

Dynamic Testing of Rammed Earth Scale Models

The ancient method of rammed earth construction has been used in various parts of the globe, including Central and South America, which experience high seismic activity. A few studies have been done on rammed earth, but relatively little is known about the extent of its shear and tensile capacities or practical methods for improving the seismic survivability of these structures.

This research tests several scale models of simple rammed earth house on a shake table to gather data on the seismic capacity of rammed earth and possible improvements to the general method. Models are built at 1:3 scale, standing at 3ft height, with 6in walls, and a 4ft by 4ft footprint. Each model has two wall openings, a door and window. Each model was tested on the 4ft by 6ft shake table by using a gradually increasing amplitude sine wave up to the natural frequency of the rammed earth house. Results from the tests discussed and several practical methods for improving the seismic survivability of rammed earth structures are evaluated.

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There is a high likelihood that Mack Caldwell will be added.

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