



JAMES WESEVICH PE, SE

GLOBAL SERVICE LINE LEADER, FORENSICS

Education

MS, Civil Engineering, University of Texas, 1986

BS, Civil Engineering, Texas A&M University, 1984

Registrations

PE: AR, CA, LA, MI, MO, NM, TX

SE: CA

Associations

Member, American Concrete Institute (ACI)

Member, American Society of Civil Engineers (ASCE)

Committee 370, Short Duration Dynamics & Vibration Load Effects, American Concrete Institute (ACI)

Committee 440-F, Fiber Reinforced Polymer Reinforcement – Repair, ACI

Subtask Committee, Petrochemical, American Society of Civil Engineers (ASCE)

Security Clearance

DoD Secret

DoE L Clearance

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Bio

James has spent more than three decades focusing on structural engineering, including static and dynamic analysis and design. He has a strong background in seismic and blast design techniques, over thirty technical publications and has served on several ACI and ASCE committees to develop blast design guidelines. He has more than fifteen years of experience managing offices and practice groups. He has coordinated with insurance carriers, adjusters and subrogation counselors regarding forensic investigations of large complex losses, including low-severity loss claims.

His experience includes new and existing building retrofit designs for various U.S. agencies and petrochemical clients. More specifically, James has managed designs for the U.S. Department of State, Department of Defense, Army Corps of Engineers, Overseas Building Operations, Defense Nuclear Agency, Defense Special Weapons Agency, Defense Threat Reduction Agency, Agency for International Development, General Services Agency, Los Alamos National Laboratory, Sandia National Laboratory, National Park Service and the National Institute for Building Sciences.

He has managed structural designs and building retrofits for petrochemical, oil field services and pharmaceutical clients to comply with OSHA PSM Regulation 29 CFR 1910.119 and API RP 752. These industry projects primarily involved control room buildings within or near process units, or hardened test cells for prequalifying downhole tools under hydrostatic and pneumatic pressure conditions. Clients have included ConocoPhillips, Schlumberger, Baker Hughes, Marathon Petroleum, Cameron, ExxonMobil, AkzoNobel, Hess, Huntsman, Shell, Chevron, Andeavor, Rio Tinto, Jensen Chemicals, Murphy Oil, Western Refining, Halliburton, and Valero Energy. Designs are based on industry-accepted ASCE, ACI, IBC, UFC 3-340-02, TM5-853, UFC 3-340-01, UFC 4-010-02, UFC 4-023-03, and DOE/TIC-11268 design guidelines.

He has investigated numerous accidental explosions related to petrochemical facilities, commercial/residential, U.S. government, municipal, and insurance claims.

Project Highlights

BLAST FORENSICS INVESTIGATIONS

Total Storage Terminal Explosion, Buncefield, UK*

Collected on-site field damage indicators to aid in quantifying vapor cloud blast magnitude and location.

MexiChem Explosion, Coatzacoalcos, Veracruz, Mexico*

Performed cause and origin investigation regarding vapor cloud release. Collected on-site field damage indicators to aid in quantifying blast magnitude and location to corroborate cause and origin determination.

125 2nd Avenue Explosion, New York, NY*

Performed cause and origin for a natural gas explosion and ensuing fire that resulted in the collapse of three turn-of-the-century low-rise brick bearing-wall buildings. Provided expert testimony for the New York DA in criminal proceedings.

Coryell Hospital Utility Building Explosion, Gatesville, TX*

Collected on-site field damage indicators to aid in quantifying blast magnitude and cause and origin of interior natural gas explosion. Coordinated nonlinear finite element analysis calculations to corroborate peak blast pressure and duration.

Ordnance Demarcation Explosion, Gallop, NM*

Collected on-site field damage indicators to aid in quantifying blast magnitude of high explosives detonation during operator demarcation of ordnance.

PETROCHEMICAL/BLAST ASSESSMENT + DESIGN

Control Room, Laboratory and Operator Shelter Blast Hardening Program, Eight Refineries*

Provided detailed single-degree-of-freedom based assessments and building retrofit designs of more than 20 buildings deemed to have unacceptable building damage as dictated by the corporate Valero Energy sitting group.

Offshore Control Room Strengthening, Nigeria, Africa*

Determined the necessary retrofits to an existing control room on a Chevron offshore production platform. Applied blast loads to the roof, walls, and floor were based on postulated deflagrations adjacent to the control room and upper and lower decks that were generated from the semi-empirical based FLACS blast code.

Finishing Process Building Hardening, Shanghai, China*

Provided detailed blast strengthening design construction drawings and specifications to resist postulated vapor cloud explosion hazards developed by ExxonMobil. Retrofit designs were based on nonlinear dynamic single-degree-of-freedom and finite element analysis calculations, as well as deflagration propagation CFD calculations.

Project Highlights, Continued

DEFENSE/BLAST DESIGN

Embassy Blast Design Projects, Various Overseas Locations*

Provided detailed blast hardened design upgrades for new and existing U.S. Department of State, Agency for International Development facilities worldwide. Several designs included innovative blast mitigation approaches outside the standard U.S. Department of State OBO cast-in-place construction approach.

Gateway Arch Museum, Blast Assessment, St. Louis, MO*

Provided a blast assessment of the Jefferson National Expansion Memorial Museum for the National Park Service under contract and peer review by the Omaha USACE, Protective Design Center from an exterior threat.

US Senate Hart Blast Retrofit, Washington DC*

Developed 35% design drawings for blast hardening the senate building based on nonlinear finite element analysis and computational fluid dynamics calculations.

US Pentagon, Washington DC*

Verified blast performance of hardened IGU window design using shock tube and active instrumentation for replacing 17,000 exterior windows.

US White House, Washington DC*

Verified blast performance of hardened window design within simulated load-bearing wall mockup using shock tube and active instrumentation.

Oakland Airport Traffic Control Tower, Blast Design, Oakland, CA*

Developed an innovative cladding system through design and blast testing verification that was applied to the design of a traffic control tower constructed at the Oakland airport.

Richmond Federal Courthouse, Richmond, VA*

Provided the blast design for a new federal courthouse to replace the existing courthouse. All design inputs met current GSA/ISC criteria for vehicle and interior bomb threats at the building perimeter, underground parking, mailroom, lobby and loading dock.

Thanksgiving Tower, EPA Lease, Dallas, TX*

Provided a screening blast and vehicle penetration study for an existing 50-story building considered for a potential 200,000-square-foot, 20-year lease by the EPA for GSA.

Mickey Leland Federal Building, Houston, TX*

Provided the FEED study to reclad a 20-story building located in downtown Houston, to meet current GSA security requirements.

Project Highlights, Continued

OIL + GAS/BLAST DESIGN

Shaped Charge Manufacturing Facility Design, Rosharon, TX*

Provided the detailed blast hardened design for a new Schlumberger shaped-charge automated manufacturing facility. The shaped charges are similar to RPG's that are used for perforating reservoirs downhole to maximize oil and gas flow within the formation.

High-Pressure Test Facility Design, Houston, TX*

Provided blast and fragment design for various hardened test cells for a consolidated test facility for Cameron for performance validation testing to simulate high pressure and extreme temperatures under downhole conditions.

** Work done before joining Jensen Hughes.*

Professional Highlights

GLOBAL SERVICE LINE LEADER, FORENSICS, JENSEN HUGHES, INC., AUSTIN, TX, 2022-PRESENT

Leads strategy development and implementation for forensics service line growth in collaboration with the forensics team. Actively supports talent acquisition, technical excellence and work-sharing across the firm's operating regions. Engages in business development activities and promotes the forensic business line externally and internally to support the firm's growth objectives and expand client portfolio. Monitors the service line revenue, gross margin, backlog and utilization with senior vice presidents, vice presidents and operations leaders. Leads the forensics technical community across regions to facilitate and enhance technical excellence, common processes and collaboration. Provides mentorship and project support within the service line.

MANAGING PRINCIPAL ENGINEER, EFI GLOBAL, AUSTIN, TX, 2020-2022

Performed forensic investigations primarily supporting insurance losses. Loss investigations included petrochemical storage tanks, US embassy forced-entry bullet-resistant glazing systems, sports stadiums, chemical process buildings, and wind- and freeze-related claims to commercial and residential structures. Investigated tank explosions at chemical and municipal storage facilities. Investigated a coal dust explosion at an underground coal recovery terminal. Produced engineering investigation reports for insurance carriers and adjusters. Supported forensic investigations for owners/operators and their legal counsel.

PRINCIPAL, AUSTIN OFFICE DIRECTOR, THORNTON TOMASETTI, AUSTIN, TX, 2015-2020

Developed and served as project manager for blast design, assessment and forensic investigation projects within the petrochemical, oil services, health and U.S. government within the Applied Science Practice. Started the Austin and Houston offices for Thornton Tomasetti. Responsible for hiring and growing staff, meeting and projecting office and practice financial goals.

ASSOCIATE PRINCIPAL, WEIDLINGER ASSOCIATES, AUSTIN, TX, 2013-2015

Provided project management for blast and fragment mitigation and convention building design for industrial and commercial facilities. The projects included facilities at DOE Los Alamos and Sandia National Labs, oil services and explosives safety. Provided forensics investigation of stadium experiencing concrete cracking and potential design deficiencies.

Professional Highlights, Continued

SENIOR PRINCIPAL ENGINEER, MANAGER, PROTECTIVE STRUCTURES SECTION, BAKER ENGINEERING AND RISK CONSULTANTS, INC., SAN ANTONIO, TX, 1998-2013

Provided technical and managerial oversight to structural engineering and testing staff related to structural response to blast effects due to deflagrations and detonations from U.S. courthouses to petrochemical facilities. Provided structural response support to corroborate blast cause and origin scenarios for petrochemical-related accidental vapor cloud and bursting pressure explosions. Developed and managed the shock tube test facility. Responsible for meeting and projecting structural and testing practice financial goals.

SENIOR ENGINEER, KARAGOZIAN & CASE, GLENDALE, CA, 1987-1998

Provided conventional engineering designs for hospitals and food process industrial facilities. Supported full- and sub-scale modeling and testing of nuclear, conventional, and terrorist weapon effects on above- and below-ground conventional and hardened structures. Helped develop an explicit smeared crack concrete constitutive material model (Material 71) in DYNA3D/LSDYNA to model high strain-rate effects of concrete behavior under blast. Conducted nonlinear finite element analysis to assess constitutive material modeling and solver capabilities with blind predictions by comparison to active instrumented blast testing at White Sands, New Mexico and the Nevada Test Site.

Notable Publications + Presentations

PUBLICATIONS, TECHNICAL JOURNALS + BOOKS

Marx, J., B. Ishi, J. Wesevich, and S. Dara, "Radiant Heat Flux Impact Criteria for API RP 752 Building Siting Studies," Proceedings for the 18 AIChE Spring Meeting, 14th Global Congress on Process Safety, Orlando, Florida, April 22-25, 2018.

Milner, D., J. Wesevich, L. Nikodym, V. Nasri, D. Lawver, and J. Mould, "Improved Capacity of Pre-engineered Metal Buildings using Coupled CFD and FEA Modeling," Journal of Loss Prevention in the Process Industries, November 2018.

Wesevich, J., P. Hassig, L. Nikodym, V. Nasri, and J. Mould, "Accounting for Channeling and Shielding Effects for Vapor Cloud Explosions," Journal of Loss Prevention in the Process Industries, November 2017.

Wesevich, J.W., P.E. Dunn, D.J. Lawver, and T.J. Yeary, "Hardened Pit Lid Design for High-Pressure Extreme Temperature Pneumatic Gate Valve Testing," Proceedings of ASME 2016 Pressure Vessels and Piping Conference, July 17-21, 2016.

Wesevich, J.W., P.E. Dunn, E.J. Hansen and E.N. Gage, "Hardened Enclosure Design for High-Pressure Extreme Temperature Pneumatic Seal Test Fixture," Proceedings of ASME 2016 Pressure Vessels and Piping Conference, July 17-21, 2016.

Wesevich, J. and M. Lowak, "Blast Performance of High-strength Reinforced Concrete Foam Core Panels," Proceedings for the 22nd Military Aspects of Blast and Shock, Bourge, France, November 5-9, 2012.

Wesevich, J. and M. Lowak, "Lightweight FRP Reinforced Composite Blast Panels Validated with Testing," Proceedings for the American Concrete Institute Fall Convention, Toronto, Canada, October 21-25, 2012.

Notable Publications + Presentations, Continued

PUBLICATIONS, TECHNICAL JOURNALS + BOOKS, CONTINUED

Lowak, M. J., J.S. Idriss, and J.W. Wesevich, "Testing and Analytical Evaluation of Doors, Proceedings of ASCE Structures Congress, 2011.

Wesevich, J.W., D.D. Bogosian, B.L. Bingham, J. Magnusson and A.P. Christiansen, "Comparative Study of Concrete Constitutive Models for Predicting Blast Response," American Concrete Institute SP-281, ACI Committees 447 and 370, December 27, 2011.

Holland, T. and J. Wesevich, "In-situ Blast Testing of Shear-Screw Mechanical Couplers," Proceedings for the 34th Department of Defense Explosives Safety Board Seminar, Portland, Oregon, July 13-15, 2010.

Wesevich, J. and B. Bingham, "Numerical Simulations of Reinforced Concrete Beams and Slabs Subjected to Blast Loads," Proceedings for the 13th International Symposium on Interaction of the Effects of Munitions with Structures, Bruehl, Germany, May 11-15, 2009.

Wesevich, J. and K. El-Domiaty, "Structural Design Considerations for Masonry Walls Strengthened with FRP," Proceedings for the 33rd Department of Defense Explosives Safety Board Seminar, Palm Springs, California, August 12-14, 2008.

El-Domiaty, K., Wesevich, J. and M. Lowak, "Structural Design Considerations for Masonry Walls Strengthened with FRP," Proceedings for the 79th Shock and Vibration Analysis Center Symposium, Orlando, Florida, October 26-30, 2008.

Wesevich, J. and K. El-Domiaty, "Structural Design Considerations for Masonry Walls Strengthened with FRP," Proceedings for the 33rd Department of Defense Explosives Safety Board Seminar, Palm Springs, California, August 12-14, 2008.

Wesevich, J.W. and E.M. Gasulla, "Blast Hardened Retrofit Details for Petrochemical Buildings, Proceedings of ASCE Structures Congress, 2008.

Woodward, J., J. Wesevich, K. Thomas and Q. Baker, "Analysis of Ethylene Oxide Gas House Explosion," Process Safety Progress, Volume 26, Issue 2, June 2007.

Wesevich, J.W. and C.J. Oswald, "Empirical Based Concrete Masonry Pressure-Impulse Diagrams for Varying Degrees of Damage," Proceedings for the American Society of Civil Engineers 2005 Structures Congress, New York, New York, April 17-21, 2005.

Wesevich, J.W. and D.B. Olson, "Explosion Forensic Analysis," Proceedings for the American Society of Civil Engineers 2005 Forensic Engineering Symposium, New York, New York, April 20-24, 2005.

Schleyer, G.K., T.H. Kewaisy, J.W. Wesevich, and G.S. Langdon, "Validated Finite Element Analysis of Blast Wall Panels under Shock Pressure Loading," International Journal of Ships and Offshore Structures, 2004.

Wesevich, J.W., R.H. Bennett, and W. Hu, "Response of an Offshore Platform Leg to Terrorist Attack," Proceeding of the 14th Annual Offshore Symposium, SNAME Texas Section, Houston, TX, November 10, 2004.

Wesevich, J.W. and T.H. Kewaisy, "Validated Pressure-Impulse Diagrams for E-glass Retrofitted Masonry Walls," Proceedings of the 75th Shock & Vibration Symposium, Virginia Beach, VA, October 17-22, 2004.

Notable Publications + Presentations, Continued

PUBLICATIONS, TECHNICAL JOURNALS + BOOKS, CONTINUED

Wesevich, J.W. and A. Sari, "Engineering-Level Finite Element Modeling of Contained Blast Chambers," Proceedings of the 31st Explosives Safety Seminar, Department of Defense Explosives Safety Board, San Antonio, TX, August 24-26, 2004.

Wesevich, J.W. and Q.A. Baker, "Innovative Blast Hardening Retrofit Techniques for Resisting the Effects of Vapor Cloud Explosions," presented at National Petrochemical & Refiners Association 2003 Maintenance Conference & Exhibition, Salt Lake City, UT, May 20-23, 2003.

Wesevich, J.W. and C.J. Oswald, "Innovative Cost-effective Wall/window Retrofit to Resist Blast Loading," Proceedings for the American Society of Civil Engineers 2002 Structures Congress, Denver, Colorado, April 4-6, 2002.

Wesevich, J.W., C.J. Oswald, and M.T. Edel, "Compile and Enhance Blast Related CMU Wall Test Database," Interim Draft Report, for the US Navy Office of Special Technology, Technical Support Working Group, by Wilfred Baker Engineering, San Antonio, TX, WBE Project No. A220-001, April 4, 2002.

Wesevich, J.W., M.A. Polcyn, and M.T. Edel, "Blast Design of USAID/Pristina Annex (U)," for United States Agency for International Development, Kosovo, Wilfred Baker Engineering, San Antonio, TX, WBE Project No. A369-001, April 2, 2002.

Oswald, C.J. and J.W. Wesevich, "Structural Retrofits to Increase the Blast Capacity of Roofs and Masonry Walls," Proceedings for the American Society of Military Engineers Symposium on Comprehensive Force Protection, Charleston, South Carolina, November 1-3, 2001.

Wesevich, J.W. and C.J. Oswald, "Blast Hardening of Existing Buildings," Proceedings for the American Concrete Institute Fall Convention, Dallas, Texas, October 28-November 2, 2001.

Wesevich, J.W., "US Pentagon IGU Window Response Validation Study," Proceedings of the 10th International Symposium on Interaction of the Effects of Munitions with Structures, San Diego, California, May 7-11, 2001.

Lowak M.J., Conrath, E.J., Keown, M.P., and Wesevich, J.W., "Window Response Comparison of Open-Air and Shock Tube Testing," Proceedings of the 10th International Symposium on Interaction of the Effects of Munitions with Structures, San Diego, California, May 7-11, 2001.

Wesevich, J.W., "Analytical Review of Tested DoS/DS Steel Stud Wall," for United States Agency for International Development, Wilfred Baker Engineering, San Antonio, TX, WBE Project No. A184-004, January 23, 2001.

Wesevich, J.W. and R.G. Roberts, "DYNA3D Steel Frame Response Comparisons to HE Testing," Proceedings for the Shock and Vibration Information Analysis Center Symposium, Arlington, VA, November 6-9, 2000.

Wesevich, J.W., R. Smilowitz, D.W. Tennant, M.J. Lowak, and J.K. Thomas, "Comparison of Inelastic Dynamic FEA Predictions and Blast Test Results for Conventional CMU Walls," Proceedings for the American Concrete Institute Fall Convention, Toronto, Ontario, October 15-19, 2000.

Notable Publications + Presentations, Continued

PUBLICATIONS, TECHNICAL JOURNALS + BOOKS, CONTINUED

Wesevich, J.W., "Comparison of Measured and DYNA3D Predicted Response of Conventional Reinforced and Unreinforced Concrete Masonry Walls Subjected to Uniform Air Blast Loading," Proceedings of the 9th International Symposium on Interaction of the Effects of Munitions with Structures, Berlin-Strausberg, Germany, May 3-7, 1999.

Wesevich, J.W., "Inelastic Structural Component Response Comparisons between ANFO and TNT Based on Recent Air Blast Data at Scaled Ranges of 1.4 to 68 ft/lb^{1/3}," Proceedings of the 1999 International Workshop on the Modeling of Non-Ideal Explosives, Socorro, New Mexico, March 16-18, 1999.

Malvar, L.J., J.E. Crawford, J.W. Wesevich, and D. Simons, "A Plasticity Concrete Material Model for DYNA3D," Journal of Impact Engineering, Vol. 19, Nos. 9-10, pp. 847-873, United Kingdom, 1997.

Crawford, J.E., L.J. Malvar, J.W. Wesevich, J. Valancius, and A.D. Reynolds, "Retrofit of Reinforced Concrete Structures to Resist Blast Effects," ACI Journal, Vol. 94, No. 4, July-August 1997.

Wesevich, J.W., L.J. Malvar, and J.E. Crawford, "Comparison of Measured and Predicted Responses of Reinforced Concrete Walls Subjected to Close-in Blasts," Proceedings of the 8th International Symposium on Interaction of the Effects of Munitions with Structures, April 1997.

Malvar, J.E., J.W. Wesevich, and J.E. Crawford, "Procedures for Including Fragment Loading and Damage in the Response Predictions of Reinforced Concrete Slabs," Proceedings of the 8th International Symposium on Interaction of the Effects of Munitions with Structures, April 1997.

Crawford, J.E., D.D. Bogosian, and J.W. Wesevich, "Evaluation of the Effects of Loads on Masonry Walls and an Assessment of Retrofit Techniques for Increasing Their Strength," Proceedings of the 8th International Symposium on Interaction of the Effects of Munitions with Structures, April 1997.

Malvar, L.J., J.W. Wesevich, and J.E. Crawford, "Modeling of Fragment Loads and Effects on Reinforced Concrete Slabs," Proceedings of the 27th Department of Defense Explosive Safety Seminar, DoD Explosive Safety Board, August 1996.

Wesevich, J.W., L.J. Malvar, and J.E. Crawford, "Assessment of State-of-the-Art First Principle Reinforced Concrete Slab Response Calculations," Proceedings of the 66th Shock and Vibration Symposium, Biloxi, MS, November 1995.

Crawford, J.E., J.W. Wesevich, J. Valancius, and A.D. Reynolds, "Evaluation of Jacketed Columns as a Means to Improve the Resistance of Conventional Structures to Blast Effects," Proceedings of the 66th Shock and Vibration Symposium, October 1995.

Malvar, L.J. and J.W. Wesevich, "Evaluation of Numerical Techniques for Inclusive of Material Degradation from Bomb Casing Fragments," Proceedings of the 65th Shock and Vibration Symposium, October 1994.

Wesevich, J.W. and D. Bogosian, "Prediction Large Deformations of the Thin-Walled Cylinders Under Blast Loading," Proceedings of the Pressure Vessel and Piping Conference, PVP-Vol. 207, pp. 57-63, 1991.

Notable Publications + Presentations, Continued

PATENTS

Lowak, Michael J., J. Kelly Thomas, Adrian J. Pierorazio, Quentin A. Baker, Ming Jun Tang, James Wesevich, and Michael A. Polcyn, "Shock Tube," Patent No. 6,763,696 awarded on July 20, 2004.

Professional Standings

LICENSES

- + Professional Engineer (PE), Arkansas, No. 16382, 2014-present
- + PE, California, Civil, No. C46335, 1989-present / Structural, No. S3874, 1990-present
- + PE, Louisiana, No. PE.029829, 2001-present
- + PE, Michigan, No. 6201062371, 2015-present
- + PE, Missouri, No. 027752, 1996-present
- + PE, New Mexico, No. 13560, 1997-present
- + PE, Texas, No. 84489, 1998-present