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Seismic Performance of Three-Sotrey Bungalow under Different Time History Analysis

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Abstract

It is essential to use seismic analysis design in a structure, especially in multi-story buildings, because Malaysia is now experiencing mild earthquakes and also felt the vibrations from neighboring countries. A well-designed and well-built structure with adequate strength will prevent major damage from occurring whenever there are tremors from nearby or from afar. As a result, in order to assure the safety of the public and the environment, a seismic performance of the three-story building under different seismic loadings was conducted. This research study describes the results of a time history analysis performed with SAP 2000 software, to evaluate the performance, dynamic characteristics and to determine vulnerability of the building under different excitation of Acheh, Rapid KL and El Centro earthquakes. The model has been designed according to Eurocode 8, to the Malaysia National Annex (NA). According to the findings of the study, higher Peak Ground Acceleration (PGA) causes larger values of base reaction, higher displacement at joints, higher IDR (%), and largest forces, compared to lower PGA values.

Keywords: Base Shear; Earthquake; Inter storey drift ratio time history; Seismic performance.