

## **A New Correlation Between SPT-N and SSPT-N values for Various Soil Types in Peninsular Malaysia**

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**Abstract :** The Standard Penetration Test (SPT-N) is the most common in situ test for soil investigations. The Shearing Seismic Standard Penetration Test (SSPT-N), on the other hand, is a new method using shearing wave with propagation exponent equation between the shearing wave,  $V_s$ , and hardness, N values without any need for borehole data. Due to the fast and accurate results that can be obtained, the SSPT has found many applications such as in the field rectification buried pipe line, the acid tank settlement and foundation design analyses, and the quality control assessment. Many geotechnical regimes and properties have attempted to correlate both the SSPT and the SPT-N values. Various foundation design methods have been developed based on the outcomes of these tests. Hence, it is pertinent to correlate these tests so that either one of the test can be used in the absence of the other, especially for preliminary evaluation and design purposes. The primary purpose of this study was to investigate the relationship between the SSPT-N and SPT-N values for different types of cohesive soil in Peninsular Malaysia. Data were collected from four different sites, and the correlations were established between the hardness N values, principal stress-strain Mohr circle curve, cohesion, friction angle and vertical effective stress. A positive exponent relationship was found between the shearing wave,  $sV_s$ , and the hardness N values of the soil. In general, the SSPT-N value was slightly lower than the SPT-N value due to the upper limit boundary of the soil layer.

**Keywords :** InsituSoil determination; shearing wave; hardness; correlation, SSPT-N, SPT-N

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