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It's Not Always the Concrete Substrate that Causes a Failure

In our last newsletter of November 2023, we mentioned that other substrate materials or assemblies of components that make up a variety of substrates can also create flooring and installation failures. We're going to expound on that subject here since these issues are rarely, if ever, talked about. The underlayment structure is supposed to create a smooth flat surface for the flooring installation. Underlayment is a layer placed on top of the sub floor, which is most often concrete, but not always, to make the surface suitable for floor installation. Additionally, we are talking about underlayment systems of many and varied kinds, some concocted for specific reasons on a particular job to deal with a desired outcome, be it raising the floor, dampening noise, or isolating the flooring from a preexisting condition. We are not talking about poured underlayments but material underlayments. The poured material may be placed on them but they're not the focus here.

THE WOOD IS CUPPED FROM MOISTURE. IT IS INSTALLED OVER A SLEEPER SYSTEM THAT HAS TAR PAPER, USED AS A MOISTURE BARRIER, ON TOP OF PLYWOOD

The flooring industry continues to be plagued with substrate, installation, and flooring failures. Certainly, we can site repeated cases of the substrate failing, and that is not necessarily concrete, but other substrate materials or assemblies of components that make up a variety of substrates or flooring substructures. These would include sleeper systems and a makeup of materials that were supposed to work in a particular application but didn't. The flooring failure's part is relative to the products themselves and the installation of them. Installation, which everyone wants to blame for any flooring failure, is the last of the reasons flooring and the installation fail – believe it or not. We'll elaborate on this later.

Concrete substrates, both above and below grade, are almost always the substrates over which flooring, and installation failures occur, but you can't forget about installations over a variety of different materials. Those materials would include different wood type panels such as plywood. Due to the use of multiple wood veneers in each panel, plywood may contain variations in flatness and thickness. OSB (Oriented Strand Board) Particle board, Lauan, and other wood type panels treated for water resistance or fire resistance may contain, and often do, chemicals that play havoc with adhesives, or poured underlayments, used to

install flooring material. While everyone is worried about moisture in concrete and compatible adhesives that can be used, there is rarely anything said about other underlayment materials. Consider also cement boards that are cementitious type materials that may contain fiber, magnesium oxide and fire and water resistant treatments.

Not to be forgotten are fiber board (MDF medium density fiber board) which consists of highly refined wood particles, Masonite, and pressed wood fiber board (Tempered hardboard or Pressboard). Also, composite underlayments made from 100% recycled waste from wood products. These underlayment structures are most often in the building plans to be completed by the GC, carpenter, or some other trade other than the flooring contractor/installer, unless, of course, they are part of the flooring contractor/installer project package.

HERE YOU SEE THE PLYWOOD, DARK COLORED DUE TO MOISTURE, WITH TAR PAPER BENEATH IT, OVER THE TOP OF THE CONCRETE, FROM WHICH THE MOISTURE IS COMING. THE TAR PAPER DIDN'T WORK AS A MOISTURE RETARDER. THIS IS A FAILED UNDERLAYMENT SYSTEM.

How about Existing Flooring as an Underlayment?

Existing flooring such old VCT, wood or sheet vinyl are not in my opinion ever safe to install over and putting an underlayment of any kind over them is a risk you shouldn't take, especially if they are glued directly to the concrete, and worse if it's concrete on or below grade in an old building. The old flooring may seem solidly bound to the concrete substrate but once covered the smoldering ember of moisture, that was inherently present, has now been trapped and will at some point erupt, blowing everything off the floor. This then becomes the flooring guys problem, with the comment made to them, "you should have known….."

Another product is raised underlayment panels with wood top and thermoplastic bottom. The purpose of this system is to isolate whatever is beneath them from affecting the flooring installation. We had a project in NYC in a very old building that was seeping water from outside the base of the building, into the concrete slab in several places. The GC thought that, using this type of isolation system, the installer could float

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the floor over the top of the below grade concrete and prevent a failure. The flooring product to be installed was a woven Axminster with a double stick installation. This was an accident waiting to happen with no odds of success. The intrusion of water had to be stopped first before anything could be installed. The raised panels weren't going to keep the carpet out of harm's way.

UNDERLAYMENT SYSTEM OF CRUMB RUBBER, PLASTIC FILM AND POURED UNDERLAYMENT. THE FLOORING INSTALLATION FAILED DUE TO MOISTURE DETERMINED TO BE COMING FROM THE POURED UNDERLAYMENT AS THE CONCRETE TESTED REVEALED NO MOISTURE ISSUES. THE ARCHITECT AND ACOUSTIC CONSULTANT SPECIFIED THIS SYSTEM THAT WAS DESTINED TO FAIL. WE DID COME UP WITH A PLAN TO FIX THIS. THIS WAS AN IDEA THAT LOOKED GOOD ON PAPER, AND IN THE MEETING, BUT IN REALITY IT DIDN'T WORK.

When using materials for a floating installation you have to read the product information very carefully and understand the specifics of their use. Some of the warranties say they will hold the floor covering permanently to the floor. How do they do that? If the conditions exist to compromise the installation by their use? Which may have been mentioned in the product information. And the underlayment system, whichever one is used, has nothing to do with holding the flooring material permanently to the floor.

The warranties for these types of products relieve the underlayment manufacturer from any liability if the flooring installation or system fails, when you read what they say and don't say. And not all these materials work well with what they may be coupled with. There may be inherent product and component incompatibility. If they leave out what you can't install over and then tell you that you couldn't install over it, what is your recourse? And how are you supposed to know all this stuff? But as the flooring expert, you're supposed to know and can be held liable for the flooring installation failure, until proven otherwise.

And what are the effects to these systems if the environmental conditions change in the space, which they often do especially today with all building operators of any kind being

Making a Difference !!

Let me introduce you to ***Mareshia Rucker***, who I met at the FCEF meeting. Mareshia gave a presentation and I was extremely impressed. She is looking for a position in the industry and she'd be a valuable asset to any firm. Contact her at this email for her resume.

mareshiarucker@gmail.com

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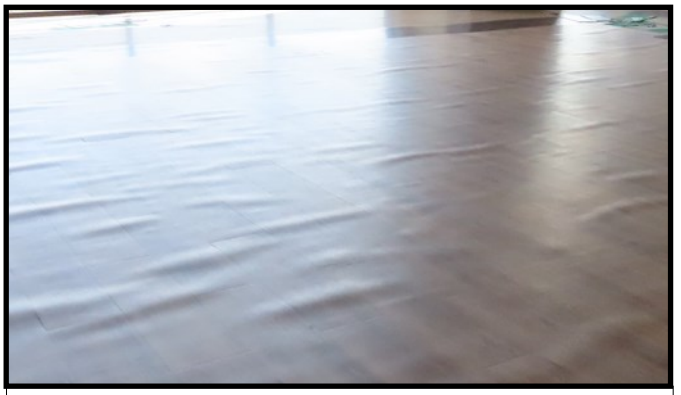
conscious of operational costs and expenses, here we mean the HVAC system. If the system is cycled, scaled back, or shut down it will affect the environmental conditions of temperature and humidity in the space which can create issues with the flooring material and/or the installation.

On top of everything else you may be faced with ambiguous and unclear installation instructions which are then used to refute a claim.

And how about the answer to this, as stated earlier. Installation, which everyone wants to blame for any flooring failure, is the last of the reasons flooring and the installation fail – believe it or not, especially with the largest flooring contractors, but less so with smaller installers dabbling in the commercial market with less experience and knowledge. Installation is always the problem, until it isn't. So why does everyone think it's the installation? Well first, and most obvious is the flooring exhibiting the problem, so if that's the case it must be caused by installation. Certainly, not that the installation can't be the problem, but the conditions causing the failure are most often not taken into consideration or even understood. We've mentioned some of those things in this issue but there are many more. Each case must be dealt with on an individual basis and, as we've always said, you can't just look at the flooring for the answer. You must know the history of the project, the conditions, the products involved, and so many other factors. You must know where to look to find the answers, and there is always an answer.

With LGM you always get an answer - always. Our team of expert associates, in every category of flooring, from concrete to carpet and everything in between, are the best there is. LGM are not the guys you want sitting on the other side of the table, as said by one large flooring manufacturer's technical head.



VINYL PLANK FLOORING INSTALLED OVER A SLEEPER SYSTEM.

The pictures in this issue depict some of the projects LGM has been involved in around the country where the underlayment system was at fault for the flooring failure. They were thought to be able to work, they should have in a perfect situation, but the situations weren't perfect. They could all be fixed and unfortunately, no one involved felt they were at risk of a failure. These failed installations had nothing to do with the flooring contractor or installer. These systems were all specified and honestly thought to be the solution to an architectural challenge.

FLOATING VINYL TILE INSTALLATION INSTALLED ON AN OVERWATERED POURED UNDERLAYMENT.

Factoid: With more technology being introduced into buildings of all kinds, one that can certainly affect flooring is the use of robotic devices operating in the space. The use of robotic devices will create challenges to flooring performance. What effects they can have we can speculate on hard and soft surface materials. For carpet this may mean concentrated, unalterable, and pivotal traffic patterns worn into the surface. For hard surface flooring this would be the same, however if modular flooring such as vinyl tile and plank are concerned, the robotic traffic can affect the integrity of the product and create separation at the ends and edges or planar changes such as cupping, end or edge lift as well as compromising the installation of the material. Robotics on the floor would be the death knell for floating vinyl flooring installations. This product should never be used in commercial spaces and especially where anything rolls on them. None of this would have anything to do with the installation of the flooring material. This is a specification issue that would have to be addressed and dealt with during the planning stages of building use and flooring products capable of performing without failure under unique circumstances and conditions. This would be the responsibility of the architect, designer and building owner.

Take Advantage of this!

Are you confused by all the changes occurring in the industry? Is the onslaught of new flooring products, soft and hard, adhesives, site related conditions as well as substrate issues, overwhelming you? Do you want to stay out of trouble and avoid a flooring failure? Let us help. We can come to your business with an educational program that addresses all these issues, and more. Afterwards we can engage you and your team in a question and answer session that is sure to help clear the cobwebs of chaos.

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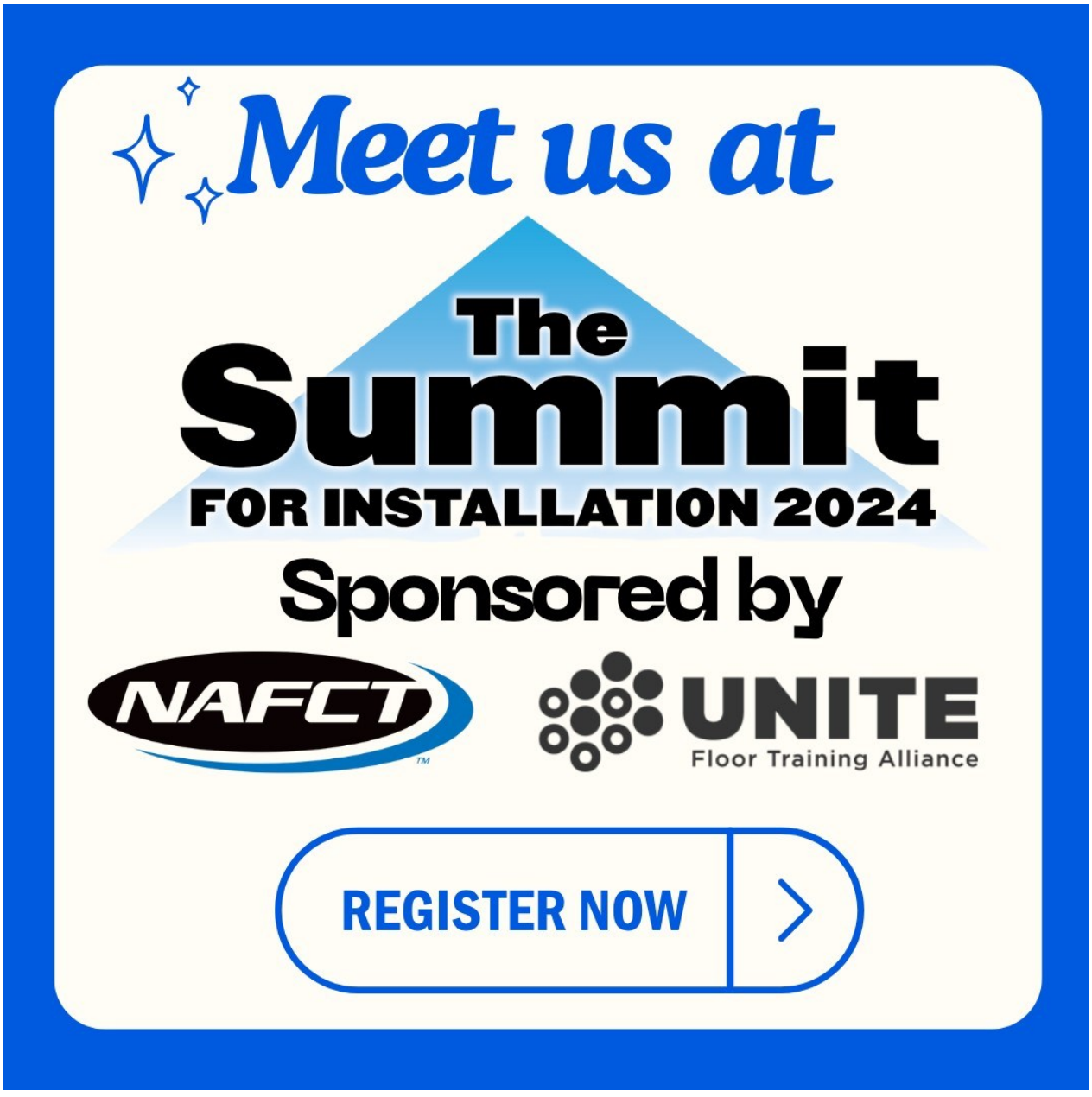

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