

Site specific seismic hazard assessment for Kuala Lumpur and vicinity from long distance earthquakes

ABSTRACT

Earthquake motion on a building is dependent upon its underlying soil. A proper site specific hazard assessment is necessary for safe design of structures especially on flexible soil. Kuala Lumpur and Selangor is considered to be safe against earthquake threat. However, more tremors are being felt by occupants due to long distance earthquakes from Sumatra, raises concern on the safety of the buildings in this region. Previous studies on flexible soil in Singapore discovered that the amplification due to soil resonance could be up to 12 times higher than the motion on rock. To validate this, site specific hazard assessment has been conducted on six sites in Kuala Lumpur and Selangor areas. The analysis is based on modified time history and using one-dimensional ground response analysis. The soil amplifications are found to be much higher than the values recommended by Eurocode 8. The adoption of Eurocode 8 for seismic design in this region should be carefully done by taking into account the effect of long distance earthquake to the wave propagation in flexible soil.

Keyword: Seismic hazard assessment; Long distance earthquake; Site amplification; Flexible soil; Kuala Lumpur