

James R. (Bob) Bailey, Ph.D., P.E., F. ASCE
Senior Managing Engineer
Houston Office Director

Professional Profile

Dr. James R. (Bob) Bailey is a licensed Professional Engineer and Fellow of the American Society of Civil Engineers. For the past 30 years, Dr. Bailey has served as a technical consultant, project manager, and researcher for private industry, universities, and government. As a Senior Managing Engineer in Exponent's Building & Structures practice, Bob brings specialized expertise to areas related to wind engineering, construction materials, solid mechanics, dynamics, numerical analysis, structural analysis and design, and materials testing. Dr. Bailey's primary area of expertise is determining the risk exposure of residential, commercial, and industrial properties to hazards associated with hurricanes, tornadoes, and flooding, including review of hurricane response plans. He has conducted hurricane risk assessments and developed mitigation programs for various types of health, industrial, educational, and offshore energy facilities. He recently conducted an analysis of the storm surge risk posed to the South Texas Project Electric Generating Station using advanced hydrodynamic modeling techniques, and subsequently presented the results to the NRC.

His past work at ExxonMobil included estimating wind loads on drilling structures, developing conceptual designs of gravity-based structures for arctic offshore environments, and conducting research and teaching classes on well cementing. Dr. Bailey also has extensive experience working with FEMA under the Public Assistance Program following Tropical Storm Allison (2001–2004), and Hurricane Katrina in Louisiana (2005) and Hurricane Rita in Texas (2005–2006). Over the past 12 years he has conducted field surveys to document storm damage in the aftermath of hurricanes Irene (1999), Charley (2004), Francis (2004), Katrina (2005), Rita (2005), Wilma (2005), and Hurricane Ike (2008), Tropical Storm Allison (2001), the Oklahoma City Tornado (1999), and the April 2012 Tornado Outbreak.

Dr. Bailey has served as a lecturer in the private sector and at the university level on subjects related to wind and petroleum engineering. He also has been responsible for the design of test facilities and the development of test programs related to construction and energy. He is experienced with the process in Florida and in Texas for enabling a client to acquire statewide approval for hurricane protective products. Dr. Bailey is past Chair of the Private Industry Committee of the National Hurricane Conference, and past Chair of the ASCE Petrochemical Wind Load Task Committee. He served on an API 4F sub-committee assigned to revise specifications and guidelines for determining wind loads on onshore and offshore drilling structures. He presents at conferences and trade organizations nationwide, and has been interviewed on the subject of the impact of hurricanes and tornadoes on the built environment by various national news organizations.

Academic Credentials and Professional Honors

Ph.D., Civil Engineering, Texas Tech University, 1989

M.S., Civil Engineering, Texas Tech University, 1984

B.S., Civil Engineering, Texas Tech University, 1982

American Society of Civil Engineers (ASCE)

American Association of Wind Engineers (AAWE)

American Petroleum Institute (API) Spec 4F Wind Engineering Subcommittee

ASCE Wind Loads on Petrochemical Structures Task Committee

Licenses and Certificates

Professional Engineer, Florida, #67773

Professional Engineer, Georgia, #PE033027

Professional Engineer, Hawaii, #12820

Professional Engineer, Louisiana, #33830

Professional Engineer, South Carolina, #26408

Professional Engineer, Tennessee, #114185

Professional Engineer, Texas, #74911

Publications

Bailey JR. Evaluation of hurricane loss model projections for Miami-Dade County Public Schools. Report prepared for Global Risk Miyamoto, November 2011.

Bailey JR, et al. Wind loads for petrochemical and other industrial facilities. American Society of Civil Engineers, September 2011.

Bailey, JR. Hurricane risk assessment of two wind farms located in South Texas operated by EoN Climate and Renewable. Report prepared for Global Risk Miyamoto, June 2011.

Bailey JR. Wind risk assessment of the ThyssenKrupp steel plant located in Mississippi. Report prepared for Global Risk Miyamoto, November 2010.

Bailey JR, Cantor R, et al. An approach to business vulnerability and risk assessments related to climate change. SPE International Conference on Health, Safety & Environment, Rio de Janeiro, Brazil, April 2010.

Bailey JR. A hurricane risk assessment and mitigation plan for CHRISTUS hospitals located in Texas and Louisiana. Report prepared for CHRISTUS Health, July 2009.

Bailey JR. Study of Major Revenue Interruption Risks in the Gulf of Mexico. Report prepared for Devon Energy, July 2009.

Bailey JR, Gilbert RT, et al. Wind load considerations for existing petrochemical structures. Structures Congress, American Society of Civil Engineers (ASCE), Austin, TX, May 2009.

Bailey JR, Levitan ML. Lessons learned and mitigation options for hurricanes. Process Safety Progress, American Institute of Chemical Engineers (AIChE), 2008.

Bailey JR. Finding the breaking point. Report documenting window performance following the 2004 Florida hurricanes. Prepared in conjunction with the Protecting People First Foundation, Wickford, RI, April 2005.

Bailey JR. Flood hazard assessment of critical NASA assets at the Johnson Space Center. Report prepared for NASA management by ABS Consulting, July 2004.

Bailey JR. Wind hazard assessment of critical NASA assets at the Johnson Space Center. Report prepared for NASA management by ABS Consulting, February 2001.

Bailey JR. Vulnerability assessment of Harris County to hurricane winds. Report prepared for the Harris County Commissioners Court by EQE International, June 2000.

Bailey JR. Wind and flood hazard assessment of Critical NASA assets at the Kennedy Space Center. Report prepared for NASA management by EQE International, June 2000.

Bailey JR, Vallabahn CVG, et al. Experimental verification of the theoretical solution of laminated glass units. Proceedings, Advanced Composites Materials in Civil Engineering Structures Materials Division, American Society of Civil Engineers, Las Vegas, NV, 1991 (paper awarded Best of Session, Spring 1991, by the Texas Section of the American Society of Civil Engineers).

Bailey JR, Minor JE. Structural glazing tests show wind pressure effects. Glass Digest 1989 Oct; 68-76.

Bailey JR, Minor JE, Tock RW. Response of structurally glazed insulating glass units to wind pressures," Proceedings, 6th U.S. Conference on Wind Engineering, Houston, TX, March 8-10, 1989.

Bailey JR, McDonald JR. Impact Resistance of masonry walls to tornado-generated missiles. Proceedings, 3rd North American Masonry Conference, Arlington, TX, June 3-5.

Presentations

Bailey JR. Probable maximum surge and seiche flooding at a coastal nuclear power plant located in the United States, Advisory Committee on Reactor Safeguards (ACRS), Nuclear Regulatory Commission, Rockville, MD, November 30, 2010.

Bailey JR, Griffith M. Natural hazard risk assessment and mitigation for nuclear facilities. WebEx presentation, March 2, 2010.

Bailey JR. Lessons learned and mitigation options for hurricanes. Spring National Meeting, American Institute of Chemical Engineers (AIChE), April 2008.

Bailey JR. Vulnerability of industrial facilities. Reinsurance Association of America Cat Modeling 2006 Conference, Tampa, FL, February 23, 2006.

Bailey JR. Safe haven considerations at industrial sites. The Private Industry Workshop, National Hurricane Conference, New Orleans, LA, March 22, 2005.

Bailey JR. Finding the breaking point. International Code Council, Tampa, FL, February 12, 2005.

Bailey JR. Identifying protective areas for people in buildings. International Conference on Wind Engineering, Texas Tech University, June 2, 2003.

Bailey JR. Assessment of extreme wind effects on industrial facilities. The Private Industry Workshop, National Hurricane Conference, New Orleans, LA, April 17, 2003.

Bailey JR. Assessing the impacts of hurricanes and earthquakes. Association for Facilities Engineering Conference, Las Vegas, NV, September 25, 2001.

Bailey JR. Using Digital Physics™ to calculate wind loads on structures. ASCE Structures Conference, Washington, DC, May 2001.

Bailey JR. Don't let your critical assets blow away. Houston Chapter of the Risk and Insurance Management Society (RIMS), October 18, 2000.

Bailey JR. Impact resistance of wood products subjected to simulated tornado missiles. International Timber Engineering Conference, Seattle, WA, 1988.

Patents

Patent No. 5,309,995: Well Treatment Using Ball Sealers, issued May 10, 1994.

Patent No. 5,485,882: Low-density Ball Sealer for Use as a Diverting Agent in Hostile Environment Wells, issued January 23, 1996.

Patent No. 5,582,251: Downhole Mixer, issued December 19, 1996.

Prior Experience

Manager, Extreme Loads and Structural Risk Division, ABS Consulting (formerly EQE International), 2004–2006

Senior Project Engineer, Extreme Loads and Structural Risk Division, ABS Consulting (formerly EQE International), 2001–2004

Project Engineer, Extreme Loads and Structural Risk Division, ABS Consulting (formerly EQE International), 1998–2001

Engineering Specialist, Offshore Division, ExxonMobil Upstream Research Center (formerly Exxon Production Research Company), 1994–1998

Senior Project Engineer, Drilling and Completions Division, ExxonMobil Upstream Research Center (formerly Exxon Production Research Company), 1992–1994

Project Engineer, Drilling and Completions Division, ExxonMobil Upstream Research Center (formerly Exxon Production Research Company), 1990–1992

Lecturer and Research Associated, Civil Engineering Department, Texas Tech University, 1989–1990