عنوان مقاله:

Investigating the behavior of two story steel structure reinforced by X-bracing using pushover analysis

نویسنده:

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خلاصه مقاله:

In most regulations, the reduction coefficient for seismic force is only dependent to the lateral bearing system. However, researches has shown that this coefficient is a function of many factors such as period and modal properties of structure, height, and especially the building plane shape. Regarding the complexities of nonlinear dynamic analysis methods, nowadays, the nonlinear static analysis named Pushover method has been developed in performance-based earthquake engineering as an appropriate practical tool. Considering the simplicity, performance speed, and ease of results interpretation compared to the dynamic analysis methods that are as the most accurate methods of seismic analysis, the nonlinear static analysis (pushover) methods are quickly developed and welcomed. These methods are very applicable in performance-based design as well as retrofitting of structures due to their less computational cost relative to nonlinear time history dynamic analysis methods. Thus, in this study, the way of applying the pushover nonlinear static analysis method in the seismic retrofitting of structures is taken into investigation. The results are presented in the form of capacity diagrams.In most regulations, the reduction coefficient for seismic force is only dependent to the lateral bearing system. However, researches has shown that this coefficient is a function of many factors such as period and modal properties of structure, height, and especially the building plane shape. Regarding the complexities of nonlinear dynamic analysis methods, nowadays, the nonlinear static analysis named Pushover method has been developed in performance-based earthquake engineering as an appropriate practical tool. Considering the simplicity, performance speed, and ease of results interpretation compared to the dynamic analysis methods that are as the most accurate methods of seismic analysis, the nonlinear static analysis (pushover) methods are quickly developed and welcomed. These methods are very applicable in performance-based design as well as retrofitting of structures due to their less computational cost relative to nonlinear time history dynamic analysis methods. Thus, in this study, the way of applying the pushover nonlinear static analysis method in the seismic retrofitting of structures is taken into investigation. The results are presented in the form of capacity diagrams.

کلمات کلیدی:

Nonlinear Static Analysis, Pushover Analysis, Performance-Based Design, Seismic Retrofitting, X-Bracing

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