

Studying the Impact of Soil Characteristics in Displacement of Retaining Walls Using Finite Element

Authors : Mojtaba Ahmadabadi, Akbar Masoudi, Morteza Rezai

Abstract : In this paper, using the finite element method, the effect of soil and wall characteristics was investigated. Thirty and two different models were studied by different parameters. These studies could calculate displacement at any height of the wall for frictional-cohesive soils. The main purpose of this research is to determine the most effective soil characteristics in reducing the wall displacement. Comparing different models showed that the overall increase in internal friction angle, angle of friction between soil and wall and modulus of elasticity reduce the replacement of the wall. In addition, increase in special weight of soil will increase the wall displacement. Based on results, it can be said that all wall displacements were overturning and in the backfill, soil was bulging. Results show that the highest impact is seen in reducing wall displacement, internal friction angle, and the angle friction between soil and wall. One of the advantages of this study is taking into account all the parameters of the soil and walls replacement distribution in wall and backfill soil. In this paper, using the finite element method and considering all parameters of the soil, we investigated the impact of soil parameter in wall displacement. The aim of this study is to provide the best conditions in reducing the wall displacement and displacement wall and soil distribution.

Keywords : retaining wall, fem, soil and wall interaction, angle of internal friction of the soil, wall displacement

Conference Title : ICSMGE 2016 : International Conference on Soil Mechanics and Geotechnical Engineering

Conference Location : Paris, France

Conference Dates : February 22-23, 2016