ABSTRACT

This project focuses on minimizing earthquake-induced vibrations in a G+5 commercial building by incorporating and analysing various shear wall configurations. Using STAAD Pro software, and manual calculation different shear wall shapes Rectangular, L, C, and U were modelled and subjected to seismic loads as per IS 1893:2016. The objective was to determine the most efficient shape in terms of lateral displacement reduction, base shear control, structural performance, and cost-effectiveness. The analysis revealed that while C-shaped walls offer superior seismic performance, they come with higher complexity and cost. L-shaped walls demonstrated a balanced trade-off between performance and economy, making them ideal for seismic-prone urban buildings. This study underscores the importance of strategic shear wall placement and design for enhancing earthquake resistance in multi-story structures.