

INFLUENCE OF SHEAR WALL POSITIONING ON STRUCTURAL BEHAVIOUR OF RC MULTISTOREY BUILDING

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Abstract

Shear wall systems are one of the most commonly used lateral load resisting systems in high rise building. Due to their high plane stiffness and strength, they can be used to resist large horizontal loads and support gravity loads, thus making them quite advantageous in many structural engineering applications. There is enormous research done on designing and analysis of shear wall, however very few literature is available on the decision about location of shear wall in multi storey building. The usefulness of structural walls in the framing of buildings is widely accepted. When shear walls are situated in advantageous positions in a building, they not only can form an efficient lateral load-resisting system, but also fulfil other functional requirements of structures. The main objective of this work is to determine the optimum position of shear wall in multi storey building. For this purpose STAAD Pro – 2007 is used for analysis of various frames. The framing concepts represented are based on identical beam, column, and shear wall for 15 and 20 story R.C. frame. The main objectives are further focused on illustrating the effect of positioning of shear wall on drift control. STAAD Pro analysis results of maximum deflection and reactions are tabulated and compared for different positioning of shear wall.

Keywords: Shear wall, Drift, Lateral load, positioning, high rise building