THE PROBABILISTIC SEISMIC HAZARD ANALYSIS (PSHA): ASSESSMENT ON SITE SPECIFIC RESPONSE SPECTRUM ACCELERATION OF UITM PENANG DUE TO SUMATRAN EARTHQUAKE

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ABSTRACT

Penang is one of the areas that felt the shake from the Great Andaman-Sumatran Earthquake especially in high-rise building. As in Complex Perdana UiTM Penang that chosen for this case study, some elements in the building have encounter damages even if the epicentral of the earthquake far. To evaluate the weakest beam-column connection of Complex Perdana, the strength of a building was evaluated in terms of displacement and inter-storey drift index undergo by the building by conducting Time History Analysis using LUSAS MODELLER in Interactive Modal Dynamics (IMDplus) program. As comparison, Lateral Force Distribution method from Uniform Building Code 1997 (UBC-97) was adopted. For both method, the building was analyzed as a frame and a two dimensional model was developed. Loading analysis was made by referring to BS 8110 Part 1, 1997. The beam-column connection with highest inter storey drift index was classified as the weakest part and failure probabilities that may occurred computed by IDARC2D program according to its damage index. As the connection was determined, action can be made at that point so that the building is safe.