Exponent®
Engineering & Scientific Consulting

Ezra Jampole, Ph.D., P.E.

Principal Engineer | Civil and Structural Engineering
New York
+1-212-895-8139 | ejampole@exponent.com

Professional Profile

Dr. Jampole specializes in evaluating the performance of structures subjected to extreme loads such as earthquakes, wind, and flood events and in performance-based analysis and risk assessments. He has served as a consultant on projects assessing the origin of damage and cause of collapse of structures following earthquakes, extreme weather events, adjacent construction incidents, corrosion and deterioration, settlement, and long-term issues.

Dr. Jampole has substantial experience investigating the engineering standard of care for complex energy and infrastructure projects. He is experienced in expert witness investigations for international arbitration and domestic litigation cases. He also has experience designing steel, concrete, and wood framed buildings; and in nonlinear analysis, finite element analysis, applied element analysis, probabilistic hazard analysis, incremental dynamic analysis, and earthquake ground motion selection.

Dr. Jampole has developed multi-hazard risk assessment frameworks to determine the risk of structures and components due to climate change. He has developed engineering-based quantitative risk analysis models of utility components for electric and gas transmission and distribution systems, including evaluating the risk due to contact with foreign objects and failures due to wind and earthquakes. He has evaluated the effectiveness of wildfire mitigations in reducing components failures that may lead to arcing and ignitions.

Dr. Jampole has developed strategies for improving the performance of light frame structures during severe earthquakes. He developed a sliding isolation system geared towards the properties of light frame structures, and validated its performance through numerical analysis, component testing, and full scale shake table testing of a two-story isolated house. He also developed a ground motion intensity measure for the prediction of sliding isolation demands, and subsequent ground motion prediction equations for use in probabilistic seismic hazard analyses.

Dr. Jampole currently serves as an adjunct associate professor at Columbia University, where he teaches a course on forensic engineering. He is extensively involved in the Earthquake Engineering Research Institute through the Learning from Earthquakes Program. Prior to joining Exponent, Dr. Jampole assisted in teaching courses in the behavior and design of structural systems, earthquake engineering, and performance-based design at Stanford University.

Academic Credentials & Professional Honors

Ph.D., Civil and Environmental Engineering, Stanford University, 2016

M.Sc., Civil and Environmental Engineering, Stanford University, 2013

B.S., Civil Engineering, Northeastern University, 2011

Earthquake Engineering Research Institute: Friedman Family Visiting Professionals Program Lecturer, 2019-present

Earthquake Engineering Research Institute: Younger Member Award 2018

National Science Foundation Graduate Research Fellow, 2012-2015

John D. and Mary L. Carpenter Fellowship, Stanford University, 2011-2012

Chi Epsilon Joseph L. Brandes National Scholarship, 2011

Carl S. Ell Scholarship, Northeastern University, 2006-2011

Licenses and Certifications

Professional Engineer Civil, California, #89153

Professional Engineer, Connecticut, #PEN.0035565

Professional Engineer, Delaware, #33145

Professional Engineer, Idaho, #4161379

Professional Engineer, Maine, #PE18009

Professional Engineer, Maryland, #66741

Professional Engineer Civil, Massachusetts, #57085

Professional Engineer, Michigan, #6201315921

Professional Engineer, New Jersey, #24GE05847000

Professional Engineer, New York, #101955

Professional Engineer, Pennsylvania, #PE093958

Professional Engineer, Rhode Island, #PE.0014186

Professional Engineer Civil, Vermont, #018.0135792

Professional Engineer Civil, Washington, #24028128

Academic Appointments

Adjunct Associate Professor at Columbia University – CIEN E4210 Forensic Structural Engineering 2022-present

Adjunct Professor at the New Jersey Institute of Technology – CE 634 Structural Dynamics 2017-2022

Professional Affiliations

Earthquake Engineering Research Institute (EERI) member

American Society of Civil Engineers member

ASCE 7-28 Future Loads Committee member

Structural Engineering Association of New York member

Society of Risk Analysis member

Reviewer for Engineering Structures, Earthquake Spectra, Journal of Structural Engineering

Publications

Jampole, E. and Morgan, T. Cracks, claims, and culpability: Assessing damage from adjacent construction. American Bar Association Under Construction Magazine, Midwinter 2026 Issue.

Bhattacharjee, G., Jampole, E., and Palmquist, K. Considering community: new tools allow utilities to consider environmental justice when investing in power grids. Western Energy Magazine, Spring 2025 Issue (pp. 24-28).

Jampole, E. and McDonald, B. Fragility curves for quantifying physical climate risk in the electric power sector. Electric Power Research Institute Climate READi Technical Report. April 2025. https://www.epri.com/research/sectors/readi/research-results/3002031792

McDonald, B., Griffith, M., Bhattacharjee, G. and Jampole, E., 2025. A quantitative risk-based framework for asset health assessment of overhead lines. In The Sustainable Power Grid (pp. 59-83). Elsevier.

Jampole E, and Bhattacharjee, G. Quantitative risk analysis for utilities. 18th U.S.-Japan-New Zealand Workshop on the Improvement of Structural Engineering and Resilience, Applied Technology Council, San Diego California, 2024.

Kytömaa H, Jampole E, McDonald B. Proactive Risk-Informed Hardening for Cold Weather Grid Reliability. WE Magazine 2024; 20-23.

Bas, S., Hunt, J., Gencturk, B., Jampole, E., Sonmezer, Y.B., Chancellor, B., Bassal, P., Celiker, M., Apaydin, N. and Sezen, H., 2024. Seismic performance and damage assessment of bridges during the 2023 Kahramanmaraş, Türkiye earthquakes (M w= 7.8, M w= 7.6). Earthquake Spectra, DOI: 10.1177/87552930241262043.

Martin, A., Jampole, E. and Hunt, J., Numerical modeling of damaged bridges in Türkiye following the Kahramanmaraş earthquake events. Proceedings of the 18th World Conference on Earthquake Engineering, 18WCEE, Milan, Italy, 2024.

Jampole, E. and Hunt, J. Insights for the utility industry in the aftermath of the 2023 Türkiye – Syria Earthquake. Western Energy Magazine, Summer 2023 Issue (pp. 22-27).

Bhattacharjee, G., Jampole, E. and Kemal, A., A Probabilistic Method to Assess the Risk of Contamination-Induced Insulator Flashover. In ASCE Inspire 2023 (pp. 683-691).

Jampole E., Kenawy, M. Probabilistic Risk Assessment of Electric Power Infrastructure Subjected to Earthquake-Induced Landslides. Proceedings of the 14th International Conference on Application of Statistics and Probability in Civil Engineering, Trinity College, Dublin, Ireland, 9 to 13 July 2023.

Cappa, C., Jampole, E., Wham, B., Hunt, J., Kraus, R., Chancellor, B., Pehlivan, M, Akinci, O., Guldur, B., Bayraktar, M., Citipitioglu, A., Toprak, S., Nacaroglu, E., Ceyaln, M., and Bayram, A., 2023. “Performance of Lifelines.” February 6, 2023 Türkiye earthquakes: report on geoscience and engineering impacts. Earthquake Engineering Research Institute and Geotechnical Extreme Event Reconnaissance Association (USA) and the Earthquake Engineering Association and Earthquake Engineering Foundation of Türkiye. pp. 280-347.

Tariq, H., Jampole, E.A. and Bandelt, M.J., 2023. Seismic collapse assessment of archetype frames with ductile concrete beam hinges. Resilient Cities and Structures, 2(1), pp.103-119.

Amoroso, A, Jampole, E, and Morgan, T. Tornado effects on buildings: are target performance objectives consistent with recent damage observations? Structure Magazine. July 2022.

Jampole E, Osteraas, O. Distinguishing between earthquake-induced and pre-existing conditions in older buildings following earthquakes. Proceedings of the 12th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Salt Lake City, UT, 27 June to 1 July 2022.

Jampole E, Amoroso, S, Morgan, T, and McDonald, B. Themes in design/build disputes, from a technical expert witness perspective. Construction Law International, Volume 17 Issue 1, March 2022.

Tariq, H., Jampole, E.A. and Bandelt, M.J., 2021. Development and Application of Spring Hinge Models to Simulate Reinforced Ductile Concrete Structural Components under Cyclic Loading. Journal of Structural Engineering, 147(2), p.04020322.

Jampole, E., Swensen, S., Miranda, E. and Deierlein, G.G., 2020. Parametric Study of Seismic Isolation Properties for Light-Frame Houses. Journal of Structural Engineering, 146(10), p.04020207.

He, T., Hulsey, A., Jiminian, M., Jampole, E., Morales Cartagena, A., Pérez Irizarry, A., Shrestha, S., and Wichman, S. Reconfiguring New Zealand’s Built Environment After the 2010-2011 Canterbury Earthquake Sequence and the 2016 Mw 7.8 Kaikoura Earthquake. EERI-LFE Travel Study Report. July 2019.

Jampole, E. Cushing, Oklahoma: What’s Happened to the historic downtown? EERI’s Younger Members Committee Blog. Earthquake Engineering Research Institute. September 15, 2019. https://ymc.eeri.org/cushing-oklahoma-whats-happened-to-the-historic-downtown/

Jampole, E., Miranda, E. and Deierlein, G.G., 2019. Predicting Earthquake-induced Sliding Displacements using Effective Incremental Ground Velocity. Earthquake Spectra.

Kytomaa HK, Boehm P, Osteraas J, Haddad B, Hacker J, Gilman L, Jampole E, Murphy P, and Souri S. An integrated method for quantifying and managing extreme weather risks and liabilities for industrial infrastructure and operations. Process Safety Progress. 2019; e12087. https://doi.org/10.1002/prs.12087.

Kytomaa, H., Boehm, P., Osteraas, J., Haddad, B., Hacker, J., Gilman, L., Jampole, E., Murphy, P., and Souri, S. “A Non-Stationary Approach to Conducting Site-Specific Integrative Risk Management Assessments at Industrial Facilities at Risk from Extreme Weather Events.” Proceedings from the American Institute of Chemical Engineers 2019 Spring Meeting and 15th Global Congress on Process Safety, New Orleans, Louisiana, 2019.

Tariq, H, EA Jampole, and MJ Bandelt (2019). “Calibration of Plastic- and Fiber-Hinge Models for Simulation of Reinforced HPFRCC Flexural Elements.” Engineering Structures, 182: 62-78. DOI: 10.1016/j.engstruct.2018.11.076.

Jampole E, Hunt J. Structural performance factors and building damage following the 19 September 2017 Puebla, Mexico Earthquake. 17th U.S.-Japan-New Zealand Workshop on the Improvement of Structural Engineering and Resilience, Applied Technology Council, Queenstown, New Zealand, 2018.

Weiser D, Hunt, Jampole E, Gobbato M. EERI Earthquake Reconnaissance Team Report: M7.1 Puebla, Mexico Earthquake on September 19, 2017. Earthquake Engineering Research Institute, Oakland, CA, 2018.

Jampole E, Miranda E, Deierlein G. Effective incremental ground velocity for estimating the peak sliding displacement of rigid structures to pulse-like earthquake ground motions. Journal of Engineering Mechanics 2018; 144(12):04018113.

Jampole E, Miranda, E, Deierlein, G. Effective incremental ground velocity: an IM to estimate sliding isolation displacement. Proceedings of the 11th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Los Angeles, CA, 2018.

Jampole E, Bomba G, Roufegarinejad A. Earthquake-resilient design of homes in near field regions: a case study of implementing a low-cost base isolation system. Proceedings of the 11th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Los Angeles, CA, 2018.

Gilbert A, Jampole E, Deierlein G, Miranda E. Mapping demand parameters in high-friction sliding isolated houses to identify regions for implementation in the Western U.S. Proceedings of the 11th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Los Angeles, CA, 2018.

Tariq H, Jampole E, Bandelt M. Fiber-based modeling of reinforced HPFRCC hinge regions. Proceedings of the 11th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Los Angeles, California, 2018.

Acevedo C, Swensen S, Jampole E, Deierlein G, Miranda E, Fell B. Comparing the seismic performance of unibody and conventional construction of a two-story wood-frame house. Proceedings of the 11th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Los Angeles, California, 2018.

Taylor J, Celebi M, Greer A, Jampole E, Masroor A, Melton S, Norton D, Paul N, Wilson E, Xiao Y. EERI Earthquake Reconnaissance Team Report: M5.0 Cushing, Okalhoma, USA Earthquake on November 7, 2016. Earthquake Engineering Research Institute, Oakland, California. 2017.

Jampole EA, Deierlein GG, Miranda E, Fell B, Swensen SD, Acevedo CA. An economic sliding isolation system for residential light frame structures. Proceedings of the 16th World Conference in Earthquake Engineering, 16WCEE, Santiago, Chile, 2017.

Swensen S, Deierlein G, Miranda E, Fell B, Acevedo C, Jampole E. Performance-based seismic assessment of a wood-frame house with strength and stiffness enhancements. Proceedings of the 16th World Conference in Earthquake Engineering, 16WCEE, Santiago, Chile, 2017.

Acevedo CA, Deierlein GG, Miranda E, Fell B, Swensen SD, Jampole EA. Development of a unibody system to improve the performance of lightweight residential wood structures. Proceedings of the 16th World Conference in Earthquake Engineering, 16WCEE, Santiago, Chile, 2017.

Jampole E High-friction sliding seismic isolation for enhanced performance of light frame structures during earthquakes. Doctoral Dissertation. Department of Civil and Environmental Engineering, Stanford University, Stanford, CA, 2016.

Jampole E, Deierlein G, Miranda E, Fell B, Swensen S, Acevedo C. Full scale dynamic testing of a sliding seismically isolated unibody house. Earthquake Spectra 2016.

Morgan T, Jampole E. Performance of base isolated structures in recent pacific rim earthquakes: Lessons

learned and implications for US practice. Proceedings of the Structural Engineering Association of California 2016 Conference, SEAOC, Maui, HI, 2016.

Jampole E, Chandramohan R, Frank T, Bandelt M. Shelter, retrofit, and reconstruction of housing: a summary of previously used strategies in developing regions applicable for the 2015 Lamjung, Nepal Earthquake. The World Bank, Washington DC, USA, 2015.

Swensen S, Acevedo C, Jampole E, Miranda E, Deierlein G, Hopkins A, Fell B. Toward damage free residential houses through unibody light-frame construction with seismic isolation. Proceedings, SEAOC 2014 83rd Annual Convention, Indian Wells, CA, 2014.

Jampole EA, Swensen SD, Fell B, Miranda E, Deierlein GG. Dynamic testing of a low-cost sliding isolation system for light-frame residential structures. Proceedings of the 10th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Anchorage, AK, 2014.

Jampole E, Swensen S, Acevedo C, Fell B, Miranda E, Deierlein G. Testing a low cost sliding isolation system for light frame structures. Proceedings, Ten Successful Years of Research within NEES@Berkeley, RFS, Richmond, CA, 2014.

Hajjar JF, Sesen A, Jampole E, Wetherbee A. A synopsis of sustainable structural systems with rocking, self-centering, and articulated energy-dissipating fuses. Report No. NEU-CEE-2013-01, Department of Civil and Environmental Engineering, Northeastern University, Boston, MA, 2013.

Jampole EA, Spurgeon N, Avant T, Farinholt K. Characterization of bio-inspired synthetic hair cell sensors. Proceedings of the 30th International Modal Analysis Conference (IMAC), Jacksonville, FL, January 30-February 2, 2012.

Presentations

Berman, A., Jampole, E., Masters, S., Reeves, J., and Miller, J. “The Pros and Cons of ADR, including International Arbitration.” 2025 FDCC Corporate Counsel Symposium, Chicago, Illinois. September 15, 2025.

Jampole, E. and Griffith, M. “Performance-based structural design for utilities.” Pacific Northwest Utility Conference Committee Board of Directors Meeting, Portland, Oregon. May 9, 2025.

Jampole, E. and Thompson, A. “Climate adaptation vulnerability assessment for Southern California Edison.” Western Energy Operations Conference, Vancouver British Columbia. April 17, 2025.

Jampole, E. and Camello, N. “Estimating wildfire mitigation effectiveness using quantitative risk analysis.” Distributech, Dallas, Texas. March 26, 2025.

Jampole, E., Palmquist, K., Chedrawe, J., and Foty, C. “New Clean Energy and Dispute Resolution: Mitigating the Risk of Performance Issues and Defects with Novel Technologies.” Webinar Panel. November 6, 2024.

Bozorgnia, P., Jampole, E., Owen, J., Bisadi, M., and Lanz, T. “Risk Mitigation on Major Transit Programs.” Association for the Advancement of Cost Engineering Metro New York Panel. October 30, 2024.

Jampole, E., Bhargava, Y., Kwan, A., and Patrick, B. “A probabilistic risk model for arc faulting between overhead utility structures and buried pipelines.” PHMSA Risk Modeling Workshop, Houston, Texas. October 23, 2024.

Jampole, E. “Ethics seminar: Structural engineering failures and the standard of care.” Structural Engineers Association of New York Seminar, New York, New York. August 15, 2024.

Jampole, E. “Bridge Demolition Gone-Wrong.” ASCE Met Section Spring Seminar, ASCE-STR-0158, New York, New York. May 21, 2024.

Shahsiah, A. and Jampole, E. “Climate Adaptation Vulnerability Assessment for Utility Assets: A Quantitative Approach.” Distributech International 2024, Orlando, Florida. February 28, 2024.

Jampole, E. and Bhattacharjee, G. “Structural Engineering Failure and Risk Analysis.” Rutgers University, Department of Civil & Environmental Engineering Seminar. December 6, 2023.

Jampole, E. “Earthquake Engineering Gone Wrong: Legal and Insurance Disputes.” University of California, Los Angeles, CEE 200 Seminar Series. November 28, 2023.

Jampole, E. “Transportation and Electrical Infrastructure Reconnaissance in Türkiye after the Devastating 2023 Earthquakes.” Earthquake Engineering Research Institute San Diego Chapter, 2023 Kenji Ishihara Colloquium: Advancing Earthquake Engineering in the Wake of the Turkey-Syria Earthquake. October 27, 2023.

Jampole, E. “Summary of Preliminary Observations from March 17-23, 2023 Reconnaissance Investigation of the February 6, 2023 Turkey Earthquake Sequence.” Institution of Civil Engineers, New York Metropolitan Chapter Seminar. October 23, 2023.

Jampole, E. “Summary of Preliminary Observations from March 17-23, 2023 Reconnaissance Investigation of the February 6, 2023 Turkey Earthquake Sequence – Lifelines.” Structural Engineering Association of Northern California, Seismology Committee Meeting. May 30, 2023.

Cappa, R., Jampole, E., Guldur, B., Chancellor, B., Hunt, J., Kraus, R., Pehlivan, M., Wham, B., Toprak, S., and Bayraktar, M. “Summary of Preliminary Observations from March 17-23, 2023 Reconnaissance Investigation of the February 6, 2023 Turkey Earthquake Sequence – Lifelines.” Earthquake Engineering Research Institute Webinar. May 9, 2023.

Cappa, R., Jampole, E., and Wham, B. “EERI Lifelines Reconnaissance Investigation – Overview and Preliminary Observations.” Special Session on the 2023 Turkey/Syria Earthquake Sequence. Earthquake Engineering Research Institute Annual Meeting, San Francisco, CA. April 11, 2023.

Jampole, E. “Defense of Physics-Based Models in Earthquake Engineering.” Machine Learning Applications in Earthquake Engineering: Hope, Hype or Hindrance (A Debate). 12th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Salt Lake City, UT. June 30, 2022.

Jampole, E. “Structural Engineering Failures, Safety, and the Standard of Care.” Oregon State University Structural Engineering Institute Seminar. May 9, 2022.

Jampole, E. “Legal and Insurance Disputes in Earthquake Engineering.” EERI Friedman Family Visiting Professionals Program.

- University of California, Los Angeles, Department of Civil and Environmental Engineering. April 9, 2026.
- University of Minnesota, Department of Civil, Environmental, and Geo- Engineering. March 7, 2025
- University of California, San Diego, Department of Structural Engineering. April 23, 2023
- Oregon State University, School of Civil and Construction Engineering. May 9, 2022.

- University of Toronto, Department of Civil and Mineral Engineering. March 15, 2022.
- Cornell University Department of Civil and Environmental Engineering Seminar. Virtual. May 5, 2021.
- University at Buffalo Department of Civil, Structural, and Environmental Engineering Seminar. Virtual. April 16, 2021.
- Johns Hopkins University Civil Engineering Department Seminar. Baltimore, MD, USA. January 30, 2020.

Jampole, E., and Moore, E. “Structural Engineering Failure and Risk Analysis.” University of California, Los Angeles Department of Civil and Environmental Engineering, CEE 200 Seminar. April 19, 2022.

Peraza, D. and Jampole, E. “Parking Deck Collapse.” American Society of Civil Engineering Metropolitan Section, Forensics Group Seminar. Virtual. April 5, 2022.

Jampole, E. “Case Studies in Structural Failure Investigations.” Stanford University CEE290: Structural Performance and Failures, Guest Lecture. Virtual. May 10, 2021.

Miranda, E., Mieler, M., Mitrani-Reiser, J., Fischer, E., and Jampole, E. “LFE into the Future: Conversation with the new Learning from Earthquakes Program Chairs.” Earthquake Engineering Research Institute Annual Meeting. Virtual. March 25, 2021.

Jampole, E. “Structural Failure Investigations and Legal Disputes.” University of California, Los Angeles Department of Civil and Environmental Engineering, CEE 200 Seminar. Virtual. February 2, 2021.

Jampole, E. “Learning From Earthquakes New Zealand Travel Study Program: Challenges in Rebuilding the Built Environment.” National Earthquake Conference. San Diego, CA, USA. March 6, 2020.

Jampole, E. “Challenges in Rebuilding the Built Environment in New Zealand following Earthquakes.” Earthquake Engineering Research Institute Webinar: Reconnaissance Lessons Learned from the 2019 EERI New Zealand Travel Study Program. May 26, 2020.

Jampole, E. and Pérez Irizarry, A. “Opportunities: Rebuilding Better Following the New Zealand Earthquakes”. EERI Learning From Earthquakes Travel Study Program. Wellington, New Zealand. May 11, 2019.

Jampole, E. and Sain, S. “Machine Learning for Assessing Non-Stationary Hazards and Mitigating Risk from Extreme Weather Events.” American Gas Association Transmission Integrity Management Program Committee Meeting. Nashville, Tennessee. April 30, 2019.

Jampole, E. “Mitigating Risk at Industrial Facilities from Non-Stationary Extreme Weather Hazards.” New Jersey Institute of Technology Civil Engineering Seminar Series. Newark, New Jersey. April 22, 2019.

Jampole, E. “Earthquake Reconnaissance Following the 19 September 2017 M7.1 Puebla-Morelos, Mexico Earthquake.” United States Military Academy Civil Engineering Seminar Series. West Point, New York. April 4, 2019.

Boehm, P., Haddad, R., Kytomaa, H., Jampole, E., Sorkin, R., Harr, P., and Stein, M. “Advances in Managing Climate and Extreme Weather Event Risks and Liabilities for Industrial Infrastructure.” Exponent Webinar. February 28, 2019.

Jampole E. High-friction sliding seismic isolation for light frame structures. University of Canterbury. Christchurch, New Zealand. November 19, 2018.

Jampole E. Seismic isolation for light frame residential structures. Blume Center / Stanford Urban Resilience Initiative Affiliates and Alumni Meeting: Convergence of Performance-Based Engineering with Urban Resilience. Stanford, CA, USA, October 5, 2018.

Jampole E. Rapid damage assessments after earthquakes using the ATC-20 procedure. Post-earthquake Reconnaissance Workshop at the 11th National Conference on Earthquake Engineering. Los Angeles, California, USA, June 28, 2018.

Jampole E. Estimating inelastic displacement in sliding isolation systems using effective incremental ground velocity. Engineering Mechanics Institute, Cambridge, MA, May 30, 2018.

Jampole E. Earthquake reconnaissance following the M7.1 September 19, 2017 Puebla, Mexico Earthquake. ASCE Metropolitan Section Student Competition Dinner, Newark, NJ, May 4, 2018.

Jampole E. Mapping EDPs in high-friction isolated houses. Structures Congress, Fort Worth, TX, April 20, 2018.

Jampole E. Behavior of prototypical concrete frame buildings in Mexico City. EERI Technical Case Studies Webinar: September 19, 2017 Mexico Earthquake, Oakland, CA, April 5, 2018.

Jampole E. Seismic isolation concepts for light frame structures: from research and development to implementation. University of California, Davis Civil Engineering Graduate Seminar Series, Davis, CA, April 4, 2018.

Jampole E. Building damage reconnaissance following the M7.1 September 19, 2017 Puebla, Mexico Earthquake. New York University EERI Lecture Series, New York, New York, USA, December 4, 2017.

Jampole E. Seismic risk assessment, design, and reconnaissance. New Jersey Institute of Technology Civil Engineering Seminar Series, Newark, New Jersey, USA, December 4, 2017.

Jampole E. Natural hazards engineering in practice. Cornell University Civil Engineering Seminar Series, Ithaca, New York, USA, October 19, 2017.

Jampole E. Uncertainty in friction model parameters for high-friction sliding isolation systems. Engineering Mechanics Institute, San Diego, CA, USA, June 6, 2017.

Jampole E. Reconnaissance following the November 7, 2016 Cushing, OK Earthquake, Post-Earthquake Reconnaissance Workshop at the EERI Annual Meeting. Portland, OR, USA, March 7, 2017.

Jampole EA. High friction sliding seismic isolation for enhanced performance of light frame structures during earthquakes. Northeastern University Structural Engineering Seminar Series, Boston, MA, October 6, 2016.

Jampole EA. Full scale shaking table testing of a low-cost sliding isolation system for light frame buildings. Engineering Mechanics Institute, Stanford, CA, June 17, 2015.

Jampole EA. New concepts to reduce damage in light frame residential structures: the unibody and low-cost isolation. Ten Successful Years of Research within NEES@Berkeley, RFS, Richmond, CA, May 28, 2014.

Jampole EA. Developing a low cost isolation system to achieve "Nearly Damage Free DBE" light frame construction. Quake Summit, Reno, NV, August 8, 2013.

Project Experience

Major Infrastructure Design Disputes

Underground Metro System: Evaluated design and construction modifications to several underground metro stations, entrance canopies, emergency exits, switchboxes, launch boxes, and tunnels to determine if they were changes to the contractor's scope of work, including evaluation of site conditions and the extent to which civil and structural work had progressed. Estimated the design level of effort required to execute changes. Provided sworn expert testimony.

Urban Transportation System: Managed a team investigating an entitlements dispute regarding civil and structural engineering design changes for a new underground and elevated metro system, including stations and viaducts. Estimated the design level of effort required to execute changes. Provided sworn expert testimony.

Urban Transportation System: Managed a team investigating claims that an engineer's tender design was insufficient to enable a contractor to correctly prepare their bid on an EPC contract for a new metro system, including stations and ancillary facilities.

Underground Metro Stations: Managed a team investigating alleged civil and structural engineering design changes during a design-build project to construct underground metro stations. The evaluation included determining the percentage completion of the design at the time the contractor was de-scoped, evaluating whether instructions from the owner led to changes to the technical scope, and evaluating the cause and impact of construction defects on the stations.

Underground Transportation System: Evaluated the earthquake intensity used in the design of an underground metro system in a high-seismic area. Evaluated the accuracy of a numerical model used by the designer to estimate behavior of the system during earthquakes.

Underground Metro Station Shoring Design: Evaluated the shoring and reshoring design of an underground metro station to determine if the design complied with codes and standards, and if changes to the design requested by the contractor were required for the design to comply.

Seismically Isolated Bridge: Conducted a performance-based assessment of the seismic collapse capacity of a bridge in a high-seismicity area, including performing incremental dynamic analysis to determine the probability of collapse during a design intensity earthquake and the lifetime probability of collapse. The analysis results informed whether the bridge, as designed, posed a safety risk.

Airport: Evaluated the structural design of the main terminal building and ancillary facilities at a major airport, including the capacities and deflections of slabs, beams, and curved columns and floor vibrations requirements.

Highway Expansion: Appointed expert evaluating the adequacy of the tender design of a highway widening project for the purposes of pricing the bid. Issues included the design of new and replacement bridges, bearings, abutments, sign structures, culverts, and the drainage system.

Energy Facilities

LNG Facility: Audited the design performance of an EPCM contractor on a large LNG plant development project on behalf of a major oil and gas company.

Solar Plant: Analyzed the expected energy output of a solar thermal power plant in observed weather conditions relative to baseline models of the facility in a standard meteorological year. Results were used to calculated performance payments stipulated by the EPC contract.

Failure and Damage Investigations

Collapse of a Steel K-Frame Bridge: Investigated the cause of collapse of a large steel K-frame bridge, including field investigation, examination of preserved evidence, finite element analysis of critical components, evaluation of the adequacy of bridge inspections, repair and maintenance recommendations, and load rating calculations, and evaluation of the bridge owner's obligations to perform repairs.

Bridge Demolition: Investigated the cause of damage to bridge piers during the explosive demolition of the superstructure. Performed applied element analysis of the demolition sequence under numerous hypothesized scenarios and validated analysis results against field conditions.

Bridge Dismantling: Investigated whether an engineer met the standard of care in their design of the dismantling sequence of a long span bridge where a component failed during the dismantling. Evaluated alternative means of felling the structure. Named expert.

Partial Collapse of a Parking Garage: Investigated the partial collapse of pre-cast members in a parking garage during dismantling, including field investigation, determining the cause of the incident, and evaluation of the standard of care with regards to the demolition design.

Collapse of a Parking Deck: Investigated the partial collapse of a parking deck, including a comprehensive evaluation of the field conditions of the remaining portions of the parking deck, and advising on whether it was safe to shore the remaining structure for repairs.

Failure of a Railing: Investigated the cause of failure of a railing during a concert, which resulted in numerous injuries.

Scaffold Collapse: Investigated the cause of collapse of scaffolding during a windstorm.

Collapse of a Roof: Investigated the cause of the collapse of a roof at an industrial facility following a rainstorm. Evaluated the original design, modifications, and facility use and maintenance to determine contributing factors to the collapse.

Collapse of a bus duct: Investigated the cause of a collapse of a bus duct within an underground electrical vault, including field investigation, evidence preservation, and materials testing.

Collapse of an awning: Investigated the cause of collapse of an awning that results in an injury, including identifying whether the owner had an obligation to observe and rectify deficiencies.

Collapse of a retaining wall: Investigated the cause of collapse of a basement retaining wall during demolition of the basement slab and underpinning activities.

Collapse of a concrete curing chamber: Investigated the cause of collapse of a cold-formed steel framing for a concrete curing chamber during construction of the chamber.

Collapse of a crane during erection: Investigated the cause of collapse of a crane during erection, including various parties' obligations related to site safety.

Post-Earthquake Damage Assessment: Investigated alleged earthquake damage to numerous school building to determine the cause of damage and the impact of an earthquake on the future performance of the buildings during earthquakes.

Earthquake-Resisting System: Investigated alleged reduction in the earthquake-resisting capacity of a tall building in a seismically active area due to water leaks. Performed finite element analysis of the building under numerous damage scenarios and earthquake intensities.

Post-Hurricane Damage Assessments: Performed many investigations into damage to buildings during hurricanes, including distinguishing between damage caused by wind vs. water in residential and commercial structures, and distinguishing between new and pre-existing conditions.

Adjacent Construction Investigations: Performed many investigations into damage to buildings caused by adjacent construction activity, such as: evaluating whether damage to a high-rise condominium was caused by dewatering at a nearby site; investigating the partial collapse of a foundation during underpinning; investigating the collapse of a ceiling while vibratory equipment was in use; evaluating the likely origin of damage to a church with multiple adjacent structures under construction.

Truck strikes on infrastructure: Investigated many incidents of large trucks striking bridges and buildings, including evaluating appropriate repairs and demolition decisions.

Defects

Condominium Design: Appointed expert evaluating the seismic design of a concrete condominium building. The building was alleged to be deficient because of incorrect identification and selection of soil classification. Performed extensive structural analysis and evaluation to determine whether the building met codes and standards.

Partition Wall Design: Appointed expert evaluating the adequacy of the tender-phase design of partition walls in a subway system depot facility. Evaluated whether the partition wall subcontractor could have anticipated required member sizes and structure deflections.

Tall Building Defects: Investigated reported construction defects in a large condominium building.

Risk Analysis and Design Assistance

Plutonium Facility (PF-4): Developed numerical models for developing testing criteria for assessing the performance of a critical component in a US Dept. of Energy plutonium storage facility subjected to earthquakes. Provided expert peer review services for earthquake ground motion selection.

Bridge Seismic Risk: Reviewed a structural evaluation of a bridge in a high-seismic area. Determined engineering and risk analysis techniques required to justify a change of use from a railroad bridge to a pedestrian crossing.

Climate Change Risk Assessment for Southern California Edison: Developed and implemented a probabilistic framework for identifying the vulnerability of a large utility company’s power transmission assets to climate change, including changes in intensities of precipitation, temperature, wildfire, and sea level rise, using performance-based engineering techniques. The effort included leading the development of fragility curves and the analysis of aging and degradation mechanisms to assets such as wood poles, steel towers, conductors, underground structures, foundations, and insulators. Hazard curves relating intensity of climate hazards to their frequencies of occurrence were developed from downscaled climate models to allow for, in conjunction with the fragility curves, calculations of annual failure rates of assets. Mitigation recommendations were developed based on the analysis results.

Quantitative Risk Assessment: Developed a quantitative risk assessment framework to evaluate wood poles and steel towers subjected to seismic loads and earthquake-induced landslides for a large utility company. Led the technical development of a probabilistic framework for assessing the risk of contamination-induced flashover of insulators.

Mitigation Effectiveness for Southern California Edison: Managed and led the technical development of engineering first-principles based quantitative risk analysis models to determine the effectiveness of wildfire mitigations for electric transmission systems in reducing ignitions caused by contact from

vegetation, birds, vehicles, and balloons, wind-induced failures, and conductor clashing. Mitigations including undergrounding, covered conductors, changing phase spacing, adding bird guards, and upgrading poles. Models were calibrated to outage data to determine the overall effectiveness of mitigation programs against all considered hazards/asset types. The analysis was performed to inform risk spend efficiency (RSE) calculations for a major utility company.

Benefit-Cost Analysis for Undergrounding: Managed and led the technical development of a benefit-cost analysis for undergrounding select portions of nearly 200 feeders in a large electric distribution system. The analysis considered safety, reliability, and direct financial considerations, and required statistical analysis of outages, analysis of wildfire losses, and evaluation of vegetation management and operations and maintenance costs.

Covered Conductor Risk: Led the technical development of engineering-based quantitative risk analysis models to determine the effectiveness of replacing bare conductors with covered conductors in reducing arcing and ignitions. The model considered failure of conductors due to wind, trees falling on conductors, a probabilistic aerodynamic model for debris bridging between conductor phases, and conductor slapping. Numerous fragility curves and hazard curves were developed to determine the relative occurrence rates of unwanted outcomes for bare and several types of covered conductors.

Gas Transmission Network Risk for FortisBC: Managed and led the technical development of a quantitative risk analysis model of a large gas transmission network for determining impacts due to natural hazards, including flooding, landslides, and earthquakes. Analysis including pipeline segments, compressor stations, and bridges carrying pipes. Results were integrated with consequences models of financial losses and customer outage days, considering uncertainty using Monte Carlo simulation.

Arc Faulting Risk: Developed a first-of-its-kind an engineering-based quantitative risk analysis model for a large gas utility to determine the risk of arc faulting leading to damage to gas transmissions pipes where overhead electric transmissions lines pass near the pipes.

Transmission Wildfire Risk Model: Managed and led the development of numerous physics-based models of utility assets that can fail and lead to wildfire ignitions for a large electric utility in the Western US, including: wood pole failure, cross arm failure, wood decay, steel structure failure, atmospheric corrosion, aeolian vibration fatigue of conductors, conductor failure, mechanical wear of hardware, fatigue of hardware, tree strikes on conductors, avian and balloon contact with conductors, and contamination-induced flashover of insulators.

Climate Change Impacts on Wildfire Risk Posed to Natural Gas Transmission Assets: Managed a study evaluating the impact of climate change on wildfire risk for a major utility company’s natural gas transmission system in Canada. The study included evaluation of numerous downscaled climate models under a SSP5-8.5 scenario, evaluating the fire return interval at asset locations, the heat flux and exposure duration generated by fires based on conditions around the assets, and the likelihood of assets experiencing different damage conditions given the exposure.

Climate Change Impacts on Rainfall-Induced Landslide Risk Posed to Natural Gas Transmission Assets: Managed a study evaluating the impact of climate change on rainfall-induced landslide risk for a major utility company’s natural gas transmission system in Canada. The study included consideration of changes in precipitation, antecedent precipitation, soil moisture, and other factors under a SSP5-8.5 scenario.

Benefit-Cost Analysis for Wildfire Mitigation Strategies for a West Coast Utility: managed and led a study to determine benefit cost ratios and wildfire risk reduction for undergrounding, covered conductors, and covered conductors with solar/battery storage in support of decision making for wildfire mitigations. The analysis considered the impact of climate change, population and housing growth, and risk aversion on wildfire risk. The project included support for numerous regulatory filings.

Consumers Energy Distribution Reliability Regression Analysis: Conducted a distribution reliability regression analysis to quantify differences in the experiences of different groups of Consumers' customers. The analysis investigated reliability at both the census tract and distribution circuit levels and characterized reliability in terms of numerous reliability methods such as SAIDI, CAIDI, SAIFI, and CELID. The analysis included evaluation of disconnection rates.

Seismic Isolation: Provided advice and guidance for the design of a seismically isolated light frame house located one mile from the San Andreas Fault, including performing nonlinear response history analysis of the structure, developing details for isolator units, developing load protocols for prototype and production isolators compliant with ASCE7 requirements, and coordinating with peer reviewers.

Battery Mounting: Provided advice and guidance for mounting solar batteries to structures in high-seismic areas, including developing conceptual connection details.

Post-Earthquake Reconnaissance

2023 Türkiye / Syria Earthquakes

2017 M7.1 Puebla-Morelos, Mexico Earthquake

2016 M5.0 Cushing, Oklahoma Earthquake

2010, 2011, 2016 New Zealand Earthquakes