Collapse Performance of Concrete Buildings and Seismic Design

主讲人：Prof. Halil Sezen

邀请人：马高 副教授

时　间：6 月 24 日上午 9：00-10：00

地　点：土木工程学院院楼 B210

Abstract

Major factors contributing to collapse of reinforced concrete buildings under lateral and gravity loads will be presented. Contribution of slabs, beams, beam-column joints, shear walls, columns and foundations to the performance of building frame system will be discussed. Deficient reinforcement details commonly observed in structural components will be reviewed. While the ductility, interconnectivity and redundancy are critical for the transfer and redistribution of loads after the failure of a member, one of the main reasons for the collapse of buildings is insufficient design and detailing of columns. Shear failure and gravity load collapse of columns with poor seismic details will be discussed. Building failure examples from recent earthquakes will be presented. Experimental evidence from laboratory tests of columns and examples from the field will be shown to demonstrate the importance of reinforcement detailing in earthquake resistant design. Nine existing buildings in Ohio were tested by physically removing first story columns. Results from these field experiments will be presented.

Biography

Halil Sezen is a professor of structural engineering in the Department of Civil, Environmental and Geodetic Engineering at the Ohio State University. He received his PhD from University of California at Berkeley in 2002. He is a Fulbright Scholar, and a Fellow of American Society of Civil Engineers and American Concrete Institute. Sezen's primary research interests are in performance evaluation of buildings and structural components using experimental testing and computational simulation tools. His research includes modeling, analysis and performance assessment of various structures under various man-made and natural hazards such as earthquakes. He investigates use of advanced materials for reinforcement, repair, and retrofit of concrete and steel structures.

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