

EVALUATION OF STANDARD NO. 2800 REGULATIONS IN DESIGNING OF BUILDINGS WITH GREAT IMPORTANCE

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One of the most important purposes of the Iran Seismic Design Regulations (Standard 2800) is to set minimum standards and regulations for the design and implementation of buildings against earthquake effects. According to the standard No. 2800, designed buildings of great importance such as hospitals buildings must be operational after the Earthquake hazard level 1. But because of a large response modification factor used in their design, it is uncertain to achieve this performance. The purpose of this paper is to evaluate the regulations of standard No. 2800 in design of great importance buildings such as building. Can Standard No. 2800 cover the stated objectives? For this purpose, several concrete buildings of bending frame and bending frame with shear wall with different number of floors, as well as several bending steel and bending frame steel structures with converging bracket with different number of floors, of great importance buildings and hospital use. They were selected and loaded and designed according to Standard 2800 and ACI and AISC 14 regulations. In the design of these buildings, all earthquake and operation earthquake criteria, weak beam - strong column criteria, high plasticity criteria were applied and the significance factor of 1.4 was considered. Then these buildings are evaluated against the various levels of earthquake in accordance with the Instruction for seismic rehabilitation of existing buildings (No. 360), which is assessment instructions of buildings based on the performance. In order to evaluate these buildings, the most complete type of analysis, the nonlinear time history analysis has been used. Three pairs of acceleration mappings were used to perform nonlinear time history analysis with all properties (soil strength, fault distance, etc.) close to the site position. The results show that most of the great important buildings, designed according the Standard No. 2800 do not cover the standards of the instruction for seismic rehabilitation of existing buildings (No. 360) for continuous operation against severe earthquakes, and contain joints that are in conflict with seismic design goals. According to the results, the instruction for seismic rehabilitation of existing buildings (No. 360), existing side loading systems are vulnerable and need to be retrofitted to meet the stated objectives and it is suggested that Standard No. 2800 behavior coefficients be attained and recalculated.

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