

Strain absorption optimization of reinforcement on geosynthetic reinforced slope: experimental and FEM modeling

ABSTRACT

The interaction between shear plane and Geosynthetic reinforcement in reinforced slope were carried out by using direct shear test apparatus. The reinforced soil specimens were installed through the large shear box in five different systems including 0, 30, 45, 60 and 90 degrees of reinforcement orientation with respect to the vertical axis in shear box. Results showed maximum shear results when interaction angle were between 45 to 60 degrees. In such angle of reinforcement orientation strain absorption showed its maximum values in all effective vertical axes of 50, 100 and 200 kPa, which mean the maximum shear tension, observed. This optimization can be due to better interaction between both coarse granular soils with Geogrid apertures which eventually give rise to more tension stresses absorption of reinforcement through the reinforced soil.

Keyword: Reinforced slope; Shear strain; Strain absorption; Tension; FEM