

عنوان مقاله:

SEISMIC RESPONSE CONTROL BY ORB-BOWL (OB) TMD SYSTEM

محل انتشار:

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نویسندگان:

Mehran Akhavan Salmassi - *Ph.D. Student of Structural Engineering, Seismic Geotechnical and High Performance Concrete Research Center, Department of Civil Engineering, Semnan Branch, Islamic Azad University, Semnan, Iran*

Ali Kheyroddin - *Member of Center of Excellence for Engineering and Management of Civil Infrastructures, University of Tehran, Iran, Professor of Structural Engineering, Faculty of Civil Engineering, Semnan University, Iran*

Ali Hemmati - *Assistant Professor, Seismic Geotechnical and High Performance Concrete Research Center, Department of Civil Engineering, Semnan Branch, Islamic Azad University, Semnan, Iran*

خلاصه مقاله:

In recent decades, in order to reduce the damage to the structures, a number of methods have been proposed for seismic control of structures, which has reduced the demand for them. On the other hand, decreasing demands by reduction of displacement and displacement ratio in SDOF system is one of the issues related to the use of active, passive, semi-active and hybrid control systems. In this paper, a new system called orb-bowl or OB damper has been invented. In this passive TMD system, a combination of orb and bowl with a mass, spring and damper system in the SDOF mood has been considered. Also, a number of records have been applied to orb-bowl and mass, spring, and damper systems to evaluate the performance of the system under a number of seismic vibrations. This system moves freely in vibration and in the opposite direction of the structure of orb in bowl, which causes a phase delay in shifting orb against the mass, spring and damper system; and the mass tendency to move towards the center of bowl causes vibration in the opposite phase, and as a result, an increase in the damping of the system. On the other hand, while the vibration gets close to the end of the record, orb will gradually stop considering the tendency to move towards the center of bowl. Finally, OB system decreasing displacement and displacement ration more than %50 rather than without system

کلمات کلیدی:

Passive control, Tuned mass damper, Seismic response, Energy dissipation, Numerical analyses

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