

Nov 2018

## DATA SHEET NO. 106

# POCKET HYGROMETER

### PURPOSE

Primarily used for determining moisture in floors and walls. Before bonding a floor covering to a cementitious substrate, it is essential that a moisture test be done to ensure that the substrate is sufficiently dry to receive the floor covering.

### METHODS OF TESTING

Of the instruments available for determining moisture levels in sub-floors, the most practical and accurate although not instantaneous is the hygrometer. When a Hygrometer is positioned on a sub-floor surface, the reading of the relative humidity of the entrapped air space is obtained. Other methods, using for example a phenolphthalein or calcium chloride tests are relatively easy and inexpensive to perform, should be avoided since they have shortcomings, and provide no information concerning the moisture content of the body of the sub-floor. Test accuracy can be impacted by ambient conditions or variability in slab surface preparation. In addition, it only effectively tests moisture vapor emissions near the surface of the slab and, therefore, does not provide an accurate MVER (Moisture Vapor Emission Rate) measurement.

### HYGROMETER TEST METHOD

There are two methods of testing sub-floors for the presence of moisture using a hygrometer. The first method is preferred, as it gives a more precise result. The second method has an advantage in that, although less precise, it enables a number of readings in different areas to be obtained within a relatively short period of time.

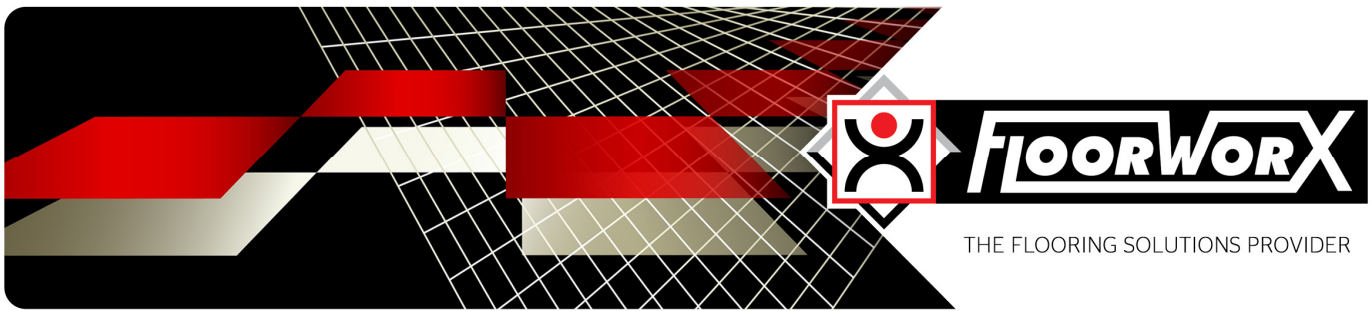
#### METHOD 1

- Obtain an initial reading of the relative humidity of the air above the sub-floor by placing the hygrometer on its edge on the sub-floor surface for a period of 15 minutes.
- When the initial reading has been recorded, place the hygrometer on the subfloor surface beneath a 1,0mm x 1,0mm sheet of impervious, transparent plastic film e.g. Polyethylene or PVC.
- Seal the edges of the plastic sheet to the sub-floor (either with masking tape or duct tape) and leave for 24 hours before taking a final reading.

#### METHOD 2

- Seal the edges of a number of 1,0mm x 1,0mm sheets of impervious, transparent plastic film to the sub-floor at various locations on the building site and leave for 24 hours.
- At the end of this period, obtain and record an initial reading of the relative humidity of the air above the sub-floor by placing a hygrometer on its edge on the sub-floor surface for a period of 15 minutes.
- Carefully lift a corner of the sheets of plastic film so that the hygrometer can be placed underneath. It is important that there is as little disturbance as possible to the air entrapped between the sub-floor surface and the plastic film.
- Once the hygrometer has been inserted underneath the film, immediately re-seal the edge.
- After 20 minutes has elapsed, note the reading of the hygrometer.

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- Remove it from beneath the plastic film and allow it to return to its initial reading before repeating the process with the other sheets of plastic film.

### INTERPRETATION OF RESULTS

- A final hygrometer reading of less than 70% indicates that the sub-floor is sufficiently dry for the acceptance flooring to be laid upon it.
- If the hygrometer indicates a final reading of more than 70% when the initial reading of the atmosphere was less than 70%, then the sub-floor is unacceptably damp and must be allowed to dry out before any flooring is installed.
- If the hygrometer indicates a final reading of more than 70% when the initial reading of the atmospheric humidity was also greater than 70%, as can occur in coastal areas, then the following applies:-
  - If the final reading is significantly higher than the initial reading, then the sub-floor must be considered to be unacceptably damp.
  - If the final reading is similar to, or less than the initial reading, then the moisture content of both the atmosphere and the sub-floor are similar. In this instance the **FloorworX Technical Department** should be consulted before any flooring is installed.

### GENERAL NOTES ON THE USE OF HYGROMETERS

Although it is the responsibility of the Flooring Contractor to determine when a sub-floor is dry enough for flooring to be installed, it is advisable that the builder tests every sub-floor himself as well. Remember that the hygrometer is a precision instrument and should at all times be handled with care. It is recommended that each hygrometer be calibrated against another for accuracy on an annual basis.

**Note: At no stage should a hygrometer be forcibly dried.**

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