

The Dynamic Cone Penetration Test: A Review of Its Correlations and Applications

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Abstract : Dynamic Cone Penetration Test (DCPT) is widely used for field quality assessment of soils. Its application to predict the engineering properties of soil is globally promoted by the fact that it is difficult to obtain undisturbed soil samples, especially when loose or submerged sandy soil is encountered. Detailed discussion will be presented on the current development of DCPT correlations with resilient modulus, relative density, California Bearing Ratio (CBR), unconfined compressive strength and shear strength that have been developed for different materials in both the laboratory and field, as well as on the usage of DCPT in quality control of compaction of earth fills and performance evaluation of pavement layers. In addition, the relationship of the DCPT with other instruments such as falling weight deflectometer, nuclear gauge, soil stiffens gauge, and plate load test will be reported. Lastely, the application of DCPT in Saudi Arabia in recent years will be addressed in this manuscript.

Keywords : dynamic cone penetration test, falling weight deflectometer, nuclear gauge, soil stiffens gauge, plate load test, automated dynamic cone penetration

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