

عنوان مقاله:

Comparing Behavior of set-back Structures under Wind and Seismic Loads

محل انتشار:

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نویسندگان:

Mohammadreza Azimzadegan - Islamic Azad University of Science and Research of Fars

.Mahdiye Shaygan - Shiraz University of Technology, Shiraz, Iran

.MohammadAli Hadianfard - Shiraz University of Technology, Shiraz, Iran

خلاصه مقاله:

According to Iranian code, Structure components should be designed for the forces caused by wind or seismic load, whichever is greater. Increase in the height to size ratio of a structure causes the impact of the wind load fluctuations on the structure takes on further significance. Additionally, setback at upper stories results in sudden reduction of structural stiffness and mass, subjecting its dynamic properties to abrupt changes. In these conditions, wind forces which are estimated using static and dynamic analyses, may lack sufficient accuracy. In this research, lateral forces of wind are determined using static and dynamic analyses according to Iranian code and time history analysis. Also the forces caused by earthquake are determined by static analysis. These analyses were carried out on 10, 15-, and 20 stories regular and irregular (set-back) structures. The lateral forces caused by wind and seismic loads were compared together and the results were presented as story shear and force distribution in columns. The results show that shear base which is calculated by time history analysis in the 15-story structures is more than the shear base caused by earthquakes. whereas, the shear caused by earthquakes in top stories are more than the shear caused by wind load.

کلمات کلیدی:

Geometric irregularity, wind load, seismic load, time history analysis

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