



Cyclic Behavior of Various Sands and Steel Interfaces

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Stress-deformation behavior of soil- structure systems is significantly related to the stress- displacement coupling of interfaces between soil and structural materials. The behaviour of interfaces between soil and structural materials is important for more understanding of the mechanisms of shaft behaviour of piles, pipeline studies and in geosystems subjected to cyclic loadings (i.e. earthquakes, sea waves, wind loads). This paper aims to present the results of an experimental study on cyclic behaviour of various sands and a structural material interface. Comprehensive measurements of the vertical displacement and shear stresses developed during loading were performed using an automated constant normal load (CNL) cyclic direct shear test apparatus. Two different particle sizes (0.25 mm- 0.5 mm and, 1.0 mm- 2.0 mm) of sands having distinct shapes (rounded and angular) were tested in the test apparatus at a vertical stress level (50 kPa) and two rates of shearing (2.0 mm/min and 0.025 mm/min) against a steel material. The investigation presents new data on the mechanisms that control frictional characteristics between various sands and a steel material interfaces.

Keywords: Interface, sand, steel, cyclic direct shear test.