Seismic Qualification and Fragility Testing of Nonstructural Components

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Abstract

This presentation discusses the various testing equipment and protocols available to carry out qualification and fragility seismic testing of various nonstructural components. The basic differences between seismic qualification and seismic fragility testing are first highlighted. Thereafter, the various equipment and protocols for conducting seismic qualification and fragility testing of displacement/force sensitive, acceleration/velocity sensitive and distributed nonstructural components are presented. The major characteristics and capabilities of the newly commissioned Nonstructural Component Simulator (NCS) at the University at Buffalo are described.

Biography

André Filiatrault received a Ph.D. in Civil Engineering from the University of British Columbia in 1988. After a two-year stay as an Assistant Professor at the University of British Columbia, he joined the Department of Civil Engineering at Ecole Polytechnique of the University of Montreal, where he became a Full Professor in 1997. Professor Filiatrault joined the faculty at the University of California, San Diego in 1998 where he was a Professor of Structural Engineering until 2003. Currently, Filiatrault is a Professor in the Department of Civil, Structural and Environmental Engineering at the University at Buffalo (UB), State University of New York. From 2003 to 2007, Filiatrault served as the Deputy Director of MCEER at UB. Filiatrault is now serving as the Director of the Structural Engineering and Earthquake Simulation Laboratory at UB. His research over the past nineteen years has been centered on the seismic testing, analysis and design of Civil Engineering structures. Professor Filiatrault conducted several numerical and experimental investigations on the seismic response of nonstructural components and equipment. He was the Principal Investigator in the acquisition of the Nonstructural Components Simulator (NCS) at UB, the first ever equipment capable of testing of nonstructural components and equipment under full-scale floor motions induced by earthquakes.