

Paper ID: ICRAITMS_202012_137

EFFECT OF BRACINGS ON SEISMIC ANALYSIS OF A MULTI – STOREYED BUILDING RESTING ON SLOPING GROUND

J.Anvesh¹, Assistant Professor, St.Martin’s Engineering College, Hyderabad

S.Madhuri², **B.Indrasena**², **I.Bhanu Prakash**², **D.Abhishek**²

(Students)

St.Martin’s Engineering College, Hyderabad.

ABSTRACT

In the present scenario, most of the buildings are often constructed on sloping ground due to increase in population and expansion of cities and lack of plane ground. The behaviour of building during earthquake depends upon distribution of stiffness and mass in vertical and horizontal planes, both of which vary in case of building resting on sloping ground. These buildings situated on hill slopes in earthquake prone areas are generally irregular, torsion ally coupled and hence susceptible to severe damage when affected by earthquake ground motion. The shorter columns in such buildings attract relatively higher magnitude of forces when compared to the longer columns when subjected to earthquake. These unsymmetrical buildings require great attention in the analysis and design.

In this thesis, seismic analysis of a 10 storeyed RC framed building resting on sloping ground model is carried out. Seismic response of the building is carried out using Linear Static Analysis and Linear Dynamic Analysis (Response Spectrum Method and Time History Method) using a commercially available finite element software. The scope of the project includes comparison of the RC framed building resting on plane ground and building resting on sloping ground with and without provision of two lateral load resisting systems, i.e, Bracings and Shear walls. Comparison of different parameters like storey shear, storey drift, mode periods, modal participation factors etc., is studied. It is found that the building with RC bracings and shear walls could able to resist the earthquake forces effectively and satisfying the requirements of Bureau of Indian Standards.

Keywords—Lateral load resisting system, Response Spectrum Analysis, Time History Analysis, SAP2000 (key words)



UGC AUTONOMOUS