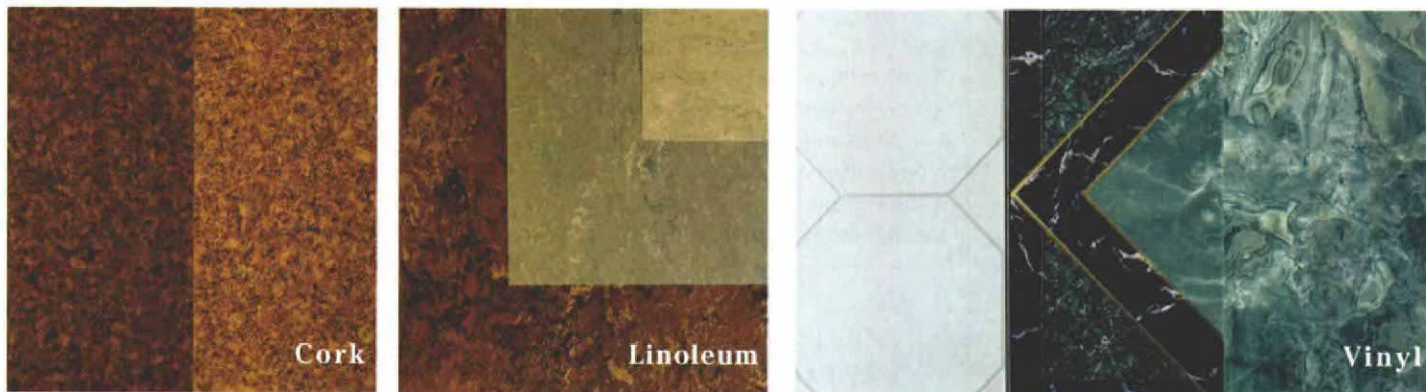


Choosing Resilient Flooring

Because of environmental concerns, cork and linoleum now compete with vinyl as attractive, durable flooring alternatives



by Rick Gregory

"All-natural," a catchphrase of the 90s, is used to describe everything from soft drinks to bath soap. But resilient flooring? In a market dominated by synthetic vinyl, cork and linoleum are enjoying dramatic increases in popularity, due in large part to the fact that they're manufactured primarily from natural and recyclable products.

Historically, resilient flooring has been used almost exclusively in kitchens and baths, and for good reason. Those rooms normally encounter splashing water, shaving cream and spaghetti sauce, and are not normally wise places to have carpet.

Ceramic tile is hard and cold, and it has those infernal grout lines. Wood floors are prone to water spots and swelling if moisture isn't cleaned up right away. Resilient flooring, because of its proven performance in difficult environments, has been king in these applications. It never needs refinishing as does wood, and your kids won't get splinters in their feet when they slide through a room.

Cork is a renewable resource—The building industry is sometimes castigated for using up limited natural resources. The supply of cork, though, is not likely to be depleted any time soon. The cork oak tree has been regularly harvested since at least the Roman Empire. After

the tree is 30 to 40 years old, and every nine to ten years thereafter, the cork oak tree is literally skinned alive. This harvesting process continues for 100 to 150 years on each tree. The cork oak originally was found in the Mediterranean region. Most of the world's cork now comes from Spain, Algeria, Morocco and especially Portugal, which accounts for approximately 88% of all harvested cork.

For cork flooring, raw cork is ground, mixed with wood glue, baked and made into 1m cubes, or into rolls about ¼ in. thick and as long as 150 ft. As it comes off the production line, it is called agglomerate cork. The cork is cut to size, then finished and readied for distribution.

Cork floors are practical—Cork is actually the floor of choice in Japan, and it enjoys huge popularity in Germany and Australia. I've been a flooring contractor for 13 years, and when we moved into our house, we chose to install cork floors in the entry, family room, kitchen and baths. With three teen-age children, a dog and little time for maintenance, our family has found cork to be a logical choice.

Available in thicknesses ranging from 3.2mm (about ⅛ in.) to as thick as 8mm (about ⅜ in.), cork is comfortable underfoot and has thermal-insulating properties. A cork floor installed on a concrete slab is much warmer than ceramic or

vinyl. Heavy furniture sinks slightly into a cork floor, but when the furniture is removed, the cork springs back to, or close to, its original form. Also, cork absorbs sound.

Cork flooring is available in tiles or in rolls, and in different finishes, including sanded, vinyl-coated, prewaxed and polyurethane-coated. Some colors available are light brown, medium brown, dark brown, two-toned and striped.

The sanded finish is just what it implies: nothing but the cork, sanded to a reasonably smooth surface. It's the finish you see on cork wall tiles used for bulletin boards. Manufacturers generally recommend that it be finished with wax or urethane after it's installed to prevent excessive wear and staining. Prewaxed cork is shipped with at least two coats of durable carnauba wax, factory-applied and heated to enhance penetration (top photo, facing page). The polyurethane-coated finish can also be applied at the factory and is available either in a satin or high-gloss finish (bottom photo, facing page).

The cost of cork flooring depends on several factors, including the manufacturer, the finish and the thickness. But expect a range of about \$3 to \$5 persq. ft., plus installation.

Vinyl-encapsulated cork generally comes in 12-in. tiles, 3.2mm thick. There is a thin vinyl coating on the back of the tiles and a clear PVC (polyvinyl chloride) wear layer on the surface.



Cork floors are quiet and comfortable to walk on. The 12in. cork tiles on this floor in the studio of Los Angeles architect Cory Buckner are sealed with wax, resulting in a matte finish. Cork tile is made from the bark of the cork oak tree.

Cork is easy to clean—Maintenance of a cork floor is simple. At our home, we dry-dust with a dust mop daily and periodically wet-mop with a neutral-pH cleaning solution that won't react with the flooring material or its protective covering. Only once in eight years have we machine-buffed our floor with a polishing compound. Even when we haven't been able to clean the floor as often as we'd like, the coloration and pattern have hidden anysoiling.

The polyurethane-coated material is maintained like the vinyl-encapsulated material. The waxed cork also is easily maintained with a home buffing machine. All of these finishes are resistant to staining because of the high-quality wear layers they use.

Linoleum is back—Invented in England in 1860 by Frederick Walton, linoleum was popular in this country in the first half of the century but



Cork can be stylish as well as practical. Cork floors, such as this one in a house in the hills above Los Angeles, can be installed prefinished with a durable, high-gloss polyurethane. The home's owner, a furniture manufacturer, said the house became easier to heat after the cork was installed over the concrete subfloor.



A long way from battleship linoleum. Linoleum is gaining popularity because it's durable, soft and environmentally friendly. It's also available in an increasingly broad palette that can be crafted into colorful patterns. Above, 12-in. square linoleum tiles surrounded by a multicolored

border bring a sense of warmth to a kitchen in Santa Monica, California. Below, an inlaid grapevine adds life to the linoleum-tile kitchen floor of this Studio City, California, home. The floors on this and the facing page were designed and installed by Los Angeles artist Laurie Crogan.



gradually fell out of fashion. It is again making its way into America's homes (top photo, facing page). For the past 30 or 40 years, linoleum has been used almost exclusively in commercial applications because it was manufactured in just one thickness and in colors that were so ugly people didn't want it in their homes. The phrase "battleship linoleum" was appropriate because linoleum was used extensively on ships (and, quite frankly, looked like it belonged there). Now, though, with more than 80 colors to choose from, linoleum is experiencing a resurgence in residential use.

Like cork, linoleum has some intriguing characteristics that make it desirable for residential use. It's composed of natural materials, including linseed oil, cork, limestone and pigments. Because of its cork content, it is highly indentation-resistant. And it has an expected life span of 20 years to 30 years.

Raw materials remain the same—The principal component of linoleum is linseed oil, produced from the seeds of the flax plant. The linseed oil is oxidized (exposed to oxygen and heat) in giant boilers and mixed with natural resins to create the binder into which the other components are ultimately introduced. The creation of this binder takes about 24 hours. Once the binder (now a doughlike material) is ready, the remaining components are kneaded in the way a baker gets flour into bread dough.

The other ingredients in linoleum are finely ground cork and/or wood, ground limestone and natural pigments. This dough is kneaded repeatedly to ensure maximum, uniform dispersion of all of the materials throughout the mixture. Huge cylinders are then used to press the dough into a level, consistent layer across the full width of the backing, commonly jute fabric. In the final step, the product is sent to drying rooms, where heat and circulating air dry the linoleum to produce required levels of stiffness, elasticity and flexibility. The linoleum is then ready to be rolled and wrapped for shipping or sent to be cut and packaged as tiles.

Linoleum comes in thicknesses ranging from 2mm (optimum residential thickness) to 3.5mm, in 2m wide rolls and 12in. square and 20in. square tiles. Installations can be simple one-color or two-color affairs, or with the different colors available, complex patterns and designs can be created (bottom photos, facing page). For 2mm thick material in one color, you can expect to pay just over \$3 per square foot, plus



Vinyl tile need not be dull. With white cabinets and gray counters, this Santa Monica kitchen was short on color. A boldly patterned floor, cut from a dozen colors of vinyl composition tile, attacks the monotony.

installation. Intricate patterns in linoleum floors are more expensive.

Linoleum should be polished—Linoleum does not come with a clear PVC wear layer, which makes the material attractive to those with allergies or chemical sensitivities but also requires a bit more maintenance than cork. Linoleum can be sealed and polished with a finish such as Ombra, an acrylic made by Taski U. S. (800527-5427). Because of the variations in its coloring, linoleum hides minor stains well. But it is slightly porous and will be easier to clean if it's sealed.

There are many cleaning and polishing products available now that are substantially free of toxic components. For information on a particular product's toxicity, consult the Manufacturer's Safety Data Sheet (MSDS).

Vinyl still dominates the market—A market profile on plastic floor coverings published in 1991 predicted a resilient-flooring market of \$2.5 billion by 2001. Of all of these materials, vinyl remains by far the biggest seller (photo above). And among vinyl-flooring products, sheet goods still account for the bulk of installations in the residential marketplace. Modular (tile) products, however, are making significant inroads with fashionable replicas of stone, marble and wood. There is a huge range in sheet-goods prices, from as low as \$5.50 per sq. yd. to more than \$40 per sq. yd.

Vinyl floor covering could be divided into two broad categories: solid vinyl and vinyl backed with a resilient material, such as high-density vinyl foam. The multiple-layer type either is printed with colors and patterns or is inlaid with small vinyl chips suspended in a coat of clear or

colored vinyl. Both types, printed and inlaid, generally have a glossy or semiglossy no-wax finish. This top, durable layer commonly is made of vinyl or urethane.

Vinyl is durable but not indestructible—Remember that with glossy vinyl floors, the greatest enemy is the abrasion caused by foot traffic when dirt or soil is on the surface. Even if the floor is not wet-mopped often, the finish can be protected by regular dust-mopping or sweeping.

Multilayer vinyl is available as sheet goods, commonly in rolls 6 ft. wide or 12 ft. wide, and in 12in. square tiles.

Solid-vinyl tile, the second main type of vinyl flooring, is sliced from a molded block of vinyl so that the color and pattern extend through the thickness of the material. The product commonly known as vinyl composition tile, or VCT, differs from solid-vinyl tile in that it contains more synthetic binders and fillers and a lower percentage of vinyl overall.

Solid-vinyl tiles typically have a natural satin finish that requires periodic buffing. For material only, prices start at about \$1 per sq. ft. and go as high as \$7 per sq. ft.

Vinyl flooring comes in thicknesses ranging from 1/16 in. to 1/8 in. The 1/16in. thickness is the least expensive, but for the sake of durability, I'd recommend using tile at least 3/32in. thick.

Careful installation reduces failure rate—Techniques for installing cork, linoleum and vinyl are similar, but some products may require special adhesives. Check with the manufacturer. Resilient flooring should be taken out of its packaging and allowed to acclimate before it's installed. Also, because cork and linoleum are natural products that vary in color intensity, even within the same production lot, it is important to shuffle the tiles to get a random mix.

Laying a resilient floor is methodical and repetitive. It can be tempting to take a shortcut along the way. Don't take shortcuts. When properly installed, these floors have a negligible failure rate. Remember to roll the floor with a heavy roller, allow the material to acclimate, shuffle the tiles, and allow the adhesive to set up properly before laying the material into it. □

Rick Gregory is a San Diego manufacturer's representative for a commercial carpet manufacturer headquartered in Dalton, Georgia. He has been a commercial flooring contractor since 1983. Photos by Reese Hamilton, except where noted.