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Will Trono, Ph.D., P.E.

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Professional Profile

Dr. Trono specializes in evaluating the design and performance of buildings and other structures in many different contexts. He has assessed structural damage associated with earthquakes, extreme winds, fire (including wildland fires), ground movement (including landslides), vehicle impact, moisture exposure (including water intrusion, plumbing failures, and ventilation issues), corrosion (including prestressing cables, structural steel, and reinforcing bars), metal fatigue, and wood decay.

Dr. Trono has evaluated the performance of electrical transmission and distribution structures (including analysis of conductors, hardware, and structures under extreme wind conditions; failure analysis of support structures and hardware; and evaluation of code requirements for such structures). He has investigated the collapse of temporary structures during construction (including cranes and shoring systems) and has investigated damage associated with adjacent construction projects. He has also made preconstruction condition surveys and implemented measures to monitor buildings during adjacent construction projects.

Dr. Trono has broad expertise evaluating and interpreting building codes and standards. He uses sophisticated nonlinear finite element analyses to support his investigations and has been involved with large-scale testing of structures. He has specific expertise in performance-based seismic assessments of existing buildings. He also has expertise in wildland fire hazard assessments for structures and in mitigation strategies to reduce structure ignition hazards.

Dr. Trono's Ph.D. research involved nonlinear finite element modeling, design, and shake table testing of novel reinforced concrete bridge columns designed to minimize damage during earthquakes. He conducted research for the Pacific Earthquake Engineering Research Center (PEER) and has special expertise in the field of high performance self-consolidating concrete. He was a student instructor for graduate-level courses in reinforced concrete design, steel design, and civil engineering materials at UC Berkeley. He also worked as a structural design engineer on industrial and commercial development projects at Jacobs Engineering Group and Arup.

Academic Credentials & Professional Honors

Ph.D., Civil and Environmental Engineering, University of California, Berkeley, 2014

M.S., Civil and Environmental Engineering, University of California, Berkeley, 2009

B.S., Civil and Environmental Engineering, University of Cincinnati, 2008

Licenses and Certifications

Professional Engineer Civil, California, #85186

Professional Engineer Civil, Nevada, #028162

Professional Engineer Civil, Washington, #22028506

Certified Wildfire Mitigation Specialist (CWMS)

Professional Affiliations

Structural Engineer's Association of Northern California—SEAONC (member)

Publications

Jen G, Trono W, Ostertag C. Self-consolidating hybrid fiber reinforced concrete: Development, properties, and composite behavior. Construction and Building Materials 2015; 104: 63-71. http://www.sciencedirect.com/science/article/pii/S0950061815307340

Trono W, Jen G, Schoettler M, Panagiotou M, Ostertag C. Seismic response of a damage resistant recentering post-tensioned HyFRC bridge column. Journal of Bridge Engineering, American Society of Civil Engineers, Published Online September 16, 2014. http://ascelibrary.org/doi/abs/10.1061/(ASCE)BE.1943-5592.0000692

Moreno D, Trono W, Jen G, Billington S, Ostertag C. Tension stiffening in reinforced high performance fiber reinforced cement-based composites. Cement and Concrete Composites 2014; 50:36-46. http://www.sciencedirect.com/science/article/pii/S095894651400050X

Panagiotou M, Trono W, Jen G, Kumar P, Ostertag C. Experimental seismic response of hybrid fiber-reinforced concrete bridge columns with novel longitudinal reinforcement detailing. Journal of Bridge Engineering, American Society of Civil Engineers, Published August 22, 2014. http://ascelibrary.org/doi/abs/10.1061/(ASCE)BE.1943-5592.0000684

Conference Proceedings

Trono W, Jen G, Ostertag CP, Panagiotou M. Seismic response of a rocking, posttensioned HyFRC bridge column. Proceedings, 10th International Conference on Urban Earthquake Engineering (10CUEE), Tokyo Institute of Technology, Tokyo, Japan, 2013.

Trono W, Jen G, Ostertag CP, Panagiotou M. Tested and modeled seismic response of a rocking, post-tensioned HyFRC bridge column. Proceedings, 7h National Seismic Conference on Bridges and Highways (7NSC), Oakland, CA, 2013.

Moreno D, Trono W, Jen G, Ostertag CP, Billington SL. Tension stiffening in reinforced high performance fiber reinforced cement-based composites (HPFRCC). Proceedings, 9th International Conference on Urban Earthquake Engineering/4th Asia Conference on Earthquake Engineering (9CUEE/4ACEE), Tokyo, Japan, 2012.

Trono W, Jen G, Moreno D, Billington S, Ostertag CP. Confinement and tension stiffening effects in high performance self-consolidated hybrid fiber reinforced concrete composites. Proceedings, 6th International Workshop on High Performance Fiber Reinforced Cement Composites (HPFRCC6), RILEM, The

University of Michigan, Ann Arbor, MI, pp. 245-252, 2010.

Moreno D, Trono W, Jen G, Ostertag CP, Billington SL. Tension-stiffening in high performance fiber-reinforced cement-based composites under direct tension. Proceedings, 6th International Workshop on High Performance Fiber Reinforced Cement Composites (HPFRCC6), RILEM, The University of Michigan, Ann Arbor, MI, pp. 263-270, 2010.

Technical Reports

Nguyen W, Trono W, Panagiotou M, Ostertag CP. Seismic response of a hybrid fiber-reinforced concrete bridge column detailed for accelerated bridge construction. PEER Report 2014/19, Pacific Earthquake Engineering Research Center, Berkeley, CA, 2014.

Kumar P, Jen G, Trono W, Panagiotou M, Ostertag CP. Self-compacting hybrid fiber reinforced composites for bridge columns. PEER Report 2011/106, Pacific Earthquake Engineering Research Center, Berkeley, CA, 2011.