

Damped interconnection-based mitigation of seismic pounding between adjacent R/C buildings

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Abstract. A representative case study of potential earthquake-induced pounding between adjacent R/C frame buildings with insufficient separation gaps is examined in this paper. The height of the two examined buildings is the same, but their response is affected by considerable torsional pounding effects. An upgraded version of the traditional linear viscoelastic model for the numerical time-history analysis of the dynamic impact problem is proposed and implemented in the finite element model of the buildings. The results of the assessment enquiries carried out in current conditions, and a damped interconnection-based mitigation solution based on the incorporation of pressurized fluid-viscous dissipaters across the inadequate separation gaps, are presented. Evaluations of the benefits provided by the retrofit intervention, and some of its technical installation details, are finally offered.