

Earthquake Performance of the L-Shaped Rammed Earth Walls Constructed with Innovative Techniques



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ABSTRACT

This study presents an experimental investigation of the seismic performance of three L-shaped rammed earth walls constructed using innovative techniques. Two novel wall configurations are developed to assess the effect of horizontal flexibility. In the first configuration, stepped layers are introduced during construction to provide horizontal flexibility, whereas in the second, flexibility is achieved through post-construction treatment. The specimens are subjected to seismic loading on a shaking table, and their damage patterns, dynamic properties, and displacement capacities are evaluated. The results reveal the seismic responses and associated failure mechanisms of the walls efficiently. Through a comparative assessment of the tested configurations, the study provides a significant experimental contribution to the understanding of the seismic behavior of rammed earth structures.

KEY WORDS:

Dynamic testing, L-shaped wall systems, Rammed earth structures, Seismic performance, Shaking table test