



The Commercial FLOORING REPORT

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for the Commercial Floor Covering Industry

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COMMON CAUSES OF FLOORING FAILURES - PART II

SUBSTRATE AND ENVIRONMENTAL CONCERNS WHICH AFFECT FAILURES

In my opinion, substrate issues are one of the biggest bones of contention today. With installation after installation failing in all types of environments, the question is continually asked, "What's different today than years ago when we never had these types of problems?" First and foremost - today we want instant gratification, and that means, "Get the job finished as fast as possible at all costs and we'll worry about the consequences later!" Not only is this a crazy way to think and act, but it's totally irresponsible in many ways. We'll touch on why this is insane in a bit, but first let's look at some of the types of problems we're experiencing.

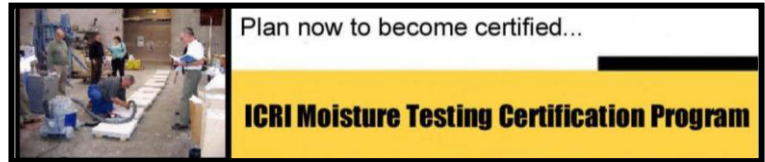
Without question, moisture issues are number one, and in many respects have reached epidemic proportions. In recent months, conversations with manufacturers, both carpet and hard surface, have exposed the increasing number of complaints due to moisture issues. Regardless of who is eventually found to be at fault, the majority of these concerns involve costs ranging from tens of thousands of dollars, to extremes reaching \$2 million and beyond. It's certainly not unusual for losses to reach into six figures.



It's remarkable to me that so many people are surprised to find that moisture-induced floor covering failures also exhibit high alkalinity levels in the concrete. That's like being surprised to find that water is wet. Concrete by its very

nature is highly alkaline, between 12.5 and 13 ph

If ph levels are not that high, then you have a problem with the concrete. When you test for alkalinity, however, you must be careful not to penetrate too deep into the concrete, or you'll always get high ratings. There is a way to properly test concrete for moisture and alkalinity, and if it's done incorrectly or under the wrong conditions false readings will result. To become proficient at testing, contact the ICRI and take one of their newly-offered

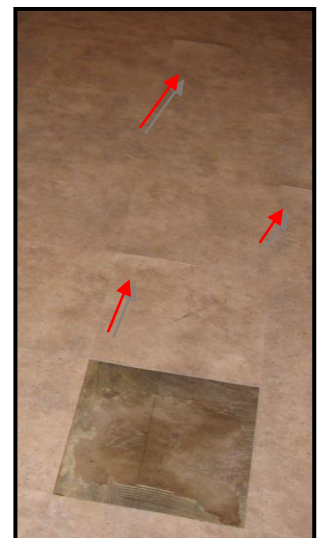


courses. Incorrect moisture testing is the source of much debate, consternation and just plain wrong results. We've written a great deal about this before and have a mass of information on this subject, so we won't go into too much detail here.

As a result of substrate moisture, carpet tiles can lift on the corners and edges, vinyl sheet goods will bubble and blister, vinyl tiles will come off the floor,



linoleum tiles will lift at the edges, and rubber tiles and broadloom carpet will buckle, bubble and wrinkle. Once these physical changes occur in the floor covering material, the product is generally relegated to waste. You'll see in some of the photos shown what can happen to the products. When the product comes up, the substrate has to be treated





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and that's most often accomplished by bead blasting, treating with Koester moisture sealer, and top coating with a product like Ardex Feather Finish.

As I think back over the years, I have to question all the claims for buckling and wrinkling of carpet, especially in schools, that got blamed on poor installation, adhesive application and spread rates, and poor transfer to the backings. A lot of these failures were likely due to moisture vapor emission and the alkalinity it brings with it

destroying the tackifier in the adhesive. Schools are prone to failure when they cycle the air handling system and often lower operating parameters in the summer when school is out.




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Uneven Surfaces:

Unlevel, undulating, rough, or unsmooth substrates can affect floor covering installation. This is seen most prevalently in the installation of vinyl tile.

Compromises in the physical integrity of the substrate can cause tile to fit improperly due to them "running off". In other words, if the substrate is not level, the tiles will not fit square. Thus, with each additional tile the straight run of the installation can be off, resulting in gaps or mis-fits. Substrates should be checked for level and if the tile runs off, check it with a square to determine if the tile, or the floor, or the installation is to blame.



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Lew Migliore - President and Owner
LGM Enterprises, LLC - 519 Oxford Street. Dalton, GA 30720
P-(706) 370-5888 - F-(706) 270-0482 - Email: Imtcs@optilink.us
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Contamination:

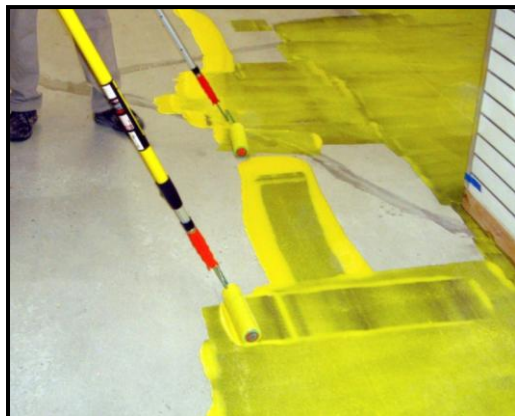
Nothing sticks to dirty or dusty surfaces, and, in the case of floor covering, this includes paint overspray, sprayed-on markings on the substrate, grease and oil from other trades like plumbers and pipe fitters working and leaving residual finishes or adhesives. All substrates must be clean and dry and free of contaminants, because they can and will



Porosity:

The porosity of a surface is something that never should be overlooked, but often is. If a substrate is porous - that is, if it absorbs moisture - it will have to be treated. Most adhesives used to install floor covering, especially carpet, contain water, and if the water is absorbed into the substrate - be it wood or concrete - the strength of the adhesive and its ability to perform can be greatly minimized. Moisture in adhesive can also activate alkaline salts in concrete, causing them to destroy the tackifier, and thus weakening the adhesive. The fix for

compromise installation. Contaminating substances either have to be removed or contained



with a sealant before a successful floor covering installation can be achieved. This information, as well as most of the

information in this issue should actually be included in the specs for the job. And, by the way, there should always be installation specs and qualifications for every commercial job - otherwise you're flying blind.



porosity can be as simple as applying a coat of latex milk and allowing it to dry. Many a failed installation has been repaired

over the years using this oft-forgotten process. In fact, if gluing anything to plywood or particle board (especially if these wood products have been exposed to the elements) always use a sealer to ensure the glue will not be absorbed by the wood. We recently repaired a failed double stick installation using this method.

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Temperature and Humidity:

If you do not control these two factors, you can bet you'll have an installation problem sooner or later. What you can't see will hurt you – failing to control the temperature and humidity will affect the flooring material and substrate in a way that can eventually impact the installation. It may take weeks, months or years of repeated fluctuation in temperature and/or humidity, or perhaps only a control failure at the outset of the job, but it's inevitable that a problem will rear its head at some point. This category is going to be a game-breaker with both flooring and its installation, as we continue down the path of green buildings and their operation.

Following is a simple checklist you can use as a recap:

SUBSTRATE CONDITIONS THAT MUST BE CHECKED TO PREVENT PROBLEMS

- ✓ Moisture
- ✓ Porosity
- ✓ Alkalinity
- ✓ Integrity
- ✓ Contaminants

The number one cause of complaints in the floor covering industry, across all product categories is the use of the wrong product in the wrong place. Improper product selection is by far the most common cause of flooring failures. With the correct knowledge, information, and awareness, products will perform as specified - there is a correct product for every application; you just have to know how to match the two together. The first step is to qualify the end use and user and then find a product that complies with the requirements of the space and the needs, wants, and desires of the owner. This is often the job of the designer, architect, specifier, or commercial flooring dealer. Often the first three will rely on information they get from the manufacturer's rep; the commercial flooring contractor may rely on past experience. Either way, you may have to look closely at the situation. You have to ask yourself a series of questions, such as:

- **HOW LONG IS IT EXPECTED TO LAST?**
- **WHERE IS IT GOING TO BE USED?**
- **HOW IS IT GOING TO BE USED?**
- **DOES THE FASHION FIT THE FUNCTION?**
- **PLAN FOR THE LONG RUN –Will it be installed and maintained properly?**

Remember this slogan, "Get it in the door and keep it on the floor." That should be your objective - anything less and you've shortchanged the end-user.

In addition to the list you just read, here's another list to help you prevent flooring failures. These lists will allow you to simply copy the information and keep it handy for reference.

- **Qualify the product and its application**
- **Establish the end-users expectations and then meet or exceed them**
- **Put the right product, in the right place, care for it properly so that it maintains its appearance without problems or complaints**
- **If the product you want or need doesn't exist, you can have it made, or choose another product that will perform up to expectations**
- **You should never have to ask yourself how you could have avoided a problem**

If you're going to use a product and aren't familiar with it, or you have two or three selected and aren't sure which one is best, LGM and Associates has a service for that. We can test, evaluate, and determine which product is best relative to structural integrity, performance and appearance retention, soiling and clean-up, stain resistance and sustainability.

DOUBLE STICK INSTALLATIONS, Or, DANGER LURKS BELOW THE SURFACE.



I refer to this as the most dangerous installation method known to man. It fails

easily, is subject to compromise, and many installers just don't know how to do it correctly.

Think of it as a process, not an installation. Floor prep must be spot-on (see the previously stated



information on floor prep). Seal the floor and let the sealer dry.

Use a high quality, firm, dense, and high-performance cushion only - nothing else will do. Use high-quality adhesive in ample amounts and let it set up to

"legs" before placing cushion to floor or carpet to cushion. Roll each when placed – that is, roll the cushion first, and then the carpet to the cushion. After installing the carpet, STAY OFF OF IT, as foot traffic alone will move adhesive out from under it, which can cause that area to fail. Traffic of any kind should be kept off the carpet for at least 24 hours. Done right, this installation can work - do any part of it wrong and you'll wish you hadn't.



Adhesive Legs



Remember, if you have questions, need help before a

project (the best time to ask for it), or think you've gotten yourself into a mess you can't get out of, call us; we can help.

NEW PRODUCTS:

The new **Velcro Brand Carpet Protector** is ready to go with introduction to the market last month. This product takes the place of clear plastic coverings with pressure sensitive adhesive that have created a host of problems for the industry. The new **Velcro Brand Carpet Protector** is made for use on loop and cut and loop carpet; the vast majority of commercial carpet. Bentley Prince Street is the first carpet manufacturer to offer this unique product.

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Concrete Moisture Testing Technician Certification – Grade I

The International Concrete Repair Institute (ICRI) is pleased to introduce their Concrete Moisture Testing Technician Certification Program. The purpose of this program is to help improve the performance of concrete slab moisture testing in the U.S. to result in more consistent, accurate results that will help flooring manufacturers, architects, and contractors to make better decisions as to when a concrete floor is ready for a floor covering installation.

The certification program has 2 tiers. Tier 1 applicants are those who are not regularly engaged in moisture testing yet have an active interest in learning more about the tests, what the tests mean and how the tests should be performed. Tier 2 applicants are those who have applied for full certification. Both tiers require attendance at a 3 hour educational session followed by a written exam. Tier 2 full certification applicants will also be required to perform each of the 4 tests under the watchful eye of a qualified judge who will not provide any level of coaching. Prequalification for acceptance into full certification Tier 2 will be previous testing experience.

Tier 1 consists of a 3 hour educational session, a written exam and a training session. Those who complete the course and pass the exam will be issued an ICRI Letter of Education. Tier 2 consists of the same 3 hour educational session, the written exam and a field performance exam. By passing both the written and performance exams, an ICRI Concrete Moisture Testing Technician - Grade I certification will be issued to those who successfully demonstrate their knowledge and ability to properly perform and record the results of each of the four field moisture tests on hardened concrete. Those who pass both the written and performance exams will receive a certificate and wallet registration card.

Both the written exam and the field tests will be based on the following four (4) ASTM Standards, including all Annexes and Appendices:

F 710	Preparing Concrete Floors to Receive Resilient Flooring; Section 5.3 pH Testing
F 1869	Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
F2170	Determining Relative Humidity in Concrete Floor Slabs Using <i>in situ</i> Probes
F2420	Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement and Insulated Hood

ICRI Certification for Slab Moisture Testing Technician– Grade I shall be valid for a period of five [5] years from the date of completion of all applicable certification requirements.

The two day certification program begins on the first day with registration from 8 - 9 am, followed by the 3 hour educational session. There will be a provided lunch and study break from 12 – 1 pm followed by the written exam from 1-2 pm. Following the written exam Tier 1 students will attend a training session where they may receive or observe hands on training on how to properly perform each of the four tests.

For those registered for the Tier 2 Certification, day two begins at 8 am, and each applicant will be required to perform all 4 ASTM tests listed above.

ICRI currently has six Slab Moisture Testing Technician Certification programs scheduled in 2010.

Atlanta - June 22-23

Denver - June 29-30

Chicago - September 14-15

Baltimore - October 5-6

San Diego - November 15-16

San Jose - November 18-16

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for more information

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