

Probable Performance of Reinforced Masonry Shearwalls Conforming to Current Seismic Requirements

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Abstract:

A two-story coupled shearwall tested at the University of Texas at Austin is used in a two-part study of the seismic response of reinforced masonry shearwalls. The first part of this study is a comparison of the seismic performance of shearwalls designed in accordance with the 1988 edition of the UBC and the 1986 NEHRP Recommended Provisions. A nonlinear finite element model and a nonlinear dynamic model are used in the analysis procedure. The finite element model is used to obtain the load- deformation envelope of the hysteretic system. The dynamic model is used in the time history analysis and has stiffness and strength degradation. The second part of this study is an investigation of the influence of previous damage on the dynamic response of masonry walls. A sequence of ground motions is selected to simulate the probable occurrence of earthquakes. The probable sequence is a gradual increase of seismic intensity.

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