Measuring Concrete Moisture

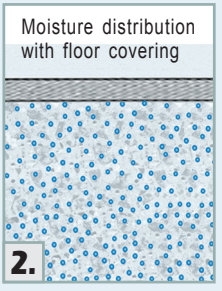
Why drilling holes for in-situ RH probes is necessary?

Concrete slabs are an integral part of a building. Excess moisture in the slab will over time be released and can affect the entire structure --- from walls, to floor coverings, to interior decorations. Not to mention serious health problems caused by mold.

Moisture tests of concrete floors are usually conducted to determine whether or not floor coverings or sealers can be applied or to find out why a problem occured. To give reliable results, the test needs to show whether or not the middle of the slab is dry enough. A slab freshly poured or 50 years old is dry if:

- most free water is bound within the concrete
- an equilibrium with the surrounding air has been reached
- no other moisture source (e.g. ground water) is available. Concrete is a hygroscopic material, which will absorb any water spill like a sponge.

1. Graph 1 shows the moisture distribution in an uncovered slab, which is not entirely dry yet. The slab is losing moisture through the surface while the core is still at a higher level.

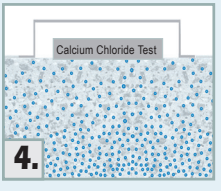


2. Once the surface is covered or sealed, moisture inside the slab is trapped and over time distributes itself evenly throughout the slab. That results in an increase in moisture at the top of the slab. The higher evaporation can damage the resilient floor covering. Floor installers need to be sure, that no extra moisture is hiding in the core of a slab.

3. RH probes can measure deep enough to reach the mid section of a slab. Many floor covering manufacturers recommend the RH test for its accuracy and great reliability.

4. The Calcium Chloride test cannot detect core moisture, it only takes into consideration the top section of the slab. Also, the evaporation measured by the test depends on the ambient conditions around the slab. On humid days, a wet floor evaporates less than on a dry day.

5. Handheld pin/pinless meters should only be used to show high and low moisture areas and not to determine whether or not resilient floor coverings should be installed.



Lignomat Concrete Meters:
Ligno-Tec RH: RH meter only
Ligno-DuoTec BW: RH + pinless
VersaTec: RH + pinless + pin, pages 12, 13.

The pin mini-Lignos S/DC and DX/C with E16 can show high / low areas, see pages 4, 5, 24.