عنوان مقاله:

VISCOELASTIC CONNECTION: AN EFFICIENT TOOL FOR RANDOM SEISMIC POUNDING MITIGATION

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Hamed Ahmadi Taleshian - *Ph.D. Student, Department of Civil Engineering, Noshirvani University of Technology, Babol, Iran*

Alireza Mirzagoltabar Roshan - *Associate Professor, Department of Civil Engineering, Noshirvani University of Technology, Babol, Iran*

Javad Vaseghi Amiri - *Professor, Department of Civil Engineering, Noshirvani University of Technology, Babol, Iran*

خلاصه مقاله:

This paper aims at evaluating the effect of viscoelastic links between adjacent buildings as a pounding mitigation technique, comparative to unlinked buildings. For this, two adjacent single-story buildings connected by viscoelastic dampers are modeled and analyzed in frequency domain under ideal and Kanai-Tajimi filtered white Noise seismic inputs. First of all, a formulation for the effective modal damping induced by connection is extracted, then both classical and non-classical damping is adopted and their results are compared with each other. It is found that for a given dynamic properties of the adjacent buildings, there would be an upper link stiffness for prevention of increase in stiffer building displacement and a lower link stiffness for pounding prevention. This lower stiffness may exceed the upper one for small in-between gap sizes. In such cases, increasing the link damping could be highly beneficial by reducing the relative displacement of buildings. Finally, the effect of ground frequency and damping on the response is also investigated

کلمات کلیدی:

Pounding mitigation, Random vibration, VE links, Dynamic properties, Response ratio