Seismic Strengthening of RC Frame with Steel V-Braces and perimeter framed.

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Abstract

The most common type of structural system is reinforcement concrete (RC) for buildings. RC moment frames was often designed not to satisfy the requirement of seismic resistance. Some of them were categorized of non-engineered structural component and the rest may have been fall technically as the non-ductile beam-column joint, soft story, weak column etc. To add steel braces into the RC frame is main course of strengthening or retrofitting method in order to increase lateral capacity of such structures.

This paper presents results of simulation studies in such an investigate has been included to review the behavior and performance of RC frame with perimeter steel braces for 3, 5 and 8 story buildings. Perimeter beam-column unit has also been included to combine with the V-type of braces. 3-D model structures has been simulated by using Sap2000 to employ types of element such as bar or beam and shell element. Non-linear geometry and material have also been considered in order to obtain reasonable result of simulation which is relatively convenience to modelling of test data. Previous study of validation scheme may also be used to adopt typical simulation technique into relatively more complex structures under investigated.

The results of numerical simulation shows that the RC frame with steel braces can generally increased the lateral capacity of the RC frame. without strengthening. Comparison has been made between frame with and without braces in order to provide a new characteristic of combined RC frame with steel braces.

Key words: Seismic strengthening, RC frame, steel braces, V-type