



Seismic Pounding Mitigation of Two Adjacent Reinforced Concrete Buildings with Bracing System

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Abstract

Insufficient or no separation gap between adjacent buildings leads to seismic pounding during the earthquake. The seismic pounding is defined as the collision of the adjacent buildings amid the earthquakes. This type of seismic induced pounding between closely spaced buildings accumulates the damages, as well as hampers the structural safety under earthquake loads. This paper aims at studying the proper required mitigation techniques to prevent seismic induced pounding between the adjacent reinforced concrete (RC) buildings by equivalent static force method (ESFM), response spectrum method (RSM) and non-linear dynamic time history method (NLTHM). The variation of seismic responses like base shear, time period, shear force, bending moment, storey drift and storey displacement with different equal area steel sections of the bracing and its arrangements is investigated and finally, the best suitable bracing is concluded. Thereupon, its effectiveness in mitigating seismic pounding between two adjacent Reinforced Concrete buildings is studied by comparing the required separation with and without bracing.

Keywords: Seismic pounding, Two adjacent RC buildings, Steel bracing, Earthquake