

Moisture Test Methods



Technical Data Sheet

General

Excessive moisture in the concrete slab and screeds can lead to a host of problems in all types of liquid applied membranes and coatings including adhesive degradation, delaminating, condensation, blistering, and movement. Excess moisture can even lead to mold, mildew, and structural damage. To assure the substrate is dry, the substrate must be evaluated to determine moisture content. Once the substrate is evaluated and deemed suitable, the ALT system application may proceed.

Recommended Guidelines

ALT recommends concrete substrates have a maximum moisture content of six (6) percent or 75% relative humidity for proper application of ALT membranes. Determinations of surface preparation and moisture content are the responsibility of the contractor, and are normally performed periodically throughout the course of work and prior to application of any ALT component or system. At minimum three (3) tests per 5000 ft² (464.5 m²) should be performed, or as deemed necessary required by field conditions of the substrate.

Field Moisture/RH Testing Methods

A variety of recognized methods can be used to determine moisture content of a substrate.

The measurement of substrate moisture content, relative humidity, temperature and dew point can be quickly, easily and repeatedly performed non-destructively using hand-held electronic moisture/RH meters. These electronic measuring instruments use the principle of electrical impedance to give accurate non-destructive moisture readings in concrete and gypsum floor screeds, whereby a low frequency signal is transmitted from electrodes on the base of the instrument into the material being tested to measure the electrical impedance. Some instruments can also be used as a hygrometer, utilizing solid state capacitive sensors to give accurate and fast relative humidity and temperature readings. The micro controller within the instrument processes the information received and accurately calculates the moisture content, relative humidity, temperature and dew point.

Though the contractor may employ any moisture measurement method of his choosing, consideration should be given to use of an electronic moisture/RH meter capable of the following individual tests:

- Measure non-destructively and instantly the moisture content in concrete and gypsum flooring
- Measure the relative humidity, temperature and dew point within the slab or screed using the (below surface) in-situ method
- Measure the relative humidity, temperature and dew point above the surface of the slab or screed using RH hood test methods
- Measure the relative humidity, temperature and dew point of the environment that the liquid applied membrane is being installed

Therefore, ALT recommends the use of an electronic hand-held moisture/RH meter specifically designed for concrete utilizing a pin-less meter pad with a minimum 3/4" penetration. The optimum instrument would measure moisture content, relative humidity, temperature and dew point in concrete and gypsum substrates. Several instruments evaluated and currently available are as follows:

- Tramex Concrete RH Moisture Content and Relative Humidity Meter
- Tramex Concrete Moisture Encounter 4
- Wagner Proline Concrete C575
- Elcometer 7420 Digital Moisture Meter
- Delmhorst Accuscan

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