Comparative Study on Seismic Behaviour of Steel Shear Wall Located at Centre of Multistored RC Building

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ABSTRACT

As a new type of lateral resistance structure system, steel plate shear wall can bear most of the lateral loads in the structure, improve the initial lateral stiffness and horizontal bearing capacity of the structure, and act as the first line of defense before the main frame is destroyed so as to reduce the damage degree of the main frame and improve the collapse resistance of the structure. Dynamic studies were carried out on the shear strength capacity considering the effects of the relative stiffness and strength of the boundary elements on the shear capacity of the structure under seismic zone III. The multi storey RC structure was analyzed by Response spectrum method using STADD PRO V8i software. This study presents comparison of various parameters such as storey drift, lateral displacement, base shear on seismic analysis of G+9 storey RC building stiffened with bracings and steel shear wall. The performance of the building was studied with shear walls located at center. The Steel plate shear wall is analysed by the comparison of locations at the center and the edges. It was observed that structural capacity of the building was improved and also the lateral displacement and base shear were reduced with the addition of steel shear walls in a RC building.

Keywords: Steel plate shear wall, Response spectrum analysis, STAAD pro v8i