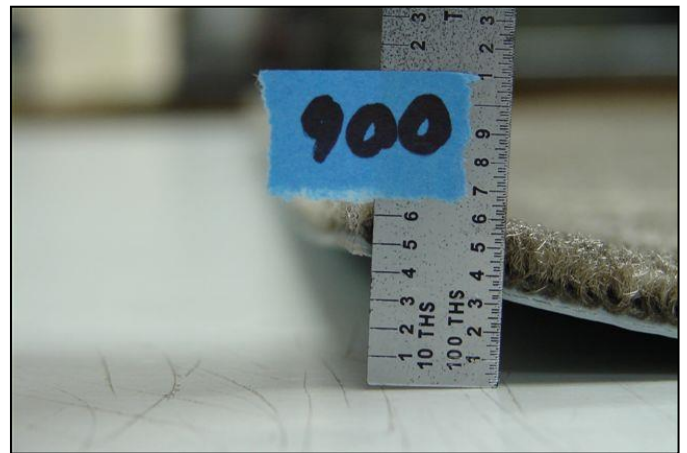


THE COMMERCIAL FLOORING REPORT

Volume 77 • for the Commercial Floor Covering Industry • Totally Green Publication • February 2015

UNSTABLE FLOORING MATERIALS

One who purchases, installs, sells and even produces flooring materials would and should expect them to remain stable and flat on the floor. This isn't always the case and the causes for that are often found in the material itself or in the way the product was installed. Unstable can mean; uneven, unsound, insecure and changeable. In fact this condition is becoming more prevalent and an issue with hard surface flooring materials in particular. Let's take a look at some hard surface flooring materials to reveal the problems that can occur and the causes and cures.



Vinyl flooring, whether in sheet, plank or tile form can exhibit unsuspected characteristics that when manifested make one think that the installation or process of installation caused the reaction of the material. Shrinking vinyl can appear as gaps around the entire perimeter of the material, ends or edges shrinking or lifting or the material pulling in and curling up at the edges. Sheet vinyl material can also exhibit bubbles in the field areas of the material. All of these conditions when first seen are met with the same conclusion; that the installation is faulty and therefore the material is not being held securely to the substrate.



Let's digress for a moment and clear up a very important point; adhesive is used to adhere flooring material to the substrate, regardless of the flooring material, substrate type or adhesive type. Adhesive is not meant to hold the flooring material dimensionally stable. The purpose of flooring adhesive is to adhere the flooring material in place on the substrate – to hold it there. It does not have the magical properties of keeping unstable flooring material stable regardless of how aggressive the adhesive is. If the flooring material is unstable when installed nothing anyone can do is going to change that. The stress forces in unstable flooring material are generally lateral which means the inherent stress in the material is across the product plane which means it will shrink or grow and in that process it can lift on the edges or form bubbles. The material will literally slide across the adhesive when this happens.

Here is a photo of a shrunken vinyl tile that shrank on all four sides yet was stuck tightly to the substrate. So anyone who thinks or tries to explain that adhesive is supposed to hold the flooring material stable does not understand the laws of physics or simple science. Even if you bolted the material to the floor where the bolts weren't the inherently unstable flooring material will react. The exception would be a pre-applied adhesive that contacts every square inch of the flooring material and in doing so can prevent dimensional changes.



Vinyl floor tiles are manufactured from a number of layers. To create each layer, plasticizers and stabilizers are blended together. This molten material is exposed to heat and pressure and passed through a series of rollers to produce flat sheets of material, a process known as calendaring. The sheets are laminated together to produce one sheet. During this process, the surface texture is applied to the top layer, using metal plates to emboss the pattern on to the sheet.

A process called annealing removes internal stresses in the sheet goods by controlled heating and cooling, to ensure the product is dimensionally stable. Also, if components of the vinyl, particularly plasticizers, are not properly compounded or if the recycled content in the vinyl causes an imbalance, the vinyl flooring can be unstable. Vinyl flooring can also be unstable if it is not annealed properly or at all. Reactions of instability can occur shortly after installation or take months to show up. Most of the instability problems being seen are with imported vinyl flooring materials which often aren't manufactured to the standards domestically produced vinyl flooring products are.

Linoleum, in the simplest terms for association, is essentially a wood component tile. The most common cause of instability in this product is caused by swings in humidity and from over wetting it when cleaning.



THE COMMERCIAL FLOORING REPORT

Lew Migliore - President and Owner

LGM Enterprises, LLC

P-(706) 370-5888- F-(706) 270-0482 - Email: lgmtcs@optilink.us

Click this link for archives of CFR articles

LGMANDASSOCIATES.COM



The experts at LGM specialize in consultation, correction and resolution for flooring complaints, claims, installation and performance issues.

No issue is too big, too small or too far away for us to handle.

All ads are interactive. Just click on the ad to enter their website.



Page Layout by:
Anita S. Drennon

Over wetting in particular, for example using a slop mop will cause the material to curl up like a potato chip on the floor. It can also react to moisture vapor emission in a concrete substrate.



Rubber flooring can be an inherently unstable material as it can react to warm and cold temperature. As it is a compounded material, either in natural or SBR makeup, reactions can occur to cause it to be unstable. It is important that one know how to install this material and do so strictly according to the manufacturers guidelines to prevent it from changing dimensionally or lifting. A recent case of rubber tile being installed without using the manufacturer's specific adhesive resulted in the tiles lifting and shifting on the floor.

Cork flooring has a natural propensity to curl. It is important to follow exact installation guidelines. Cork should be installed using contact type adhesive and methods on the substrate and the back of the cork tiles and rolled down. If proper installation procedures are not followed the material will lift at the edges.



Fast, Accurate
Moisture Test
for Concrete Floors

RAPID RH

- Easiest to Comply with ASTM F2170
- 10 Times FASTER • Lowest Cost per Test
- Simplest to Use

WAGNER METERS RapidRH.com
The Moisture Measurement Leader 1.800.207.2214

U.S. Patent 7,231,815 & 8,047,056. Additional patents pending

HIGH-TECH Carpet Support

SPEC GREEN
carpet backing
for any app

UNIVERSAL
TEXTILE TECHNOLOGIES
universal-textile.net
706.279.3801 x6104

I've made this next statement so many times but it's so true; wood flooring is still a tree in a different form. Wood may be one of the most potentially unstable flooring materials used. It will react to moisture, heat, dry air and despite how stable it may be it can still be affected by many influences. The key with wood is to make sure what you're going to install is of high quality. The better the product the more stable it will be. Wood can be misshapen out of the box so it must be examined to insure there aren't any compromises in how flat, square and stable it is. Common problems with wood flooring are cupping, crowning and buckling caused by a combination of natural characteristics of the material, environmental influences and installation.

Wood flooring expands when its moisture content increases and contracts when its moisture content decreases. Wood also expands and contracts when its temperature increases and decreases. The amount of moisture-related expansion and contraction is always larger across the width of the floorboard (across the grain) than along the length. So environmental conditions can and do affect the stability of wood. The installation of wood must include proper acclimation of the material and the space in which it is installed and then proper layout and spacing to allow for natural movement without reaction. The substrate must also be dry to prevent the gain of moisture by the wood which can cause cupping. It is



important to select the appropriate wood flooring material for the application and insure that the environment is controlled and acclimated and that the substrate, especially concrete, does not and is not emitting moisture. More than any other flooring material woods reactions to influences that create instability in the product are more extensive and readily evident. Remember, it's still a tree in another form, a natural product and just because it's a board on the floor doesn't mean it has relinquished its inherent characteristics.

Carpet in broadloom (wider than 6 feet) and in carpet tiles or modular is a textile product and unlike all other flooring materials. Tufted broadloom carpet is inherently "stretchy" as are all textiles. However by adding dimensional stability to the product by using a more stable primary backing and a tighter pic (weave) secondary backing or an attached cushion, tufted broadloom carpet becomes more stable. Woven carpet is inherently more stable in the width and allows more stretch in the length. Laying the product out on the floor without any form of anchoring, that is, not being stretched in or glued down, carpet will react to heat, cold and the gain or loss of moisture. Different fibers in the carpet will absorb varying amounts of moisture from wool, which will absorb about 27% of its weight in moisture to polypropylene which will absorb virtually no moisture. So broadloom carpet, being the least dimensionally stable form of flooring material requires a stable installation. If after installation broadloom carpet should loosen up it will exhibit wrinkles or buckles. Carpet tiles or modular



carpet (up to 6 feet wide) on the other hand are the most stable type of textile floor covering material that should not exhibit any type of dimensional changes in size (growing or shrinking) or upward movement (curling or lifting). Out of the box they should lay flat, square and stable. If carpet tile does change dimensionally or lift the reaction is due to instabilities in the backing and when recycled content is added it becomes difficult to produce a carpet tile product that may not, at some point, develop instability. It's very delicate balance to insure the uniformity of the recycled content feed stock for a carpet tile backing and as a result changes can occur from time to time. This issue is being addressed by using backings that have proven to be stable in the past and looking at materials that are far less sensitive to stressful reactions.

Stone flooring can also be unstable.

Now, you might say come on Lew, really!? Stone, how can that be?

Unstable for stone or tile does not mean the product will expand, contract, lift or curl. It means that the instability will be related to the substrate or the installation. If the substrate is not level or properly prepared or the mortar for installing stone or tile is not level or even and allows voids beneath the tile then it can heave, crack, drop down or lift. If the slab on which tile or stone is installed should move, which it can, the tile or stone can heave, crack or lift. Environmental influences have very little effect on stone that can be seen but physical changes or compromises in the substrate or installation components can cause stone or tile to be unstable.



Given this information you should be more aware of how a flooring material can be unstable and be able to prevent most of the problems caused. Most often it's simply choosing the right material, controlling the installation space and installing the flooring correctly so you can prevent the problems.

If you have questions, need help in any way, before an installation or after a failure, contact us; we have the answers.