

عنوان مقاله:

Effects of Building Construction Overburden on Liquefaction Potential of Soils

محل انتشار:

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خلاصه مقاله:

As one of the significant phenomena in earthquake geotechnical engineering, liquefaction can cause severe damages. A number of factors play a role in the occurrence of liquefaction such as magnitude of earthquake, void ratio, relative density, and fines content percentage. The impact of building construction overburdens on liquefaction is of paramount importance. The present study was aimed at evaluating the effects of overburden resulting from building construction on liquefaction potential of saturating soil layers along Tabriz Metro Line 2. Fifty-four boreholes and geotechnical information were collected from the research site. Overburden values were considered to be 100 kPa, 200 kPa, 300 KPa, and 400 KPa equivalents to 5-, 10-, 15-, and 30-story building, respectively. The assessment of liquefaction potential of soil layers was carried out using the standard penetration test (SPT) method. Furthermore, liquefaction potential index (LPI) of soil layers was evaluated. The findings demonstrated that overburden can affect liquefaction resistance of soil layers. With increasing overburden, safety factor against liquefaction became less than one in nearly 80% of soil layers. The rate of growth in LPI of boreholes in the research site was found to be roughly .70%. Hence, an increase in overburden elevated liquefaction hazards in the research site

کلمات کلیدی:

Fines content, Liquefaction, Liquefaction Potential Index, Overburden, Tabriz Metro Line 2

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