عنوان مقاله:

Investigating the seismic behavior of steel framemetal structures under the effect of earthquakesusing wavelet transformation

محل انتشار:

هفتمین کنفرانس بین المللی پژوهش در علوم و مهندسی و چهارمین کنگره بین المللی عمران، معماری و شهرسازی آسیا (سال: 1401)

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خلاصه مقاله:

Investigating the seismic behavior of structures using wavelet transform is a very accurateand new method compared to traditional methods. Based on this, in this research, theseismic behavior of structures has been investigated using the wavelet transform methodand its related concepts. The models used in this research are: three frames that areconsidered in three states of ۴, ۸ and ۱۲ floors, which represent medium, short and tallframes. The number of openings is three, and the length of the openings is defined as fivemeters, and the height of the floors is three meters for all floors. The structuralcharacteristics of the investigated steel frames are considered to be non-linear geometricaland the type of structural system of the investigated frames is selected as a bending andfixed frame. The used type of dynamic analysis is nonlinear time history, in such a waythat the accelerometers of three Anza, Loma, and Coyote Lake earthquakes have beenapplied to the examined frames. Finally, after analyzing the data, it was found that underapplied earthquakes, in the short order frame, the wave associated with a higherfrequency occurred at the end of loading, and in the high order frame, this trend was theopposite, and at the beginning of loading, the wave related to A higher f requency, i.e.level five wavelet, appeared and occurred in the mid-order frames almost in the .middle ofthe loading time

کلمات کلیدی:

Wavelet transform, nonlinear analysis, time history analysis, mother wavelet