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Seismic Resistance of Concrete Filled Tube Frame Systems

James Ricles
Professor, Department of Civil and Environmental Engineering,
Deputy Director, ATLSS Center
Lehigh University, Bethlehem, PA

Richard Sause
Professor, Department of Civil and Environmental Engineering,
Director, ATLSS Center
Lehigh University, Bethlehem, PA

Ricardo Herrera
Graduate Student, Department of Civil and Environmental Engineering,
Lehigh University, Bethlehem, PA

Larry Fahnestock
Graduate Student, Department of Civil and Environmental Engineering,
Lehigh University, Bethlehem, PA

Industry Participants
Steel Tube Institute

Abstract
The project will involve the testing of a five story, two-bay moment perimeter resisting frame under simulated seismic lateral load conditions. The test frame is a 2/3 rds scale model, having concrete filled steel tube (CFT) columns and steel wide flange beams. The frame will be tested under a range of seismic demand, beginning with low level excitation to evaluate the elastic response, to finally the maximum credible earthquake to evaluate strength and ductility. For each test the lateral loads will be applied in a pseudo static manner to replicate a displacement history based on analysis of the test frame.

The frame will be instrumented in order to collect response data. This data will be used to evaluate the performance of the members, connections, and overall system. Based on the performance, design recommendations will be developed.