

# Sheet-Vinyl Basics

by Richard McIntosh

**T**hough many different materials are found on the floors of today's kitchens and bathrooms, sheet vinyl remains the most popular. Sheet vinyl promises less maintenance, an easier and less expensive installation, and fewer seams than other types of flooring. Originally introduced as a low-maintenance alternative to linoleum, vinyl flooring has undergone steady improvement in quality and decorative styling.

Today's embossing technology, for example, can replicate the pitted and grainy textures of tile and grout well enough to make some of the ceramic and stone imitations look close to the real thing (see Figure 1). These looks aren't limited to the highest-priced products, either; they are often available throughout a manufacturer's line.

## Flooring Anatomy

Residential sheet-vinyl flooring is generally composed of three separate layers bonded together: the backing, the core layer, and the wear layer.

**Backing.** Builder-grade sheet vinyl has a backing, or bottom layer, made of paper (which is sometimes referred to as felt). Better grades have vinyl backings that resist tears, permanent denting, and mildew better than paper.

**Core layer.** The intermediate, or core, layer is the colored layer that distinguishes the two main types of sheet vinyl. Rotogravure products have the color or pattern printed onto a gel coat, whereas more durable inlaid sheets use embedded or inlaid colored vinyl chips bonded to a carrier sheet (Figure 2, page 2).

**Wear layer.** Finally, there is the clear

wear layer on top. Wear layers come in a range of gloss finishes, with low-gloss being the most common. Lower-priced vinyls usually rely on a PVC (polyvinylchloride) wear layer to protect the pattern, but PVC is easily scratched and, therefore, harder to maintain. More expensive vinyls have thicker wear layers to better resist ripping, gouging, and other damage, as well as for greater slip resistance. For superior wear-resistance, look for a wear layer of high-performance urethane (PUR).

**Not indestructible.** The surface layers, however, are not impervious to permanent stains or to many solvents. Although much improved in its resist-

of installation. The installer should check the moisture content of the substrate using a simple chemical test kit or moisture meter. You can install vinyl directly over a concrete slab, but it's important to have a low and stable moisture content in the concrete before proceeding to avoid bonding and discoloration problems.

**Room temperature.** It's also important to give the vinyl sufficient time to acclimate to the room's temperature before installing. Vinyl shrinks and expands in response to temperature changes. Cold vinyl installed in a warm room will expand and buckle. Conversely, warm vinyl installed in a cold room will shrink and curl as it adjusts. Ideally, both the room and the vinyl should acclimate together at 70°F for 24 hours. (Following installation, the room's temperature should never be allowed to drop below 50°F, at which point the vinyl's shrinkage rate may exceed that of the substrate.)

Always use the approved adhesives and techniques for the product that is being installed — manufacturers' instructions are specific to each product.

**Avoid BHT.** Certain subfloor adhesives contain a chemical compound known as BHT (butylated hydroxytoluene),

which can off-gas, even through underlayment, and penetrate the vinyl, causing discoloration. To be safe, use only BHT-free adhesives to bond the subfloor.

**Approved underlayments.** Specific guidelines for underlayments are published by manufacturers, but some generalizations can be made. While various plywoods are acceptable, particle-

*continued on page 2*



**Figure 1.** New embossed vinyl sheet goods do a better job of imitating tile floors than less expensive gel-coat products.

ance, the surface gloss may also be permanently dulled by grit tracked across the surface.

## Before You Glue

Installation problems account for up to 50% of callbacks. The most common is discoloration from mildew, typically due to high moisture content in the subfloor or underlayment at the time



**Figure 2.** High-quality inlaid vinyl is made by heat-bonding colored vinyl chips to a carrier sheet. The products typically have a much thicker wear layer than lower-priced vinyls.

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board and OSB use is discouraged. Plywood that uses plastic or resin filler instead of wood plugs to patch surface voids shouldn't be used either, as the filler may cause staining. For performance standards and grade designations, most manufacturers defer to APA-The Engineered Wood Association (253/565-6600; [www.apawood.org](http://www.apawood.org)).

**Lauan.** Although many installers use lauan plywood, it's not a manufacturer-recommended product, because it isn't commonly certified for underlayment application. To be acceptable, the lauan should be Type I (exterior), which indicates that the plywood has an exterior or fully waterproof glue bond. The moisture absorbency of Type II (interior) lauan panels has been known to cause problems with adhesive bonding and panel edge swelling.

### Installation Cautions

Any time a seam is present, the potential for problems increases. It's typically the first place a failure occurs. If the seam isn't treated with an appropriate sealer, dirt or water may get underneath the vinyl. Moisture could then damage the adhesive bond and underlayment. Sheet-vinyl flooring is available in various widths to minimize the number of seams and, consequently, the number of callbacks. Most products are available in 6-foot and 12-foot widths, and many are also avail-

able in a 9-foot width.

There are two standard glue-down methods: full-spread adhesive and perimeter adhesive — the method varies according to the product being installed.

**Full-spread adhesive method.** Typically, the full-spread method is used in existing homes — where the structure and substrate are stable and unlikely to settle or shift — and requires the installer to apply adhesive to the entire floor surface. Full-spread adhesive makes the floor more durable and less prone to damage from pushing or dragging an object, such as a table, across the surface.

**Perimeter adhesive method.** With this method, you glue only the outer edges of the floor and the edges of all seams. Perimeter gluing can only be used with certain "flex-type" vinyl-backed products, which will stretch like a drumhead and remain taut and wrinkle-free. Other vinyl-backed products contain a non-stretching fiberglass layer and will not lie flat unless fully bonded with adhesive. Perimeter gluing is also the preferred method for new and potentially unstable underlayments and subfloors because it allows for movement as the structure dries out and settles. Some perimeter-glued vinyls are also suitable for direct installation over existing vinyl floors. Staples can also be used in perimeter installations; the staples should be 1/2 inch long and installed close enough to the wall to be concealed by edge molding.

*continued on page 3*

### For More Information

#### Resilient Floor Covering Institute (RFCI)

966 Hungerford Dr., Suite 12-B  
Rockville, MD 20850  
301/340-8580

#### Manufacturers of Sheet Vinyl Flooring

##### Armstrong World Industries

P.O. Box 3001  
Lancaster, PA 17604  
888/276-7876  
[www.armstrong.com](http://www.armstrong.com)

##### Congoleum

Dept. C, P.O. Box 3127  
Mercerville, NJ 08619-0127  
800/274-3266  
[www.congoleum.com](http://www.congoleum.com)

##### Domco-Tarkett

1139 Lehigh Ave.  
Whitehall, PA 18052  
610/266-5500  
[www.tarkettusa.com](http://www.tarkettusa.com)

##### Mannington

P.O. Box 30  
Salem, NJ 08079-0030  
800/952-1857  
[www.mannington.com](http://www.mannington.com)

*continued from page 2*


**Roller mat.** When reinstalling appliances and fixtures, wait a few days for the adhesive to set up. To prevent bunching and ruptures, use a roller mat to protect the floor; I've found that a sheet of drywall works especially well. It's heavy enough to stay in place, dense enough to absorb normal impact, and reasonably inexpensive. Make sure that there's no dirt or debris trapped under the mat that might damage the vinyl, and don't leave the mat down any longer than necessary.

### Post-Installation Tips

For the best results, make your customer aware of the following pointers:

- Keep traffic on the new floor to a bare minimum for the first day or two to allow the adhesives to set up.
- Avoid stepping on the seams and don't wash the floor until the seam sealer is dry.
- Use nonstaining, nonscratching doormats at entry doors to catch incoming dirt.
- Protect the floor from damage due to point loads, such as chair legs and

appliance supports, by using non-staining cups or guides.

- Protect the flooring from prolonged exposure to sunlight, which can cause fading.
- Follow the manufacturer's instructions for cleaning procedures and products to prolong the life of the floor. 

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