

Moisture Study

A newsletter on moisture-related issues with concrete slabs.

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When to seal the slab? It should depend on the project's need.

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Division 3 or 9? When to Seal Slabs

At what point in time should you specify sealing the slab? Just after it is placed? Or just prior to floor finishes?

There are pro's and con's to each option. This brief will attempt to outline the common approaches. If anyone has other ideas please email me about it.

The earliest approach specified in Division 3, is to seal the slab just as soon as you can walk upon it. There are two types of products marketed for this: Silicate-based products that are usually spray-applied, and polymer-based products that are film-forming, usually applied with a paint-roller.

The spray-on silicate purportedly penetrates into the pores of the slab surface. It then reacts with calcium hydroxide or "free lime" to form a byproduct that would fill the pores, reducing the flow of vapor and tying-up soluble salts.

The pro's of this approach is the ease of application and the very low cost of it. The con's are almost glaring.

First, how porous is a brand-new slab? Pores are formed after the water-of-convenience evaporates from the slab, leaving behind these channels. Where or how, does penetration occur?

Second, calcium hydroxide or free-lime may take several days, probably more like months, to be available for the chemical reaction to take place. So what is the silicate reacting with this early on in the process?

Product claims are one thing, test results are everything. Please remember the whole subject at hand, is risk to the owner's floor. The costs of a floor covering bond failure dramatically outweigh the cost-savings of a sealer that may or may not perform.

The other popular approach to sealing brand new slabs is by using a film-forming, polymer coating that can be tested for effectiveness, bond strength, etc. etc.

This method also has pro's and con's. The pro's are that you are sealing the slab in its entirety, under future wall systems, around pipe penetrations, under everything.

We have sealed many brand-new slabs just a day or two old, as some clients either can take no chances, or have such a fast track schedule there is no other way.

However successful, we have to confess it is not the most efficient approach. One big problem is that the polymer gets abused from weather and by all the trade-groups who will be working upon it for months.

By the time the floor is ready to install the coating is usually covered with construction debris, drywall mud and paint overspray to name a few.

Certainly good polymer coatings can take the punishment but think about the condition it will be in just prior to flooring! It is so beat up and dirty, it will require heavy auto-scrubbing to cleanse and most likely need some touch ups.

The other issue besides the mechanics, is the chemistries. The cement compounds, primers and flooring adhesives get a much better bond to a polymer if it is fresh, not months old laying in the sun and abused with debris.

Its not to say that it isn't doable, but with all things considered, it may be more reasonable to wait until the 11th hour to seal a slab.

This leads to the Division 9 approach, sealing the slab instead just prior to floor covering installation. The pro's of this approach is that you only seal when it is needed and where it is needed. This has an obvious cost differential to consider, on top of the pro of having a cleaner, more favorable bonding surface.

It is true that some coatings applied in Division 3 claim to need no profiling, that is, grinding or shot-blasting. That implies less cost. Profiling the slab however is always favorable, even on brand new slabs. The bond strength and long-term performance depends on a good, solid anchoring.

Still, since not all floor covering types may have the same degree of sensitivity to moisture and not every room is covered in flooring, why spend more money sealing than you need?

A set of moisture tests run prior to flooring is an effective tool for the decision of when and where the expense of sealing is required.

As an example, one project we looked at was 22,000 square feet. The typical cost of sealing it would be \$3.00 per foot installed, or \$66k if you were to seal every foot. After doing the proper take-offs and determining what floors needed sealing, it was reduced to 14,000 square feet or \$42k.

Then after testing properly to really see what areas really were at risk, only 9,800 feet needed sealing. Our client saved over \$36k by using our value-added approach, rather than needlessly sealing everything. It doesn't make us rich, but we sleep well at night!

Please contact us for free, courteous technical support, questions on your mind, or issues you need help resolving. We are located in Southern California and have several certified applicators in most states.