

عنوان مقاله:

Assessment of the Effect of Redundancy Factor for Seismic Performance of Moment Resisting Reinforced Concrete Buildings

محل انتشار:

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خلاصه مقاله:

The redundancy factor is applied to increase the redundancy of structures that not had a sufficient degree of static indeterminacy in many international standards. The redundancy factor is different in the design standards. In the fourth edition of the standard No. 2800, the redundancy factor is proposed to improve the seismic performance of buildings that are considered with two values 1 and 1.2. Therefore, the base shear can be increased to a maximum of 20%, according to the standard No. 2800. In this paper, the effect of the redundancy factor on the seismic performance of the moment resisting concrete structures is investigated using nonlinear static analysis. Also, the numerical evaluation of the value provided by the standard No. 2800 for the redundancy factor is assessed. The studied models have 4, 6 and 8 stories with a story height $h=3.2$ m where 1, 2, 3 or 4 bays have to be located. ETABS software used for modeling and analysis. Then, the performance of the structures is evaluated by applying once redundancy factor 1 and again the redundancy factor 1.2. Based on the results of this research, it can be concluded that it is justified to account directly structural redundancy in the design by using a redundancy factor, as proposed in some international building codes.

کلمات کلیدی:

.Nonlinear analysis, Redundancy factor, Seismic performance, Moment resisting frames, Standard No

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