

Separation Gap, A Critical Factor In Earthquake Induced Pounding Between Adjacent Buildings.

ABSTRACT

In this paper it is attempted to study seismic responses of adjacent buildings subjected to earthquake induced pounding and to clarify pounding effects for various separation gaps. An analytical model of adjacent buildings resting on a half-space is provided whilst the buildings are connected by visco-elastic contact force model. Results show that with same separation gap, adjacent buildings with structure-soil-structure interaction (SSSI) are more likely to pound together than buildings with fixed-based (FB) condition. Also, building condition gets worse due to pounding because the seismic responses of buildings are unfavourably increased and the condition becomes more critical if the separation gap becomes narrower.

Keyword: Separation gap; building pounding; seismic response; fixed-based (FB) buildings; structure-soil-structure interaction (SSSI); earthquake excitation.