Pablo E. Hurtado

PhD, PE

Senior Staff Consultant

Pablo E. Hurtado, Ph.D., P.E., is a structural engineer specializing in seismic evaluation, reliability analysis, and advanced finite element modeling of critical infrastructure systems. He has broad experience across nuclear power plants, energy storage, and transportation infrastructure projects, including seismic fragility evaluations of structures, systems, and components, soil–structure interaction analyses, and development of site-specific design response spectra.

During his doctoral studies at Auburn University, Pablo worked on multiple research projects involving high-fidelity crash simulations using LS-DYNA, focusing on the performance and optimization of roadside safety systems. He also contributed to a major California Department of Transportation research effort on box girder bridges, which included evaluation of deck design loads using weigh-in-motion data and assessment of load distribution effects. In addition, his research addressed early-age concrete behavior, where he developed restraining factors to quantify the effects of early-age shrinkage during construction.

Pablo has supported major clients such as EPRI, NEI, and multiple nuclear power facilities in the U.S., Canada, and Europe. His professional work combines research-driven code calibration, probabilistic safety analysis, advanced structural analysis, and field-based structural assessments. He holds a Ph.D. in Structural Engineering from Auburn University and is a licensed Professional Engineer.

Education

Ph.D., Civil Engineering (Structural). Auburn University. 2022
M.S., Civil Engineering (Structural). Auburn University. 2022
B.S., Civil Engineering. Austral University of Chile. 2017

Licenses & Certifications

- State of Georgia PE – License No. 055537
- State of Nevada PE – License No. 032771

Contact Information

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Areas of Specialization

- Structural Analysis
- Seismic Design & Evaluation
- Structural Reliability & Risk Analysis
- Advanced Finite Element Modeling
- Assessment & Repair Design of Structural Systems

Languages

- English
- Spanish

Positions Held

Engineering Systems Inc., (ESi) Atlanta, Georgia

- Senior Staff Consultant, 2026-Present

Simpson Gumpertz & Heger Inc., Atlanta, Georgia

- Project Consultant, 2023-2026

Auburn University, Auburn, Alabama

- Graduate Teaching and Research Assistant, 2019-2022

Austral University of Chile, Valdivia, Chile

- Technical Inspector & Lecturer. 2017-2018

Professional Affiliations/Honors

- American Society of Civil Engineers (ASCE), Affiliate Member
- American Concrete Institute (ACI), Member

Project Experience

Nuclear / Energy Sector

- **Nuclear Energy Institute, Washington DC.** Develop of Seismic Index examples for selected Small Modular Reactor (SMR) vendors.
- **Darlington Nuclear Generation Station, Canada.** Performed structural and functional fragility evaluation reviews of structures, systems, and components (SSCs).
- **Saint-Alban Nuclear Power Plant, France.** Developed seismic structural fragility evaluation for structures, systems, and components (SSCs).
- **Cruas Nuclear Power Plant, France.** Developed seismic structural fragility evaluation for structures, systems, and components (SSCs).
- **Electric Power Research Institute (EPRI).** Conducted extensive research related to construction of deeply-embedded nuclear power plants, including review of associated and missing regulations for small modular reactors (SMRs). Developed report on waterproofing, construction, and ageing management for SMRs.

- **Kairos Power, Alameda, CA.** Generated synthetic ground motions according to ASCE 43-19 through time history matching. Developed in-column time histories for SSI analyses. Assessed testing requirements for viscous dampers and spring systems for seismic isolation. Performed pre-qualification plan review for viscous dampers and spring isolation systems for prototype testing. Developed site-specific design response spectra for comparison with SSI analyses of Kairos Power Hermes Reactor. Performed compliance evaluation of seismic isolators testing results.
- **Boston Atomics, Boston, MA.** Performed a construction review on the proposed Modular, Integrated, Gas-cooled, High Temperature Reactor (MIGHTR) building.
- **Moss Landing Power Plant, CA**. Performed structural safety evaluation and probabilistic seismic risk of Chimneys Units 6 & 7 at Power Plant.
- **Site - Confidential Location.** Developed design response spectra per ASCE 43-05 and ASCE 43-19. Developed probabilistic site response analysis (PSRA), time history matching, and site-specific design response spectra. Developed time histories for use in soil-structure interaction analyses and in-structure time history analyses.

Energy Sector & Seismic / Dynamic Analyses Certification

- **Fluence, LLC**. Developed seismic certification for SmartStack Battery Energy Storage System (BESS) GSP5000v1 based on IEEE 693 Standard through dynamic analysis high design level response spectra.

Machinery Foundations & Site Investigation / Assessment

- **Puget Sound Plant, WA.** Conducted the structural strength assessment of the foundation anchorage system. Developed repair design of compressor foundation.
- **Westlake Corporation-Structural Technologies, KY.** Developed the repair design of turbine foundation and served as field engineer at repair site.
- **Westlake Corporation-Structural Technologies, TX.** Performed vibrations measurement assessment of compressor foundation. Developed soil-structure interaction finite element model for evaluation of foundation system.
- **Woodward CF-Structural Technologies, OK.** Performed vibrations measurement assessment and visual inspection of circulation pump foundation system.

Publications

"Load Rating of Segmental Bridges. Washington, DC," Contributors: Transportation Research Board; National Cooperative Highway Research Program; Karina Popok; Andrzej S. Nowak; **Pablo Hurtado**; Jacek Chmielewski; Robert Barnes; Hani Nassif; Patrick Lou; Chan Yang; Serap Hanbay; Fatmir Menkulasi; Christopher Eamon; Furkan Cakmak; Bellikoth Bhaktha; John Corven; Eddie He; Benjamin Morris, The National Academies Press. doi:10.17226/28597, National Academies of Sciences, Engineering, and Medicine. 2024.

"Reliability Evaluation of ACI 318 Strength Reduction Factor for One-Way Shear, Report CRC 2020 P0040," Aguilar, V., Popok, K., **Hurtado, P.E.,** Barnes, R.W., Nowak, A.S., Highway Research Center, Department of Civil Engineering, Auburn University, April 2024.

"*Optimization of a Temporary Road Traffic Steel Barrier Using Explicit Finite Element Method and Laboratory Testing*," Skibicki, S., Zieliński, A., Aguilar, V., **Hurtado, P.E**., Kaszyńska, M. and Nowak, A., Engineering Structures, Vol. 291, 2023: p.116463.

"*Deck Design Loads and Analysis - 65A0746 Final Report*," Nowak, A.S., Schindler, A.K., Barnes, R.W., **Hurtado, P**., Chmielewski, J. and Stawska, S., Caltrans, April 2022.

"*Development of a Finite Element Model and laboratory tests for a Temporary Road Traffic Steel Barrier that complies EN 1317*," Kaszyńska, M., Nowak, A.S., Adam Zieliński, A., Aguilar, V., **Hurtado, P**. Technical Report No: TRB/T1W1- 12.3/0-4712-1, December 2020.

Presentations

"*Deck Design Loads and Analysis. AASHTO Technical Subcommittee for Loads and Analysis T-5*," **Hurtado, P.,** Stawska, S., Chmielewski, J., Nowak, A.S., Barnes, R.W., and Schindler, A.K., AASHTO Committee on Bridges and Structures Annual Meeting, Pittsburgh, PA, 21 June 2022.