



# LUXURY VINYL TILE, PLANK AND VINYL FLOORING MATERIALS

Luxury vinyl tile and plank flooring is among the hottest flooring products in the market today and the use of this product is growing exponentially in the commercial market. These products are cannibalizing share from sheet vinyl and vinyl tile as well but we'll talk about them all since they are such a significant part of the commercial flooring market. There's no question these products make a beautiful floor but there are some things you should know about them to ensure you don't have a problem with them.

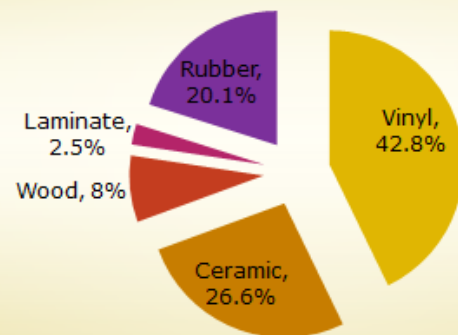
First here are some factors that make LVT and LVP products unique:

- They are very realistic looking with embossed or textured surface that look like, wood, stone, ceramic or whatever, making them almost indistinguishable from the real thing.
- They are typically thicker than traditional vinyl flooring materials
- They come in varying shapes and sizes
- They incorporate varying installation systems that hook, snap or lock together, have self-adhesive methods or can be glued to the substrate.

## THE SUBSTRATE:

Substrate preparation is eminently important for a successful flooring installation of any kind but it's even more critical for a vinyl flooring installation and in particular sheet vinyl. Of primary concern is how level and flat the substrate is. Since vinyl flooring materials have "drape" they will conform to the surface they

## 2014 Commercial Hard Surface Market Share in Dollars (2.684 billion)



LVT and LVP Flooring

are applied to. If the floor is not level and smooth any irregularity will telegraph through the face of the material, again, sheet vinyl is more susceptible to this condition because most sheet vinyl used does not have patterning or texture. LVT or LVP most often has a pattern such as wood, stone, metal, etc., and because of the pattern the flooring will better hide irregularities from beneath. That said, an LVP floor when not installed on a level surface can "shorten" up in length when it rides over high and low areas and it could also lift on edges or ends where a substrate irregularity exists. This is not to be confused with any possible inherent planar issue with the material itself. This condition can cause gaps on edges or potentially in the width or fitting issues overall. The next consideration is moisture in the substrate and, despite the reading from any type of concrete testing done to determine the percentage or degree of moisture, consider when installing vinyl flooring materials over concrete, that all concrete substrates, especially those on or below grade contain moisture. The older the slab the greater the chances of moisture and moisture can and will affect vinyl flooring materials.



Indentations in Sheet Vinyl



Poor Floor Prep

The substrate must also be clean and free of any old adhesives, bond breakers, contaminants, chemicals, paint, oil, grease, markings on the floor from anything other than pencil, abatement chemicals and any other residual agents or chemicals which can compromise the installation and vinyl flooring material itself.

Once the substrate conditions are under control the installation of the flooring material is considered. Sheet vinyl and vinyl tiles are almost always installed with an adhesive material typically out of a container or possibly pre-applied. The adhesive used and the application of it must be in strict conformance with the manufacturers guidelines. Going into the adhesive too soon or too late can create bonding/adhesion problems or ridges from the trowel telegraphing through the floor. Be aware also that the shinier the flooring surface is the more you'll see everything beneath glaring back at you.



**THE COMMERCIAL FLOORING REPORT**

**Lew Migliore - President and Owner**

**LGM Enterprises, LLC**

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

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For luxury vinyl plank there are also a myriad of click or lock systems to install them whether fitting together or pounded along the edges. These floors would be more susceptible to lifting edges if the material has any planar stability issues. Gluing the flooring down should help keep the material flat but if there are any stability issues with a product it will eventually manifest them on the floor. Be aware that adhesive does not prevent or correct curling.

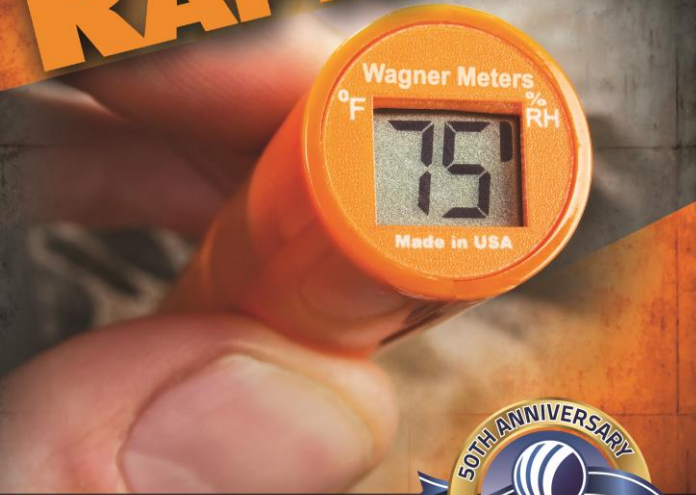
Appearance issues are vitally important for vinyl flooring because vinyl is vulnerable to indentations, scratching and gouging. You have to be keenly aware of the use and traffic the vinyl flooring is going to receive. The more traffic and the heavier relative to volume and weighted loads the more high performance characteristics in the flooring you'll require to make sure the flooring performs up to expectations. Just because you think something will work, or someone sold it to you and said it would, doesn't mean it actually will. Remember what I've said in this publication before, "words don't change the laws of physics". So if you think that the argument of "you said this flooring wouldn't do this" actually has merit relative to what the floor knows it can or cannot do, the floor wins every time. Also remember that the flooring color, pattern, maintenance, contaminating foot traffic and finish will have a great deal of influence on how the floor looks and performs.

### ***What effects vinyl flooring materials that would make them fail?***

It is possible for moisture to affect vinyl flooring especially over concrete emitting moisture vapor as moisture and alkalinity can affect plasticizers in vinyl creating changes in the material. It is certainly possible for moisture and active high alkalinity to break down the plasticizer that normally migrates from LVP, LVT or resilient vinyl sheet goods and cause the "shower curtain" odor associated with the creation of higher alcohols from the breakdown of the plasticizer molecule. We have encountered this condition on several occasions primarily on PVC backed carpet tile. There is a great deal of European literature that documents this same issue of resilient PVC containing material.

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With most of these products, which are generally composed of a vinyl base with a patterned wear layer laminated to it, it is the differential tensions between the layers that are the culprits that cause the curl. When products fight themselves from within be it carpet, vinyl or wood that is comprised of layers, each of which may have a different degree of reaction, it will act on the material to cause a dimensional change or a planar change. This means the product would shrink, lift, cup or curl. What we see most of lately is curling and lifting edges and shrinking. You always want the flooring material to lay flat and be stable. Another very important factor is the environment of the space the flooring is installed in. Vinyl flooring can be greatly influenced by heat and cold and will expand and contract so the environment that the flooring is installed in must be controlled constantly.

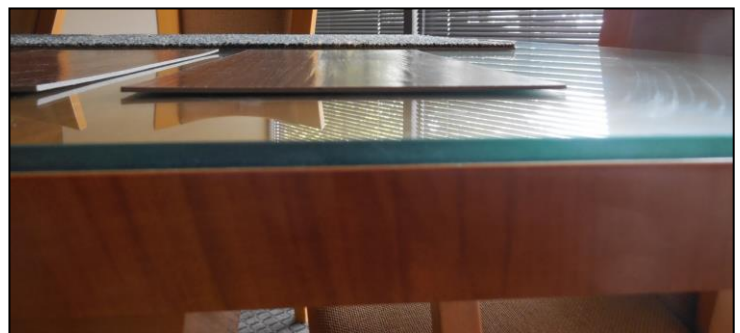


LVP Finish Loss from Traffic

With more and more LVP and LVT being used and especially LVP, we are seeing more issues such as curling and lifting edges, some delamination and scratching and shrinking. A looming issue is the proposed use or actual use of underlayments under vinyl flooring material to deaden sound. Underlayments will compromise the performance of the product because the vinyl flooring is made to lie firmly against the substrate. An underlayment permits the flooring material to flex and indent which in turn introduces a physical element that causes indentations and instability in the material. Putting underlayments beneath vinyl flooring material is not a good idea. In principal it may sound like something that will solve one concern but in reality underlayments will cause many more problems. If you want to deaden sound beneath vinyl flooring you have to incorporate a sleeper type system that will do that without compromising the integrity of the flooring material. This is essentially building a floor under the flooring and placing sound deadening material under the sleeper system. Sleeper systems have been used for sports flooring and for wood flooring over concrete substrates for years but they are an ideal system for use in sound deadening and insulation with vinyl flooring as well. The drawback is that they will add height to the flooring that you'll have to deal with; this can be no small obstacle in most cases.



VCT Tile Water Damage



Curled LVP

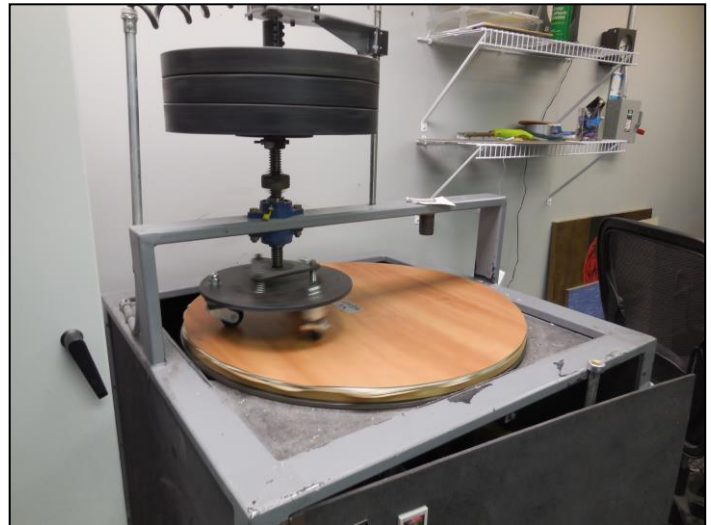
Vinyl flooring is not indestructible. Like any other flooring you have to put the right product in the right place. To know what to use you can consult a commercial flooring contractor who has installed thousands of feet of vinyl flooring in any number of applications to tell you what should work best for your particular purpose. Otherwise you can have the products you're interested in using tested to determine how well they will actually work. We do testing and consulting for clients every day and listed below are the types of tests we conduct to determine what products are best for the situation or why a product may have failed

to live up to expectations. This is where we employ another one of our standard sayings, “the flooring never lies; it will always tell you what’s wrong if you know how to interpret what its saying”. It will also tell you how well it will do if you’re considering using it and what you’ll actually have to use if what you want won’t work. As the flooring industries forensic investigators that get you honest answers to your questions, we can help guide you through this.

The list below identifies testing we regularly conduct on vinyl flooring materials to assist clients in the selection/specification of vinyl flooring materials, to insure the product selected complies with the manufacturer’s specification or to determine the cause of failure of a vinyl flooring material in the case of a complaint. Most of the tests are ASTM or AATCC tests. There is actually no ASTM test for curling or edge lifting in the US but there are European EN or ISO tests for these conditions. With our associate lab Professional Testing Laboratories we conduct thousands of floor covering tests yearly and offer the unique service of interpreting the results.

***Following are common tests conducted on vinyl flooring material:***

- Abrasion/Scratching – taber abrasion test or Sim floor test
- Wear layer thickness
- Indentations (short term and static)
- Dimensional changes
- Integrity of locking system
- Size and squareness
- Chemical resistance
- Resistance to Heat
- Resistance to Light
- Scuffing
- Bond strength
- Curling/Lifting
- Flexibility
- Accelerated Ageing
- Roll Chair test
- Electrostatic Generation



Roll Chair Test

We can also, in most, cases, implement tests to duplicate conditions found at installation sites to determine what the cause of a failure is.

***Why it’s always important to know what to use.***

You have to fit the flooring to the application and even when you think you have it you may not. It’s always good when in doubt to consult an independent, objective, unbiased expert who can steer you in the right direction and keep you out of trouble. You can’t tell just by looking at one of these types of flooring materials if there’s an inherent problem, just like your doctor can’t tell if you suffer from a health issue without conducting tests. And you can’t throw some material on the floor, install it over the weekend and pronounce it free of problems. And most importantly if you have a problem, don’t send the material back to the manufacturer for a determination; that’s like letting the fox watch the hen house.

Because LVT and LVP especially are such hot flooring products in the commercial market everybody wants to get in on the action. Here’s where you have to be careful so you don’t get in trouble. Do business with a reputable flooring contractor and select the flooring product from a manufacturer who has a good reputation. And, if you have questions, contact us, we are here to help you.



Career Opportunity:

**INSTALLATION & TECHNICAL SUPPORT SPECIALIST**

Metroflor Corporation, a leading manufacturer of LVT, has an immediate opening for an **Installation & Technical Service Specialist** based in Calhoun, Georgia. We seek candidates with a minimum of 5 years' previous installation experience or technical service responsibilities in the LVT arena. You will work closely with the Metroflor Warranty & Claims Department to determine appropriate warranty resolution. Some travel will take up approximately 25% of your time, involving trade show facilitation and setup, as well as training and some field installation supervision on major projects. You'll conduct training classes about Metroflor installation both in Calhoun and in the field. You'll also assist in new product development and testing at our Calhoun laboratory facilities. You'll field calls related to installation and technical services – and being bilingual in Spanish is a plus (but not necessary).

The position offers a competitive compensation program with major benefits for the right candidate. If you'd like to join our top team of LVT specialists -- please contact Michelle Esposito at [mesposito@metroflorcorp.com](mailto:mesposito@metroflorcorp.com) with your updated resume for immediate consideration.

15 Oakwood Avenue  
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