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ABSTRACT:

What properties of decorative sheet vinyl are important to consider when selecting pet resistant resilient flooring? Resisting surface abrasion and scratching, especially from large dogs, is a tall order for any flooring material, not just resilient flooring.

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Resilient flooring, sheet vinyl, homogeneous, composite, scratch resistance, abrasion resistance, simulated wood, decorative print

REFERENCES:

ASTM F 1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing
ASTM F 1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing

Pet Resistant Resilient Flooring

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Help!?

Question from a Tech Tips Subscriber: I am in the process of investigating flooring solutions. Vinyl flooring systems have advanced to amazing photo quality and texture to imitate real hardwood. I have dogs and have had issues relative to scratches and moisture with oak tongue and groove flooring in the past. I like the look of wood but do not like the inevitable refinishing that is required, even with aluminum oxide factory finishes (I have that right now and after 1-1/2 years the floor is a disappointment). I would like to know how to compare this material from one manufacturer to another and what concerns you and your team may see with this material relative to adhesion, durability, moisture, authentic appearance, etc.

Reply: I certainly know the problem - Black Lab/Great Dane mix, Rottweiler, Boston Terrier, and Pug. Fortunately the latter three belong to my children and only visit on occasion. These pets are a big reason why we do not have wood floors in our home.

Vinyl Flooring Construction

Vinyl floors come in two basic constructions:

1. Homogeneous, without backing.
2. Composite with a decorative wear layer and a backing layer.

The wood look is printed under the wear layer and requires the flooring to be the composite type. Decorative printing allows the manufacturers to simulate many different materials, not just wood.

Most commercial vinyl products are in the 0.080 inch thickness range. Residential products can be as thin as 0.040 inches. The wear layer varies from 0.010 to 0.050 inches thick. When the surface layer wears, the decorative print will not survive.

Vinyl Flooring Standards

The two vinyl constructions are manufactured to different standards. Homogeneous vinyl is made to ASTM F 1913. Composite vinyl is made to ASTM F 1303. For residential products, it may be difficult to get detailed product information. Manufacturers tend to publish this data only for commercial products. If the data is found, the relative durability can be determined. The standards do not require the vinyl surface to be tested for scratch and abrasion resistance. So manufacturer's claims must be used for this performance.



The only performance tests for vinyl flooring are residual indentation, static load resistance, flexibility, chemical resistance, heat (color change from elevated temperatures) resistance, and light (color change from UV) resistance.

The remainder of this Tech Tips will discuss decorative printed composite vinyl materials.

Composite Vinyl

Composite vinyl comes in 2 Types, 3 Grades, and 3 Classes under ASTM F 1303.

TYPE defines the minimum percentage of PVC binder in the wear layer. Type I has 90% and is translucent or transparent. Type II has 34% and may be opaque. Type I flooring is more flexible than Type II because of the greater PVC content.

The wear layer for both Types may be applied over a decorative print.

GRADE sets the minimum wear layer thickness and is dependent on the flooring Type. Grade 1, the thickest wear layer, is rated for residential, light commercial and commercial uses and is tested with the greatest applied static load to measure surface indentation. Grade 2 is rated for residential and light commercial uses. Grade 3, the thinnest wear layer, is rated for residential use only and is tested with the least load.

CLASS defines the backing construction and therefore the installation method and adhesives.

Class A is a fibrous backing, Class B is nonfoamed plastic, and Class C is foamed plastic.

As a point of reference, Armstrong Commercial product [Abode simulated wood sheet vinyl flooring](#) is a Type 1, Grade 1, Class B product (photo below)

For the wood look, the products are probably a Type 1 with a clear wear layer applied over a decorative print. The decorative print providing the wood look is protected by the wear layer.

Considerations

One issue to consider: Vinyl shrinks with age. Butted joints will open up and become visible no matter how tightly they are installed. Welded joints will stay closed, but present an entirely different look, like smooth grouted tile joints, even when the joint color matches the flooring.

Another thing to consider is the installation method. Some residential products recommend only the perimeter be adhered to the substrate. Heavy furniture, when moved for cleaning, could snag the flooring, stretching or tearing the vinyl.

Consider fully adhered installations to help avoid this issue, even if it is more work to replace the flooring later.

Conclusion

Select flooring based on the expected traffic (including pets) and service conditions. There is no panacea for pet resistance. Do not expect superior, long-term abrasion and scratch resistance from resilient materials. Resiliency requires the material to be "soft." Soft materials are not inherently abrasion and

scratch resistant.

Check porcelain tiles. Tiles, like vinyl, are being made to look like many other products including wood and stone. Porcelain tiles are glass-like, very hard, and moisture resistant. Remember to imagine grout joints when selecting tiles.



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