

Floorensics Inc.'s Perspective on Vinyl Plank Flooring Products

An Official Position Paper by Floorensics Inc.

At Floorensics Inc., we strive to provide clear, factual information about the performance of vinyl plank flooring products, including luxury vinyl plank (LVP), wood-plastic composite (WPC), and stone-plastic composite (SPC). This paper outlines the factors that influence the durability and performance of these flooring types, with a focus on their interaction with moisture, substrate conditions, and environmental factors. While vinyl plank flooring is marketed as a durable, water-resistant option, failures often occur due to exaggerated performance claims, inadequate substrate preparation, and improper installation practices.

Position Statement

Floorensics Inc. views vinyl plank flooring products, including standard luxury vinyl plank (LVP), wood-plastic composite (WPC), and stone-plastic composite (SPC), as problematic due to exaggerated performance claims by manufacturers, distributors, and retailers. Our position highlights the following key issues:

1. False and Misleading Claims:

- Claims that these products are “waterproof” are false, and claims of being “water-resistant” are misleading.
- Manufacturers often fail to disclose critical issues, hiding data about dimensional instability in material specification sheets or small print.

2. Dimensional Instability:

- Many vinyl plank products expand and contract excessively with changes in temperature and humidity.
- SPC flooring is particularly problematic due to its density and low permeability, making it unsuitable for installation on most on-grade concrete slabs.

3. Limited Applications:

- These products may have value in small, contained areas such as bathrooms or kitchens if substrate moisture is not an issue.
- However, they are highly vulnerable in large, continuous installations and are not recommended by Floorensics Inc. for such use.

Floorensics Inc. recommends cautious use of vinyl plank flooring and does not endorse its use in expansive installations or on moisture-prone substrates, particularly on-grade concrete slabs. These

products' inherent limitations, combined with challenges in insurance and liability scenarios, make them unsuitable for many residential and commercial applications.

The Challenges of Vinyl Plank Flooring: Implications for the Property Liability Industry

Introduction

Vinyl plank flooring has become one of the most popular flooring types in residential applications today, particularly since the introduction of SPC (stone-plastic composite). However, its journey to prominence has been marked by numerous performance issues that have significant implications for property liability and the insurance industry. These challenges are particularly evident in regions like Southern California, where moisture vapor emissions from on-grade concrete slabs exacerbate product failures.

This paper provides an overview of vinyl plank flooring, the technical challenges related to its design and installation, and how these issues affect the insurance industry.

Technical Challenges of Luxury Vinyl Plank Flooring

Luxury vinyl plank (LVP) flooring, including standard LVP, WPC (wood-plastic composite), and SPC (stone-plastic composite), has been marketed as durable, water-resistant, and easy to install. However, these claims are often exaggerated, and the products have inherent flaws that compromise their performance.

1. Dimensional Instability

- LVP products are prone to expansion and contraction due to changes in temperature and humidity. These dimensional changes can cause planks to cup, break locking systems, and ultimately fail.
- SPC is particularly problematic due to its density and low permeability which often results in trapped ground water moisture vapor.

2. Moisture Vapor Issues

- While marketed as "waterproof," all luxury vinyl plank products can trap moisture vapor to varying degrees. SPC is especially dense, often making it less permeable than even moisture vapor retarders like 6-mil polyethylene sheeting or epoxy coatings.
- Over time, small amounts of vapor passing through these retarders accumulate beneath the SPC flooring, causing:
 - Cupping and Dimensional Changes: Raised edges weaken the locking systems and lead to floor failure.
 - Alkalinity Damage: Increased alkalinity from trapped moisture degrades adhesives and attached underlayment materials.
 - Microbial Growth: Trapped moisture fosters microbial growth, possibly resulting in odors and health risks.

3. Installation Risks

- Installing SPC over existing flooring, such as engineered wood or ceramic tile, leads to further problems:
 - Engineered Wood: Trapped moisture causes saturation and microbial growth.
 - Ceramic Tile: Moisture absorption can cause tiles to tent (heave), damaging both the substrate and the SPC.

4. Evolving Product Lines

- The failures of SPC flooring have prompted manufacturers to revisit other flooring types:
 - Laminate Flooring Comeback: New, water-resistant laminate products are marketed as more stable alternatives to SPC.
 - WPC Flooring Redesign: Modern WPC flooring features thicker planks, improved locking systems, and better compositions, making it a viable alternative to SPC.

Impacts on the Insurance Industry

1. Identifying Loss-Related Damage

- The inherent issues with LVP products, especially SPC, at times make it nearly impossible to distinguish between damage caused by a water loss and pre-existing moisture-related damage.
- Burden of Proof: Even minimal water exposure, or proximity to a water loss source, makes it difficult to determine liability. This ambiguity often forces insurers into paying claims that may not be warranted.

2. Challenges for Emergency Service Companies and Contractors

- Extent of Damage: Moisture generally accumulates under the entire floor, making it hard for technicians using electronic moisture meters to find a clear stopping point for removal.
 - Liability concerns force mitigation technicians to remove continuous flooring, even in areas unaffected by the water loss.
- Repair Limitations:
 - Cupped or warped planks cannot be tied into flat replacement planks without compromising the locking system.
 - Reputable contractors are unlikely to perform partial repairs, as they create weakened, failure-prone installations.
 - Flooring contractors risk litigation by replacing only loss-related damage and leaving unrelated saturated flooring in place. This practice could result in further failures and legal repercussions if the homeowner or insurer deems the repairs inadequate.

3. Manufacturer Warranty Issues

- Some manufacturers have frequently updated installation guidelines to include unattainable moisture testing and moisture vapor retarder requirements, effectively voiding warranties for

most installations. Flooring contractors are often charged with improper installation for not complying with manufacturer requirements that did not exist at the time of installation.

- Some manufacturers impose conflicting requirements between flooring and underlayment, further complicating warranty enforcement.
- Requiring unattainable concrete moisture test results, revising installation instructions and warranty terms, and refusing to specify concrete moisture limits when a recommended 6-mil polyethylene vapor retarder is used effectively render the vast majority of vinyl plank flooring installations over on-grade concrete ineligible for warranty coverage.

4. Financial and Liability Challenges

- For Insurers:
 - The inability to distinguish groundwater damage from loss-related water damage often forces insurers to pay for full floor replacements, even when liability is unclear.
- For Contractors:
 - Contractors may struggle to collect payment from homeowners who believe the insurer should cover the entire replacement cost.
 - Homeowners often conflate approved contractors with insurers, leading to disputes that make it difficult to collect for completed work.

Conclusion

Luxury vinyl plank flooring, particularly SPC, has become one of the most popular products in the flooring industry, but its widespread adoption has revealed significant flaws. From dimensional instability to moisture-related failures, these products pose major challenges for property liability stakeholders. The inability to distinguish loss-related damage from pre-existing conditions, combined with complex repair limitations and manufacturer warranty practices, creates substantial burdens for insurers, adjusters, and contractors alike. For these reasons, Floorensics Inc. avoids installing vinyl plank flooring unless on-site conditions are optimal and all manufacturer requirements and industry-standard guidelines can be strictly adhered to.

Disclaimer

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