-Up*.

Mays, T.W., Overview of NCSEA Design Guides, NCSEA Annual Meeting, St. Louis, MO, October, 2013.

Mays, T.W., "Why Didn't I Learn this in School (sabbatical summary)," Structural Engineers Association of North Carolina Annual Meeting, Wilmington, NC, September, 2012.

Mays, T.W., "Seismic Rehabilitation," SE-ES/NCSEA Short Course, Various Cities, 2012.

Mays, T.W., "Semi-Rigid Diaphragms," SE-ES/NCSEA Short Course, Various Cities, 2011.

Mays, T.W., "Design of Diaphragms, Chords and Collectors," SE-ES/NCSEA Short Course, Various Cities, 2009-2010.

Mays, T.W., "Design of Out-of-Plane Wall Anchorage," SE-ES/NCSEA Short Course, Various Cities, 2010.

Mays, T.W., "An update on Seismic Provisions for Precast/Prestressed Piles," PDCA 11th Annual International Conference and Exposition, Nashville, TN, March, 2007.

Mays, T.W., "The Great 1886 Charleston Earthquake" NSPE/ASCE Grand Strand Engineers Week Banquet, Myrtle Beach, SC, February 2006 (invited speaker, rescheduled due to conflict).

Mays, T.W., and Ryan, J.C., "Simplified design of masonry shear walls and special inspection for masonry," SEES Short Course, Atlanta, GA, December, 2005.

Mays, T.W., and Ryan, J.C., "Simplified design of masonry shear walls and special inspection for masonry," SEES Short Course, Charlotte, NC, December, 2005.

Mays, T.W., "Special Inspections: An Update," ASCE SC Section Meeting, Greenville, SC, October, 2005.

Mays, T.W., "Composite design of steel plate shear walls," Structural Engineers Association

of South Carolina Chapter Meeting, Charleston, SC, October, 2005.

Mays, T.W. “Composite design of steel plate shear walls,” Structural Engineers Association of South Carolina Chapter Meeting, Hilton Head, SC, October, 2005.

Mays, T.W. “Composite design of steel plate shear walls,” Structural Engineers Association of South Carolina Chapter Meeting, Myrtle Beach, SC, October, 2005.

Mays, T.W. “Composite design of steel plate shear walls,” Structural Engineers Association of South Carolina Chapter Meeting, Greenville, SC, September, 2005.

Mays, T.W. “Composite design of steel plate shear walls,” Structural Engineers Association of South Carolina Chapter Meeting, Columbia, SC, October, 2005.

Mays, T.W. “Special inspections: an update,” ASCE SC Section Meeting, Greenville, SC, October, 2005.

Mays, T.W., and Ryan, J.C., “Special inspections,” SEES Short Course, Greenville, SC, May, 2005.

Mays, T.W., and Ryan, J.C., “Special inspections,” SEES Short Course, Atlanta, GA, May, 2005.

Mays, T.W. “SEA of SC Kickoff/Organizational Meeting,” Structural Engineers Association of South Carolina Startup Meeting, Charleston, SC, February, 2005.

Mays, T.W., and Ryan, J.C., “Special inspections,” SEES Short Course, Charleston, SC, February, 2005.

Mays, T.W., Boggs, J.T., Hill, T.E., Warren, D.B, and Kaewkornmaung, P., “Student designed experiments in a traditional mechanics of materials laboratory course,” American Society of Engineering Education Annual Conference and Exposition, Portland, OR, June 2005.

Mays, T.W., and Bower, K.C., “Incorporating multidisciplinary components of ocean and marine engineering in traditional civil engineering capstone courses,” American Society of Engineering Education Annual Conference and Exposition, Portland, OR, June 2005.

Mays, T.W., “Permanent foundations vs. traditional soil anchors: using example calculations to illustrate the relative performance of manufactured housing foundations in hurricane zones,” ASCE 2005 Solutions to Coastal Disasters Conference, Charleston, SC, May 2005.

Mays, T.W., “Illustrative examples of multi-hazard design in coastal South Carolina,” ASCE 2005 Solutions to Coastal Disasters Conference, Charleston, SC, May 2005.

Mays, T.W., Foltz, R.R., and Black, J.M., “A simplified design procedure for precast prestressed concrete piling in areas of high seismicity to include the effects of pile buckling,” 2005 Structures Congress, New York, NY, April 2005.

Mays, T.W., and Foltz, R.R., “The continuous segment method: a more practical approach for teaching and learning structural analysis,” ASCE 2005 Structures Congress, New York, NY, April 2005.

Foltz, R.R., **Mays, T.W.,** and Bower, K.C., “Adding student led components to FE review courses to improve FE examination scores at The Citadel: A case study,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Mays, T.W., and Bower, K.C., “Analyzing the effects of extra credit opportunities on student learning, motivation, and faculty perceptions,” American Society of Engineering Education SE Section Annual Conference, Chattanooga, TN, April 2005.

Mays, T.W., and Ryan, J.C., “Design of masonry shear wall buildings in high seismic and/or wind zones,” SEES Short Course, NAVFAC Southern Division Headquarters, December 2004.

Mays, T.W., “Analyzing the effects of extra credit opportunities on student learning, motivation, and faculty perceptions,” CASTLE, The Citadel, October 2005.

Mays, T.W., and Ryan, J.C., “Design of masonry shear wall buildings in high seismic and/or wind zones,” SEES Short Course, Charleston, SC, October 2004.

Mays, T.W., “Design of the six-story addition to the McLeod Regional Medical Center” ASCE SC Section Meeting, Myrtle Beach, SC, September, 2004.

Mays, T.W., “Using structural damage to estimate the magnitude of the 1886 Charleston Earthquake” ASCE SC Section Meeting, Myrtle Beach, SC, September, 2004.

Mays, T.W., “Force protection and antiterrorism upgrades for Fort Jackson” SAME Charleston Post Meeting, Charleston, SC, July 2004.

Mays, T.W., “Shear and moment diagrams made easy using the Continuous Segment Method,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Mays, T.W., “The Walk-Around Quiz: a novel approach to assessing student performance,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Mays, T.W., “Rethinking capstone courses in civil engineering: a response to ABET 2003-2004 Criteria for Accrediting Engineering Programs,” American Society of Engineering Education SE Section Annual Conference, Auburn, AL, April 2004.

Mays, T.W., “IBC 2000 seismic provisions”, OBG 1 Day Short Course, Charleston, SC, January 2004.

Mays, T.W., “Seismic design of steel and precast prestressed concrete piling” Joint NC/SC ASCE and VOLTAG Meeting, Charlotte, NC, October 2003.

Mays, T.W., “Seismic response of structures” Joint NC/SC ASCE and VOLTAG Meeting, Charlotte, NC, October 2003.

Mays, T.W., “IBC 2000 seismic provisions”, OBG 2 Day Short Course, Charleston, SC, August 2003.

Mays, T.W., “IBC 2000 seismic provisions”, OBG 2 Day Short Course, Syracuse, NY, June 2003.

Mays, T.W., “Civil engineering aspects of antiterrorism”, Himelright Lecture, Charleston, SC, March 2003.

Mays, T.W., “Barrier design and layout to create and/or maintain adequate standoff to resist vehicle bomb threats” ASCE SC Section Meeting, Clemson, SC, October 2002.

Mays, T.W., “Antiterrorism design for civil engineers Part II.” OBG 1 Day Short Course, Atlanta, GA, July 2002.

Mays, T.W., “Antiterrorism design for civil engineers Part I.” OBG 1 Day Short Course, Atlanta, GA, June 2002.

Mays, T.W., “Seismic response of structures” SAME Savannah Post / VOLTAG Meeting,

Savannah, GA, April 2002.

Mays, T.W., “Progressive collapse of structures” ASCE SC Section Meeting, Aiken, SC, October 2001.

Mays, T.W., “Seismic design of port structures.” Three-day short course on seismic design of structures for NAVSEA in Charleston, SC, January 2001.

Mays, T.W., “Pushover analysis of bridges” ASCE SC Section Meeting, Columbia, SC, October 2001.

Mays, T.W., “Seismic design of lightweight metal building systems.” Earthquake Engineering Research Institute Annual Meeting, St. Louis, MO, June 2000.

Mays, T.W., “Seismic design of steel moment end-plate connections.” Metal Building Manufacturers Association Annual Meeting, Atlanta, GA, April 1999.

Memberships

National Society of Professional Engineers (NSPE), 2006-2008

American Society of Civil Engineers (ASCE), 2000-2010

American Institute for Steel Construction (AISC), 2003-present

Structural Engineers Association of South Carolina (SEA of SC), 2005-present

American Society for Engineering Education (ASEE), 2002-present

Professional Service

Chair, Publications Committee, National Council Structural Engineers Associations (NCSEA), 2006-present

Executive Director, Structural Engineers Association of South Carolina, 2006-2009

Executive Director, Structural Engineers Association of North Carolina, 2008-2009

Founding President, Structural Engineers Association of South Carolina, 2005-2006

Annual Meeting Coordinator, SEA of SC Annual Meeting, 2006 - present (planned day long meeting for 100 structural engineers in South Carolina)

Chair, Code Advisory Committee, SEA of SC and ASCE SC Section, 2006

Member, Code Advisory Committee, SEA of SC and ASCE SC Section, 2007-present

Board of Directors Member, 113 Calhoun Street Foundation

Vice-Chair, Research Division, ASEE SE Section, 2006-2007

Secretary, Research Division, ASEE SE Section, 2005-2006

Chair, Civil Engineering Division, ASEE SE Section, 2004-2005

Chair, Structural Technical Group, ASCE SC Section, 2000-2009

Chair, Ocean & Marine Engineering Division, ASEE National, 2006-2009

Vice-Chair, Ocean & Marine Engineering Division, ASEE National, 2004-2006

Program-Chair, Ocean & Marine Engineering Division, ASEE National, 2004-2006

Technical Editor, ASCE/COPRI Seismic Design of Piers and Wharves, ASCE National Standard, 2007-2008

Standards Committee Member, ASCE/COPRI Seismic Design of Piers and Wharves, ASCE National Standard, 2005-present

Standards Committee Member, ASCE/SEI Blast Protection of Buildings, ASCE National Standard, 2005-present

Standards Committee Member, ASCE 7-10, ASCE National Standard, 2006-present

Technical Committee Member, 2005 Solutions to Coastal Disasters Conference, ASCE National, 2004-2005

Organizational Committee Member, 2005 Solutions to Coastal Disasters Conference, ASCE National, 2004-2005

Advisor to Student Editor, Journal of Young Investigators, 2003

Chief Proctor, FE Exam, State Board of Engineers and Land Surveyors, 2003-present

Proctor, FE Exam, State Board of Engineers and Land Surveyors, 2002-2003

Honors & Awards

2015 NCEES Engineering Award

2014 David L Kelly Distinguished Engineer Award

2014 NCSEA Susan M Frey Engineering Educator Award

2014 NCEES Engineering Award

2009 NCSEA Service Award

2008 Virginia Tech Outstanding Young Alumni Award

2007 Charleston Regional Business Journal's Forty under 40 Award

2006 NSPE Engineering Education Excellence Award (national award given annually)

2006 ASCE SC Section Technical Merit Award – Outstanding Civil Engineering Design in South Carolina (statewide award given annually)

2006 ASEE SE Section New Faculty Research Award (regional award given annually)

2005 PDCA Faculty Scholarship to Attend Pile Drivers Institute

2004 ASCE/ExCEED New Faculty Excellence in Teaching Award (national award given annually)

2004 ASCE SC Section Community Service Award (statewide award)

2003 PDCA Faculty Scholarship to Attend Pile Drivers Institute (declined due to conflict)

MENSA International Member; IQ in Top 2%

Intertel Member; IQ in Top 1%

Tau Beta Pi (Engineering)

Golden Key National Honor Society (General)

4.0/4.0 GPA for All Undergraduate and Graduate Studies

Graduation Speaker for Undergraduate Graduation Ceremony (VT 2000)

Graduation speech read by Senator John Warner into the Congressional record (2000)

Graduation Speaker for Graduate Graduation Ceremony (VT 2000)

Student Marshal/Speaker for Graduate Graduation Ceremony (VT 1997)

Student Marshal for Undergraduate Graduation Ceremony (U of M 1996)

Selected as National Science Foundation Fellow in Civil Engineering (1997-2000). One of ten students selected nationally from the field of civil engineering and provided with approximately \$100,000 over three years to complete a Ph.D. program at the student's desired location.

Recipient of the EERI Outstanding Student Paper Award (2000). The award is given annually to the best paper in the nation authored solely by a graduate student as part of a research project. The paper was published in Earthquake Spectra, the most eminent earthquake engineering journal recognized internationally.

Recipient of the Paul E. Torgersen Award (2000). The award is given annually to the engineering graduate student performing the most outstanding research at Virginia Tech.

Recipient of the Thomas Fry Award (1996). The award is given annually to the most outstanding senior in civil engineering at the University of Memphis.

Recipient of the Engineering Excellence Award (1996). The award is given annually to the most outstanding senior in all engineering fields at the University of Memphis.

College Service

Co-Advisor, 2014 ASCE Professional Activities Event

Co-Advisor, 2014 ASCE Carolina's Conference

Co-Advisor, 2006 ASCE Professional Activities Event

Co-Advisor, 2006 ASCE Carolina's Conference

Chair, Awards Committee, 2005-2008

Member, Faculty Development Committee, 2005-2010

Member, Awards Committee, 2004-2010

Chair, Scholarship, Research and Professional Opportunities Committee, 2003-Present (CEE)

Member, Capstone Committee, 2003-Present (CEE)

Member, Laboratory and Equipment Committee, 2003-2012 (CEE)

Associate Editor, CEE Departmental Newsletter, 2003-2005

Member, Engineering Community Outreach Committee, 2003-Present (CEE)

Co-founder, The Citadel School of Engineering Undergraduate Design and Research Initiative

Faculty Advisor, The Citadel ASCE Student Chapter, 2003-2006

Public Service

Board of Directors Member, 113 Calhoun Street Foundation

Member, Project Impact Advisory Board, FEMA, 2001-Present

Member, Project Impact Preventative Activities/Structural Projects Committee, FEMA, 2001-Present

Craft Stick Bridge Competition Instructor and Judge, James P. Edwards Elementary School, May, 2004

Engineers Week Craft Stick Bridge Competition Coordinator, Charleston, SC, 2003-2006

VOLTAG Educator, VOLTAG SC and NC, 2000-2004

Other Activities

Reviewer, Engineering Structures, 2005-2006.

Reviewer, ASEE Annual Conference and Exposition, American Society of Engineering Education, Ocean and Marine Engineering Division, Honolulu, HI, June 2007.

Reviewer, ASEE SE Section Annual Conference, American Society of Engineering Education, Civil Engineering Division, Louisville, KY, April 2007.

Program Chair, ASEE Annual Conference and Exposition, American Society of Engineering Education, Ocean and Marine Engineering Division, Chicago, IL, June 2006.

Reviewer, ASEE Annual Conference and Exposition, American Society of Engineering Education, Ocean and Marine Engineering Division, Chicago, IL, June 2006.

Program Chair, ASEE Annual Conference and Exposition, American Society of Engineering Education, Ocean and Marine Engineering Division, Portland, OR, May 2005.

Reviewer, ASEE Annual Conference and Exposition, American Society of Engineering Education, Ocean and Marine Engineering Division, Portland, OR, May 2005.

Division Chair, ASEE SE Section Annual Conference, American Society of Engineering Education, Civil Engineering Division, Chattanooga, TN, April 2005.

Reviewer, ASEE SE Section Annual Conference, American Society of Engineering Education, Civil Engineering Division, Chattanooga, TN, April 2005.

Reviewer, ASEE SE Section Annual Conference, American Society of Engineering Education, Civil Engineering Division, Auburn, AL, April 2004.

Reviewer, ASEE SE Section Annual Conference, American Society of Engineering Education, Mechanical Engineering Division, Auburn, AL, April 2004.

Reviewer, 2005 Solutions to Coastal Disasters Conference, American Society of Civil Engineering, Charleston, SC, May, 2005.

Reviewer, 2004 Frontiers in Education Conference, American Society of Engineering Education, Various Divisions, Savannah, GA, 2004.

Sample Projects

General Structural

BUILDINGS

1 Beale Street – Memphis, TN. Performed vertical and lateral design and detailing of 35 and 24 story buildings on the Mississippi River. Design utilized all reinforced concrete construction including framing, shear walls, and 10 ft thick pile cap on large drilled piers.

Seismic, Wind, and Antiterrorism Building Rehabilitations - Ft Jackson. Performed rehabilitation design of two critical structures at Ft. Jackson, SC. Design demands included progressive collapse of three-story barracks and other building of high importance. New vertical and lateral systems were added to resist the defined threats.

Seismic Assessment of 151 Meeting St. in Charleston, SC. Performed seismic evaluation of multi-story office building in accordance with ASCE 31 and ASCE 41 as required by GSA Seismic Standards. Developed summary report.

Charleston Law School Expansion Study. Performed feasibility study to assess the possibility of adding two stories to existing school building used for classrooms and offices. Constraints included flood and seismic demands.

Seismic Assessment of Various Charleston County Schools. Performed seismic evaluations of 8 school buildings in accordance with ASCE 31 and ASCE 41. Developed summary reports and made recommendations to the school district.

Seismic Rehabilitation of Schools. Performed seismic rehabilitation of 1 selected South Carolina school building in accordance with ASCE 31 and ASCE 41. Modification included new reinforced concrete wall systems added to existing concrete frame building.

Seismic Rehabilitation Design of Rivers Middle School in Charleston, South Carolina. Utilized the finite element method to design seismic rehabilitation systems for subject school to include shotcrete wall systems, slab, and foundation wall retrofits.

Pumpstation - Spring/Fishburne. Performed seismic calculations and computer modeling as required to design large buried tank in Charleston SC. Caissons were required for seismic resistance and to resist uplift.

Seismic Assessment of Rivers Middle School in Charleston, South Carolina. Utilized the finite element method to determine the existing condition and structural adequacy of a Charleston County school built in the 1930s.

Structural Evaluation of Senate Building in Columbia, SC. Analyzed existing condition of prominent building in SC. Building system consists of prestressed slabs on reinforced concrete columns and is built on top of a four story parking garage below grade. Finite element modeling was used to determine the structural condition.

Seismic Assessment of Historical Rice Mill Building on The United States Coast Guard Station in Charleston, South Carolina (Collins). Utilized the finite element method to determine the existing condition and structural adequacy of this historical building.

Oakbrook Assembly in Summerville, South Carolina. Designed four story condominium building using novel shotcrete panels by StructureTech. Steel frames and panel systems were used to resist lateral loading in orthogonal directions.

Two-Story Addition to Rivers Middle School in Charleston, South Carolina. Designed small addition to school to include separate area of egress and architectural portico. Special seismic details that allowed connection to new firewall were utilized in the design.

Six-Story Addition to McLeod Regional Medical Center in Florence, South Carolina. Designed seismic, wind, and gravity features of the building to include steel plating of existing elevator shafts, design of new special reinforced concrete shear walls, and design of new 12 story steel tower. Designed special seismic details for chord and collector elements.

Daniel Island Elementary and Middle School, Charleston, SC. Designed seismic and wind lateral force resisting elements which consisted of special reinforced masonry shear walls. Designed all roof framing. Also provided support for detailing chord and collector elements of the structure.

Transmitter Building, Mt. Pleasant, SC. Designed an elevated radio transmitter building to house critical equipment for a local radio station. Building was precast construction on precast prestressed piling. Special detailing included special moment frame detailing of precast concrete members with "strong" connections.

Lander University Dorm, Greenwood, SC. Designed all elements of four-story dorm

located on the campus of Lander University. Wings were constructed load bearing cold-formed steel stud walls with steel strapping. Core area and end regions were constructed using concrete slab on steel framing. Special reinforced masonry shear walls were used to resist wind and seismic forces in the core area.

Eight-Story Addition to Sr. Patient Tower in Greenwood, South Carolina. Provided overall design review and some detailing alternatives for structural features of the building to include modified foundation to carry loads from frames to perimeter foundation wall.

Beaufort Armory in Beaufort, South Carolina. Designed structural upgrades to 8,300 square foot historical building. Upgrades included new roof framing, floor enhancements, and retrofitting details for tabby construction.

Building Addition to South Carolina Forestry Headquarters in Columbia, South Carolina (L&A/OBG). Designed a 7,000 square foot, one-story wood addition to the state headquarters building.

Westview Primary School in Goose Creek, South Carolina. Designed steel connections and provided structural details for 100,000 square foot educational building. Shear, foundation, tension, and compression connections were designed and detailed.

Seismic Evaluation of Citadel PT Barracks in Charleston, South Carolina. Performed a structural assessment of existing four story unreinforced masonry barracks on the campus of The Citadel. FEMA 273 and detailed computer modeling with ADINA were used to analyze the structure.

Structural Evaluation of Critical Facilities in Florence, South Carolina. Performed structural evaluations of two public works buildings, four fire stations, and two schools that are used as shelters. Buildings were evaluated relative to standards established in the International Building Code 2000.

BRIDGES

Blue House Swamp, Albergotti, and Old Fort Bridges. Designed seismic lateral force resisting elements of three separate bridges in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using SAP 2000. The concrete slab bridges span approximately 30 ft between bents which are constructed of cast-in-place pile cap and 20 in. square precast prestressed piles.

Sawmill Branch Bridge. Designed substructure of 120 ft long bridge for significant lateral loads and unbraced length. Drilled shafts were used as the primary lateral force resisting system. Designed details and superstructure interface.

Ashley River Bridge. Designed substructure of 210 ft long bridge for significant lateral loads and unbraced length. Drilled shafts were used as the primary lateral force resisting system. Designed details and superstructure interface.

3 Runs Bridge. Designed seismic lateral force resisting elements of 200 ft long flat slab bridge in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using SAP 2000.

Steel Girder Interchange Bridge on US 17. Designed seismic lateral force resisting elements for subject bridge in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using ADINA and XTRACT. Special detailing was provided to ensure that damage was controlled and repairable. The steel bridge is curved and spans over 100 ft.

Magnolia Bridge in Charleston, SC. Designed seismic lateral force resisting elements for 1,300 ft long bridge in accordance with the SCDOT Seismic Provisions. Pushover analysis

was performed using ADINA and XTRACT.

Flat Slabs Bridges on US 17. Designed seismic lateral force resisting elements of four separate bridges in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using ADINA and XTRACT. Special detailing was provided to ensure that damage was controlled and repairable. The concrete slab bridges span 30 ft between bents which are constructed of cast-in-place pile cap and 20 in. square precast prestressed piles.

Gahagan Road Bridge, Dorchester County, SC. Designed seismic lateral force resisting elements of new bridge in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using ADINA and Response 2000. Special detailing was provided to ensure that damage was controlled and repairable. The concrete slab bridges span 30 ft between bents which are constructed of cast-in-place pile cap and 20 in. square precast prestressed piles.

US 378 Bridges (3) over the Black River, SC. Designed seismic lateral force resisting elements of three bridges in accordance with the SCDOT Seismic Provisions. Pushover analysis was performed using ADINA and Response 2000. Special detailing was provided to ensure that damage was controlled and repairable. The concrete slab bridges span 30 ft between bents which are constructed of cast-in-place pile cap and 20 in. square precast prestressed piles.

NC Detour Bridge, NC. Designed timber decking, steel stringers and connection details for a temporary bridge in North Carolina.

NC Detour Bridge #2, NC. Designed foundation system for a second temporary bridge in North Carolina.

Cooper River Bridge Design Criteria, Charleston, South Carolina. Analyzed and recommended modifications to design criteria for the new Cooper River Bridge currently under construction in Charleston, SC. Preliminary designs were performed for typical bridge bents and the tower sections supporting the cable-stayed bridge. L-PILE, ADINA, and X-SECTION were used to model the structure and time-history analysis was used to evaluate the intended design criteria.

MARINE AND OTHER STRUCTURES

Various Marina Structures in Dubai and the Caribbean. Designed fixed dock marina systems in various parts of the world for wind, wave, current, seismic, and berthing loads. Design criteria for fixed piers varied from 40 ft boats to 350 ft vessels. Reviewed and modified floating dock designs as necessary to meet performance specifications. Designed sheet pile seawalls for wave loads and soil conditions. Designed mooring dolphins for unique berthing demands. Locations include - Bahamas, St. Kitts, St. Marteen, and the British Virgin Islands.

Charleston Cruise Terminal and Adjacent Pier/Building System Assessment and Rehabilitation Design. Used nonlinear finite element analysis to assess the anticipated performance of important cruise terminal pier located in historic Charleston, SC. Worked with geotechnical experts to model expected lateral spreading demands on the system.

Slab on Ground Design. Designed flat slabs for marine applications including storage and construction loading. Locations include - Fiji and Caribbean.

Bollard Specification for Marinas in Dubai. Developed entire bollard specification and detailed analysis and design procedure for all bollards to be used by IGY in Dubai. Procedure includes novel yield line approach for bollard base plate detailing requirements.

Charleston Ocean Villas Seawall Evaluation. Analyzed existing seawall for 100 year flood

loads in order to apply for FEMA flood map revision. Calculated wave loads and used finite element model to determine retrofit details required for the structure.

Various Billboards in Coastal South Carolina. Designed new billboards and retrofitted existing billboard structures to support new LED screens. Developed permit letters for all structures and reviewed design of LED support structures.

Stealth Technologies Antenna Supports. Designed various building top structures and pole type towers to support digital phone antennas installed at various locations across the United States.

Anchor Post System Designer. Designed foundation system for residential construction and manufactured housing.

PlyFASTner Designer. Designed system to anchor plywood coverings to windows in windborne debris regions.

Sample Projects

Antiterrorism

Progressive Collapse Rehabilitation - Ft Jackson. Performed progressive collapse rehabilitation design of three-story barracks. New vertical and lateral systems were added to resist the defined threats. SAP 2000 was used to model the system.

Force Protection Upgrades at Fort Jackson, South Carolina. Performed vulnerability assessments of over 35 buildings on the Army base in Columbia, SC. Also detailed upgrades to resist blast loads, designed barriers to resist vehicle impacts, and designed improved entry control points to the base.

ATFP Design for Federal Reserve St. Louis, Memphis Branch. Determined blast pressures and durations for internal explosion in new vestibule to be located outside of the building. Designed blast resistant construction to protect the existing building and provided details to relieve internal pressures at special locations.

ATFP Barrier Design for Westinghouse, Columbia, SC. Designed concrete filled steel pipe barrier system to resist moving vehicle threat. Used special detailing to dissipate energy.

Force Protection Upgrades at Fort Jackson, South Carolina. Performed vulnerability assessments of over 35 buildings on the Army base in Columbia, SC. Also detailed upgrades to resist blast loads, designed barriers to resist vehicle impacts, and designed improved entry control points to the base.

Antiterrorism Improvements at Robins Air Force Base, Georgia. Performed vulnerability assessments of critical facilities on the base. Via a formal report, recommended civil/structural upgrades to the Air Force Reserve Command located onsite.

National Imagery and Mapping Agency in St. Louis, Missouri. Detailed upgrades to entry control points at the site which included several design options with active and passive barrier systems.

Sample Projects

Expert Services

Confidential Client, Structural Investigation Consultant. Determined structural engineering evaluation adequacy of bridge structure in South Carolina.

Confidential Client, Structural Investigation Consultant. Determined design adequacy of marina in South Carolina for heavy live loading and fork truck traffic.

Confidential Client, Structural Investigation Consultant. Determined design adequacy of home in Hilton Head, SC for building code requirements related to floor construction.

Confidential Client, Structural Investigation Consultant. Determined design adequacy of home in Hilton Head, SC for building code requirements related to slab construction.

Confidential Client, Structural Investigation Consultant. Determined design adequacy of industrial facility in South Carolina for heavy live loading and fork truck traffic.

Confidential Client, Structural Investigation Consultant. Determined design adequacy of condominium complex in Hilton Head, SC for building code required wind loads.

Confidential Client, Structural Investigation Consultant. Determined adequacy of seismic design utilized for fifteen million dollar industrial plant near St. Louis, Missouri.

Confidential Client, Structural Investigation Consultant. Determined adequacy of soil anchors used to tie down manufactured homes.

Confidential Client, Structural Investigation Consultant. Determined adequacy of residential design in St. Simons, Georgia. Home was found to be deficient for code level wind forces and retrofit designs were provided.

Confidential Client, Structural Investigation Consultant. Determined adequacy of floating breakwater system to meet specified loads based on performance during Hurricanes Hugo and Floyd.