

عنوان مقاله:

Fragility Curves for Vulnerability Assessment of Steel Moment-Resisting Frames Adjacent to Slopes

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خلاصه مقاله:

Observations from past earthquakes in addition to the results from analytical and numerical studies have shown that topographic irregularities significantly affect seismic site responses. Nonetheless, few studies have focused on the effect of topography amplification on the seismic vulnerability of buildings adjacent to slopes. In this study, using "match up damage index to damage thresholds" method introduced in HAZUS, fragility curves were developed for steel moment-resisting frames (SMRF) built adjacent to slopes. A two-dimensional finite-element model of the soil was implemented in ABAQUS to develop the fragility curves. Six models of combination of soil-structure and topography were considered. Furthermore, three types of buildings at different distances from the crest of the slope were considered. The results indicated that slope effect leads to up to ۳۷% increase in the damage probability and illustrated that amplification factor had a range of ۱.۱ to ۱.۳۵, moreover, in comparison with slight states, the probability .damage growth rate in moderate and extensive states are higher

کلمات کلیدی:

Fragility Curve, Topography, Vulnerability, Earthquake

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