عنوان مقاله:

Optimal Placement of Supplemental Dampers in Seismic Design of Structures

محل انتشار:

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خلاصه مقاله:

The optimal locations for a given number of fluid viscous dampers (FVDs) in a ۳-D ۱۰-storey model shear building, with or without eccentricities are investigated. A general approach for finding optimal placement of supplemental dampers in structural systems with arbitrary degree of complexity in configuration has been proposed. To seek the optimal location of dampers, a linear combination of maximum inter-storey drift and maximum base shear of the damped structure normalised by their respective undamped counterparts has been taken as the objective function. The effect of soil-structure interaction on maximum response reduction and also on the optimal placement of dampers is studied for various degrees of soil compliance. It is found that the supplemental dampers are more effective in reducing the seismic response of a symmetric building and its effectiveness reduces as either plan irregularity, or soil compliance increases.

کلمات کلیدی:

Non-classical Damping, Optimisation, Response Spectrum Method, Soil-Structure Interaction, Supplemental Damping

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