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Connie Chen, Ph.D.

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Professional Profile

Dr. Chen specializes in earthquake engineering, structural dynamics, structural analysis, and reinforced concrete structures. She has evaluated the performance of reinforced concrete structures under extreme loading conditions using advanced numerical models and nonlinear response history analysis (NLRHA). Her areas of expertise include analyzing the effects of vertical ground movement during earthquakes, tall reinforced concrete building design, and earthquake dynamic analysis.

Dr. Chen received her Ph.D. from the University of California, Berkeley. Her doctoral research examined the effect of vertical input ground motions on tall reinforced concrete core-wall buildings through performing nonlinear response history analysis at the risk-targeted Maximum Considered Earthquake (MCER) level. Her work included designing and modeling a 40-story archetypal core-wall building. She developed novel analytical models to represent the nonlinear behavior of slab-column-wall subassemblies and columns under high axial compression, such as those in tall reinforced concrete buildings. For the response history analysis, she developed a custom suite of ground motions that included both the horizontal and vertical components of ground motion.

Dr. Chen has experience teaching graduate and undergraduate-level structural engineering courses at UC Berkeley, including the seismic design of reinforced concrete structures. Dr. Chen also has experience analyzing existing buildings and designing nonstructural components while working at a design consulting firm in San Francisco.

Academic Credentials & Professional Honors

Ph.D., Civil and Environmental Engineering, University of California, Berkeley, 2023

M.S., Civil Engineering, University of California, Berkeley, 2018

B.S., Civil Engineering, University of California, Berkeley, 2017

EERI/FEMA NEHRP Graduate Fellowship in Earthquake Hazard Reduction, 2022-2023

NSF Graduate Research Fellowship, 2019-2022

UC Berkeley Chancellor’s Fellowship, 2017-2018

Boeing Scholars Program, 2014-2016

Beavers Heavy Construction Award, 2014

Edward Frank Kraft Award, 2014

Professional Affiliations

Earthquake Engineering Research Institute (EERI)

Structural Engineers Association of California (SEAOC)

American Society of Civil Engineers (ASCE)

Publications

Chen, C. I., and J. P. Moehle. 2024. “Outrigger Action in Tall Core-Wall Buildings with Flat-Plate Framing.” ACI Structural Journal, 121 (2), 143–151. https://doi.org/10.14359/51740250.

Chen, C. I. 2023. "A Study of the Effect of Vertical Ground Motions on Tall Reinforced Concrete Buildings." Ph.D. dissertation, Berkeley, CA: University of California, Berkeley.

Chen, C. I. and J. P. Moehle. 2022. “A Study of the Effects of Vertical Input Ground Motions on the Design of Tall Core Wall Buildings.” In Proc., 12th National Conference on Earthquake Engineering, Salt Lake City, UT: Earthquake Engineering Research Institute.

Chen, C. I. and J. P. Moehle. 2021. “Nonlinear Modeling of Post-Tensioned Slab - Core Wall - Column Framing Systems.” In 2021 Convention Proceedings, San Diego, CA: Structural Engineers Association of California, 74–85.

Presentations

Chen, C. I. and Klemencic, R. “Testing and Modeling of Post-tensioned Slab-Column-Core Wall Framing.” Oral presentation, Jack Moehle Symposium, Berkeley, CA, April 2023.

Chen, C. I. and Moehle, J. P. “A Study of the Effects of Vertical Input Ground Motions on the Design of Tall Core Wall Buildings.” Oral presentation, 12th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Salt Lake City, UT, June 2022.

Chen, C. I. and Moehle, J. P. “Nonlinear Modeling of Post-Tensioned Slab - Core Wall - Column Framing Systems.” Oral presentation, 2021 SEAOC Convention, Structural Engineers Association of California, San Diego, CA, September 2021.