

عنوان مقاله:

Comparison of Seismic Safety and Functionality of Low Rise Important Buildings Designed by the First Three Editions of Iranian Seismic Code

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خلاصه مقاله:

Buildings with high degree of importance such as hospitals, police stations, fire stations and other vital facilities play a crucial role in crisis and risk management of cities. Therefore, special attention should be paid to design and construction of these buildings in order to maintain their performance during and after the earthquake. Important buildings in Iran is designed according to the Iranian code of practice for seismic resistant design of buildings (ISC). So far, four editions of the code have been published. In this study, improvement of seismic safety of important buildings in the first three editions of ISC are examined and the results are compared with an acceptable level of safety. In this study, a ۳-story steel moment resisting frame is selected and designed based on different editions of ISC for high seismic zones. The seismic fragility functions of frames are estimated in all soil classifications of the code. The probability of failure of frames are estimated for Tehran and Tabriz, two major cities located in high seismic zones. Results shows a good improvement in safety of different frames in recent editions of ISC, especially from the first to the second editions due to mandatory of ductile design and increase of the design forces. However, the functionality and safety of buildings do not satisfy the minimum requirements of the code. In addition, the results indicated that the probability of failure of frames located in softer soil types is higher than others. This show that within any code edition, a constant limit of safety was not provided in different soil types. Therefore, an improvement in the spectral acceleration of different soil type is required.

کلمات کلیدی:

Seismic Risk, Important buildings, Seismic code, Fragility function

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