

## Wagner Electronics

By Ron Smith

### Wagner Electronics' Rapid RH™ for Easy and Accurate Relative Humidity Testing in Concrete Slabs

In order to prevent a moisture-related failure to a floor covering or coating installation, it is necessary to have the proper moisture level in the concrete slab. Therefore, accuracy of the moisture readings is obviously critical. With the increasing popularity of the scientifically superior in situ Relative Humidity testing method for concrete slabs, correct understanding of, and strict adherence to ASTM F2170-09 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes is very important.

Wagner Electronics' Rapid RH™ is the newest generation of the F2170-09 test method with a design that has the actual sensor integrated into the insert. The Rapid

RH™ Smart Sensor design allows for depth-specific, accurate relative humidity measurement and therefore strict absolute adherence to the ASTM standard. The Rapid RH™ design allows you to easily perform this test method correctly.

ASTM F2170-09 requires that relative humidity readings be performed at a depth equal to 40% of the thickness of the concrete (slab drying from one side; 20% if drying from two sides). For example, if you have a 6-inch thick slab on grade, your holes must be drilled to a depth of 2.4 inches, cleaned-out very well and then the integrated sensor inserted into the hole.

With your hole drilled to the correct depth, correct use of the Rapid RH™ method ensures that you are obtaining a

reading at the correct depth of the concrete for every installation. Just drill the hole to the correct depth and insert the Rapid RH™ Smart Sensor to that depth. The Rapid RH™ patented small dead volume design ensures conformance to the ASTM depth requirement while also providing very rapid equilibration times\*.

Rapid RH™ sensors also come with a certificate of NIST\*\* -traceable calibration. Unlike other relative humidity test methods, you never need to be concerned with verifying calibration and the associated costs if you are using Wagner's Rapid RH™ stay-in-place test.

\*Section 10.3.4 of ASTM F2170-09 currently states: "Allow 72 hours to achieve moisture equilibrium within the hole before making relative humidity measurements." Wagner's Rapid RH™ patented design allows for obtaining readings in the first 15-20 minutes that will be within 2%-3% of the reading at 72 hours. Generally, within one hour, Rapid RH™ Smart Sensors will be fully equilibrated, and remain so, but it is recommended that the ASTM F2170 specification is adhered to.

\*\* NIST is the National Institute for Standards and Technology. <http://www.nist.gov/index.html>



**Far Left: The Rapid RH™ NIST-traceable sensors are on the underside of the insert, insuring depth-specific relative humidity readings.**

**Left: Recent testing has confirmed that the Wagner Rapid RH™ Reader and Sensor give the fastest and most reliable results.**