

## عنوان مقاله:

Seismic Performance Evaluation of Vertically Irregular RC MRF Structures and Retrofitting by Using of Rocking Walls

## محل انتشار:

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## خلاصه مقاله:

Rocking Walls (RWs) are considered as fairly new controlling systems in Earthquake Engineering. These systems are used in new and retrofit construction with the aim of enhancing the seismic performance of buildings. Despite the significant studies reported on the efficiency of the RW systems in preventing the damage and controlling the deformation patterns through suppressing higher-mode vibrations in regular buildings, their noticeable advantages in irregular buildings have not been investigated sufficiently. This study intends to evaluate the seismic performance of a vertically irregular multistory reinforced concrete (RC) moment resisting frame (MRF) building which is vulnerable to soft story mechanism and to retrofit it by using precast concrete RWs with post-tensioned tendons. To this end, the three-dimensional (3D) numerical model of the irregular multistory RC building has been developed using OpenSees software. Extensive pushover as well as nonlinear time history analyses have been carried out using nine strong ground motions with different frequency content in order to investigate the effectiveness of such controlling systems in improving the seismic response of the benchmark building. The results and findings of this research are indicative of improved performance of the RW systems in controlling the seismic response and soft story mechanism of irregular RC-MRF buildings.

## کلمات کلیدی:

Rocking walls; Irregular buildings; Seismic retrofit; Soft story failure; Numerical simulation

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/863574>

