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## MOISTURE TESTING FOR CONCRETE SLABS – Handheld Moisture Meter

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**\*\* Moisture Vapor Transmission (MVT) is the number one cause of coatings failures across the board. \*\***

*It is imperative that the moisture content be checked prior to installing all coating systems and results of the moisture test are required for warranty coverage.*

Moisture passing from or through concrete has become the number one cause of floor covering system failure in this country. Left unchecked, moisture in the concrete can lead to premature delamination, peeling, and bubbling of resinous coatings.

Determining moisture levels starts with a moisture test done during the bidding process, which will tell you if moisture is a concern. If excessive Moisture Vapor Transmission (MVT) is a concern as shown in the tests, there are costs involved with the remediation products and those need to be passed on to the customer. Therefore, if the initial test results in a high reading, a discussion should take place at the time of bidding to determine what could be causing the excessive moisture readings and the next steps. Many factors can lead to high moisture readings; saturated base material, an improperly drained site and surface moisture are examples. It is important to determine how much moisture exists in the slab, the source of the moisture and whether conditions, like seasonal ground water might contribute more moisture in the future and using the correct tool will help you to choose a suitable remedy.

Before discussing the individual test methods, it is important to note that in our opinion, all existing test methods are capable of being "fooled" under certain conditions. Therefore, having a discussion with the customer is imperative when high moisture readings are being seen.

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### **HANDHELD MOISTURE METER**

Garage Force recommends starting with the Handheld Moisture Meter to test garage slabs and other residential applications. It is a non-invasive meter that does not require any drilling or grinding, and results are immediate. This measures the top section of the concrete slab and gives an average percentage moisture content of the footprint area of the meter.

The instrument operates on the principle that the electrical impedance of a material varies with its moisture content. The electrical impedance is measured by creating a low frequency alternating electric field between the electrodes. This field penetrates the material under test. The very small alternating current flowing through the field is inversely proportional to the impedance of the material. The instrument detects this current, determines its amplitude and thus derives the moisture value.

All covering materials, adhesive residue, curing compounds, sealers, paints, etc., should be removed to expose a test area of clean bare concrete. Place the meter on a level concrete floor and push down, this will give you an accurate reading inside the concrete, not just on the surface. Include test locations in the center of the floor and within 3ft of each exterior wall. You should take between 3 and 5 readings for every 500 sq. ft. of area to be coated. This moisture meter will read between 0-6.9 % moisture content. Readings on a concrete floor slab obtained on this scale indicate moisture content and should not be confused with Pounds (lbs) emission or any other unit of measurement obtained by other moisture testing methods or meters.

**Any readings over 4.5% will indicate moisture problems and should be investigated and discussed with the customer.**

*Always document readings for warranty purposes.*

*It should also be noted that there seems to be no linear correlation between moisture content measurements and lbs emission measurements as obtained using calcium chloride testing methods.*

**If the moisture meter reads higher than 4.5% moisture content, Garage Force recommends application of calcium chloride tests following the instructions provided on DASH and may require application of our MVT Primer to create a vapor barrier based on test results.**

**New concrete floors require 30 days to cure before coating without the use of an MVT primer.**

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*Contact a member of the Garage Force Technical Team for additional information.*