

REMODELERS 101: MOISTURE IN SUBSTRATES

This July a seminar was held near Indianapolis for contractors, representatives of the flooring industry, and concrete experts. It was believed to be the first ever Concrete Drying Symposium ever held in the United States. Part of the impetus for the event was that flooring failures are reaching epidemic proportions in America. Ray Thompson, the president of the Floor Covering Institute, stated that damages to flooring due to excessive moisture in concrete are now estimated to be \$2 million per week. Fast track construction and a lack of proper moisture testing protocols are contributing to this growing problem. Poor construction practices and inferior vapor barriers are also major players in these problems.

Varying aspects must be considered concerning moisture levels in concrete: how old is the existing concrete, has it been rewetted due to a water loss or rain during construction, are there conditions under the slab adding excessive moisture, and was the concrete itself poorly mixed and placed? The conditions for flooring to fail are manifold.

When a remodeling contractor decides to place moisture sensitive flooring finishes on either concrete or a wood substrate, he needs to know how the existing or potential moisture or vapor issues can affect his flooring finishes. Proper inspection and testing can help inform the remodeler to know when the substrate is “safe” for the floor installation.

One important piece of information is that new concrete uses approximately 50% of its water in the curing or hydration process. That means that when concrete has “cured” it still has 50% of the original water in the slab as free water, or extra moisture. A 4000 pound mix of concrete in a 4” slab over 1000 square feet will have approximately 1,697 pounds of free water! New slab additions constructed by remodelers may have too much free water for certain types of flooring.

Beware if an assessment is made on a concrete slab using only an electronic meter. This type of instrument does not calculate vapor emissions accurately. The best single method of slab moisture evaluation is the RH (Relative Humidity) reading “in situ,” or inside the slab. Most other developed countries in the world have adopted this type of standard, but America is lagging behind in implementing this standard.

Details of the RH method can be found in the ASTM F-2170 document, which targets 75% RH for concrete as a safe range. Hardwood flooring should be installed on a wood subfloor which is within 4% of the final target EMC, or Equilibrium Moisture Content.

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