The Tortoise or the Hare: Who Wins When Concrete Moisture Conditions Impact Moisture-Sensitive Flooring?

In the many elements that contribute to professional flooring installation, the truth is no one wins when a flooring failure happens as a result of moisture-related problems. From contractors and construction managers, flooring installers and adhesive manufacturers right down to the facility owners and users – everyone sees the "fall out" of a moisture related flooring problem. Schedule interruptions, lost man hours during remediation and additional costs all add up to reduce project completion to tortoise-like speeds.

But is trying to race to a finished floor the right answer either?

Concrete moisture issues are a prime example of prevention being worth more than the cost of a cure. And for most adhesive-installed flooring, prevention begins with the concrete slab.

There are numerous standards in place for the procedure involved in pouring and drying a concrete slab. But what is never standard is the drying time of each slab. Many factors contribute to that drying time and are unique to each installation: ambient air humidity, final service conditions, the components of the original concrete mixture, operational (or not) HVAC systems, surface finishes, floating practices or rewetting. And if any one of those factors change during the course of the project, the concrete may not dry at the expected rate. Entire construction schedules can be delayed based on a drying slab's condition.

To use the race analogy again, ideally any project works like a relay race, not a sprint, with the architect handing off to the construction manager handing off to the concrete contractor handing off to the flooring installer after each leg is completed. At every step of the project, the final goal – an installed and useable floor system as part of a completed facility – should be the focus of the team. From the beginning, the moisture-emission potential, the concrete's moisture and pH levels, protecting the slab from external moisture and the compatibility with the specified floor covering and adhesive must be addressed for a successful flooring installation.

When a schedule is tight, it is tempting to try to hurry the concrete along. Or to hand off too soon to the next subcontractor. But even with desiccant drying or other surface treatments, how can a flooring contractor be sure that the moisture levels in the concrete slab are suited to the moisture-sensitive adhesive specified for the project?

The only option, of course, is accurate monitoring of the relative humidity (RH) within the slab. While other test methods such as calcium chloride testing have been commonly used, the reality is that they are surface-only indicators of the moisture conditions within a concrete slab. RH testing measures conditions within the slab to reflect the final RH conditions under an installed floor. An accurate knowledge of the RH conditions within the slab give the flooring installer and the general contractor the information they need to either allow the slab time to dry to the adhesive specifications, or to choose a flooring adhesive suited to the current conditions in the slab.

Specification requirements have a major impact on final performance. And with RH testing as part of those specifications, flooring installers can know that whether it be at tortoise or hare speeds, they will cross the finish line with confidence