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Floor Prep for Commercial Resilient: Some Do's and Don'ts

by Christopher Capobianco

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Let's Talk Resilient



This photo shows why it is crucial to visit the job site before quoting floor preparation. Photo courtesy of Dave Stafford.

Having spent the first 15 years of my career mostly on the residential side of the business and the last 14 on the commercial

side, I have often marveled at how different the two sides can be. As chairman of the Flooring Contractors Association (FCICA), I often suggest to people just starting out on the commercial side of the business to join our organization for the educational and networking opportunities. For example, at Surfaces

2008, FCICA's Dave Stafford is tentatively scheduled to present a seminar called "Ten Transition Steps to Commercial Business for the Retailer."

Commercial resilient presents several challenges to the residential dealer and their installers and one of those challenges is in the area of substrate preparation. Because the jobs are larger, the time schedule is often rushed. With a lot more money on the line, there is more pressure on the installer. Proper training and proper planning can go a long way towards preventing mistakes. Here are a few do's and don'ts.

Do make sure concrete slabs are tested; don't assume an older slab is dry



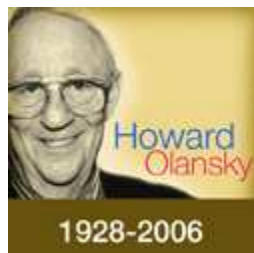
Failure to sufficiently nail the plywood underlayment on this job caused the floor to buckle, leading to a complete replacement of the vinyl and the plywood.

Every floor covering and adhesive manufacturer mandates moisture testing. If you have a moisture related failure, there isn't a manufacturer anywhere who will cover it under their warranty. The industry standard, ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring states, "All concrete slabs shall be tested for moisture regardless of age or grade level." Note the use of the word "shall" which means it is mandatory. Old or new, basement to penthouse — they all have to be tested. The two most common methods are ASTM F 1869 (Calcium Chloride Test) and ASTM F 2170 (Relative Humidity Probe test).

You'll notice I did not say YOU have to test it. In fact, the Floor Covering Industry White Paper Position Statement on Moisture Emission Testing, which was published in 2001, states "It is therefore our recommendation that concrete moisture vapor emission testing be performed by qualified independent agencies." The advantage of independent testing is that you know it is done right and the general contractor and the flooring contractor "each has a vested interest on the testing and/or performance outcome of the installation." In other words, they would like to see the concrete pass the test so the job can move forward and get paid. So, if it can be done independently that's a good thing because it takes all that uncertainty out of the conversation.



How it should be! Beautiful floor installed over a well-prepared substrate. Photo courtesy of Kevin Mays.



Self-leveling underlayment is a fast way to achieve a smooth, flat floor. Although it may cost more than trowel-applied patching compounds, the smoother finish and time savings are often worth the money.

That being said, testing still falls to the installer in most cases. If you don't know how to conduct the test, then I suggest you learn. The good news is the Institute of Inspection, Cleaning and Restoration Certification (IICRC) now offers a two-day "Introduction to Substrate/Subfloor Inspections" (ISSI) course and certification through its accredited schools. This course would be time well spent if you are going to do a lot of moisture testing. It would also prepare you for work as an independent moisture-testing specialist.

Don't install resilient flooring in buildings that are not climate controlled



By taking advantage of training opportunities, installers can upgrade their skills to be able to handle more detailed tasks such as moisture testing and self-leveling underlayment.

The reason flooring and adhesive manufacturers have temperature guidelines in their recommendations (approximately 70F, +/-10F). The number of failures caused by installing in a building that is too hot or too cold is substantial because material can expand and contract from extremes of temperature and adhesive may not cure properly. If you are being asked to work in conditions that do not agree with the manufacturer's guidelines the word warranty may not be in the conversation.

Do take your time smoothing the substrate; don't assume "a little patching" suffice



Failure to install resilient flooring in a climate controlled space can lead to gapping in the finished floor when the product expands or contracts due to temperature changes.

Commercial resilient floors are often installed in brightly lit areas and are maintained to a high-gloss finish. Because of this, even the most minor substrate irregularities telegraph through to the new floor. My father used to joke, "Don't leave your business card on the floor," when he talked about smooth high-gloss flooring materials. New slabs or plywood subfloors usually need some level of work before a floor goes down. On renovation work, the preparation can be extensive. Be sure to go out and look at the job before you quote on floor preparation so that you don't underbid the job and get in trouble later.

If the floor is rough, it may need more than just patching compound to get it smooth. Self-leveling underlayments are growing in popularity because although there is added

cost, a self-leveling job results in a smoother substrate than any amount of patching or sanding and it saves a lot of time. "Time is money" often applies to big commercial jobs. If you don't know how to use self-leveling products, many manufacturers of these products offer training classes, often at very little cost to the attendees, other than travel expenses and your time. I know I said time is money, but taking the time to learn a skill you can make money on is a good investment.

Do pay attention to details when preparing wood subfloors; don't skimp on underlayment

I recently inspected a job in a retail-clothing store where the plywood buckled after the vinyl tile was installed, and found the reason to be not enough nailing. Proper spacing is called out by plywood manufacturers, and there are two industry standards that specify the same thing: ASTM F 1482, Guide for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring and APA Engineered Wood Construction Guide, Form E30, published by the Engineered Wood Association (APA). Both call for fastener spacing every 3" on the edges and every 6" in the field. This job had spacing ranging from 5- to 17-inches, and the floor buckled all over the place. All of the vinyl had to be ripped up, the plywood re-nailed and new plywood installed over the top. It was quite a mess and an expensive mistake for the installer.



The Relative Humidity Test (ASTM F 2170) has been used in Europe for more than 25 years, and introduced into the U.S. in the last five years. Many feel this is the most accurate method for testing concrete for moisture. Photo courtesy of

If you are asked to install underlayment on a commercial

job, make sure the product fits the job. Don't ever use Tramex. Lauan or other inconsistent quality products because they can dent, delaminate, telegraph or even stain the floor. Use a top quality, hard smooth panel so the floor will perform under heavy traffic. Although the better products cost more, they come with a warranty and you can bet that the owner would rather pay a little more for a floor that has a warranty.

Follow the nailing pattern, stay away from screws to fasten the underlayment down (staples work best), and patch the joints as directed by the underlayment manufacturer. See my column "Tips for Selecting and Installing Plywood Underlayment" (*FCI*, July/August 2007) or any number of other articles in the *FCI* archives for more information about underlayment selection and installation.



The Calcium Chloride Test (ASTM F 1869) is an accepted method for concrete moisture testing that has been in use for more than 50 years.

The cost of repairing or replacing commercial jobs is much higher than residential projects. If you are branching out into commercial work, then it pays to take the time to learn some of these techniques such as how to do moisture testing and how to use self-leveling underlayment. At the very least, read some of the many articles that have been published in *FCI* magazine or the other resources listed.



Methods like the plastic sheet test are not acceptable for deciding if a concrete slab is ready.

Referenced Materials:

- *Floor Covering Installer* magazine: www.fcimag.com
- ASTM Standards: www.ASTM.org
- Institute of Inspection, Cleaning and Restoration Certification (IICRC): www.iicrc.org
- Floor Covering Industry White Paper on Moisture Emission Testing: www.wfca-pro.org
- The Engineered Wood Association (APA): www.apawood.org
- Articles by Christopher Capobianco: www.flooringanswers.com

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