

Seismic Analysis and Design of Composite Steel/Concrete Building Structures Involving Concrete-Filled Steel Tubular Columns

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Abstract Composite construction in steel and concrete offers significant advantages over the conventional one based exclusively on either steel or concrete. This paper provides a comprehensive overview of the state of research in analysis and design of composite steel/concrete building structures involving concrete-filled steel tubular (CFT) columns and steel beams. Experimental, and analytical/numerical research on the seismic behavior and simulation of CFT columns and composite framed structures under strong ground motions are all considered with emphasis on recent works of the authors. The paper also discusses seismic analysis/assessment methodologies and performance-based seismic design (PBSD) methods that enable engineers to produce composite structures with deformation and damage control.