

Density and Water Content

A new ASTM International standard will be used by contractors and government agencies for quality control and quality assurance of electromagnetic soil density gauges.

D7830/D7830M, Test Method for In-Place Density (Unit Weight) and Water Content of Soil Using an Electromagnetic Soil Density Gauge, was developed by Subcommittee D18.08 on Special and Construction Control Tests, which is part of ASTM International Committee **D18** on Soil and Rock.



The new standard covers procedures for determining in-place properties of non-frozen, unbound soil and soil aggregate mixtures, such as total density, gravimetric water content and relative compaction by measuring the electromagnetic impedance of the compacted soil. The test in the new standard focuses on the use of electrical, non-nuclear devices to determine in-place density and moisture content.

Ronald Berube, engineering manager, QCQA Labs, and a D18 member, says that D7830/D7830M will be used by buyers, owners and designers of civil infrastructure projects. According to Berube, the gauge covered by the standard uses a distinctly different technique to perform the same function as the tests described in other D18.08 standards such as **D1556**, Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; **D6780**, Test Method for Water Content and Density of Soil In Situ by Time Domain Reflectometry (TDR); and **D6938**, Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

CONTACT: **Ronald E. Berube**, QCQA Labs Inc.
Schenectady, N.Y. • Phone: 518-370-5558

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