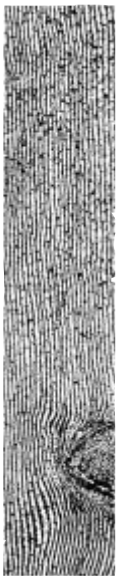
Boen Hardwood Flooring Inc.

A worker installs a long-strip floor panel over a linoleum floor and uses a 2x4 block to set it in place.



FLOATING HARDWOOD FLOORS

By Dennis R. Parks

Prefinished laminated flooring systems from Europe provide the hardwood look over nearly any subfloor

Longstrip flooring, a laminated, prefinished European product relatively new to the U.S. market, holds some distinct advantages over traditional hardwood strip flooring. For one thing, it simplifies subfloor preparation since it can be installed over almost any level surface. This gives it the installation versatility of carpet. It also offers a quieter floor than hardwood because a flexible foam sheet separates it from the subfloor.

It does this without sacrificing on appearance. In some ways, longstrip looks better than a traditional American hardwood floor because the European factories excel at producing square-edged flooring panels and dust-free finishes. And longstrip achieves that appearance in far less time. Installers can lay a 500-square-foot longstrip floor in a day, compared with as many as five days to install and finish solid hardwood.

The installed cost will be similar to that of clear-grade hardwood and more expensive than lesser grades. Savings are likely in subfloor preparation. The floors do not require expensive nailers and sanders necessary for solid hardwood installation, nor do they require special skills.

Flooring sold here is imported from European factories. Longstrip was developed by the Swedish company now called Tarkett AB. It was intended to address the high costs of installation and raw materials plaguing the European wood floor market in 1942. The product was an immediate success and quickly developed into the predominant wood flooring type in Europe. Many manufacturers produce longstrip in Europe, but in the United States, the longstrip market is controlled by three producers: Boen, Kahrs, and Tarkett.

How It's Made

Although dimensions differ among manufacturers, all the products share basic construction, appearance, installation procedures, and performance. "Longstrip" refers to rather large flooring modules (see Figure 1), ranging in size from about 5 7/16 x 94 1/2 inches to 8 x 96 inches. A module, or panel, gives the appearance of two or three parallel strips of hardwood flooring, each 2 3/4 inches wide and of random lengths of 6 to 18 inches. Thickness is 1/2 to 5/8 inch, also varying by manufacturer.

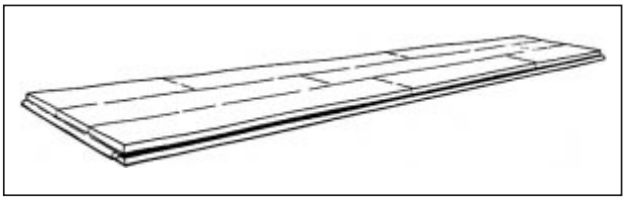


Figure 1. *Longstrip flooring panels are made to resemble random-length hardwood boards.*

Longstrip is a three-ply, engineered construction. The top ply is made of resawn hardwood slats, about 1/8 inch thick. It is laminated to a cross-band of softwood, which is in turn laminated to a bottom ply of solid softwood. The center ply, or cross band, runs at 90° to the top and bottom grain. The alternating ply and lamination give longstrip excellent dimensional stability. Each panel is milled with tongue-and-groove edges

similar to that of traditional solid hardwood flooring strips (see Figure 2).

Floating Floors

The common installation method for longstrip is *floating*, in which the flooring modules are glued to one another but are not fastened to the subfloor with glue or nails (see Figure 3). Some manufacturers allow alternative installation techniques without invalidating warranties, which are usually for one year. Tarkett requires floating. Boen allows gluing or nailing, although it recommends floating. Kahrs allows glue-down.

In a floating floor, bonding the wood panels only to one another allows the subfloor and flooring to move independently of each other. This floating system does not depend on the stability of the subfloor, so longstrip can be installed over materials that would bar installation of nail-down and glue-down laminates and traditional solids. Floating allows installation of longstrip over such non-standard subfloors as:

- Oriented strand board.
- Particleboard.
- Lightweight, blown-in concrete.
- Radiant-heated slabs.
- Existent floor coverings such as resilient tile, hardwood, ceramic tile, terrazzo, and low-nap level-loop carpet.
- Below-grade or on-grade concrete.

Its ability to cover existing floor coverings makes it highly desirable—and efficient—as a remodeling material. Longstrip allows installation of a hardwood product without expensive, time-consuming, and dust-generating removal of old materials. It also presents a measure of safety by eliminating the need to disturb existing resilient floor coverings that contain asbestos.

The only subfloor requirements for a floated longstrip installation are that the subfloor be structurally sound, dry, and level within 1/8 inch in a 10-foot radius. Since there is no bond between the wood floor and the subfloor, leveling can be accomplished using kiln-dried sand (which is simply poured into indentations and leveled) or 15-pound roofing felt layered in the low spots to support the wood floor. Traditional troweled leveling compounds are also sometimes used.

Floating is the key to longstrip performance. Subfloor movement that would pull apart a nailed or glued-down installation does not affect floated longstrip. Longstrip expands and contracts less than solid wood products because of its alternating-ply construction. When it does expand and contract, it does so as a unit, with minimal cracks between panels.

Installation

Installing longstrip is uncomplicated but quite unlike installing solid hardwood in some of its requirements.

Subfloor preparation. Thoroughly clean the subfloor. In new construction, that means removing any construction contamination, such as clumps of drywall mud. Completely seat any protruding nail heads. Concrete must be completely cured and dry.

Humidity control. For proper installation, control humidity in the home, maintaining it at 30% to 55% before and after installation. Although quite stable, the panels are susceptible to high moisture before installation. They are shrink-wrapped at the factory and are intended to stay that way until installed.

Casings. Undercut door casings to allow the edge of the flooring to float freely under the casing. Level the subfloor where needed. That means cutting at a height that allows not only the flooring but also a foam underlayment and polyethylene vapor barrier to move freely underneath

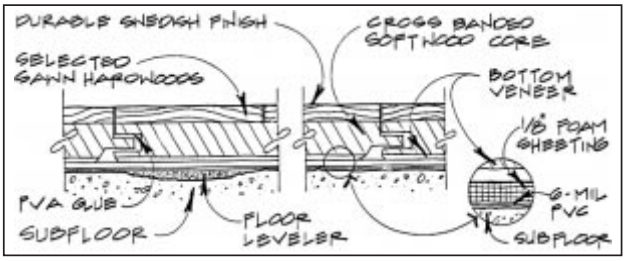


Figure 2. *The tongue-and-groove panels have three cross-laminated layers: hardwood on top, softwood in the middle, and a bottom veneer. In a floating installation, the panels sit on a layer of 1/8-inch foam sheeting.*

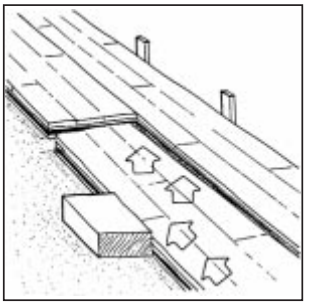


Figure 3. *After applying glue at the joints, work the panels in two directions: against the end-butt of the panel to the left, and toward the panels in the previous row.*

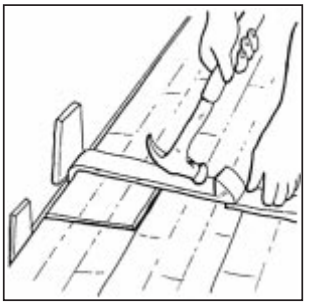


Figure 4. *A pull bar and hammer help position panels in rows adjacent to walls.*

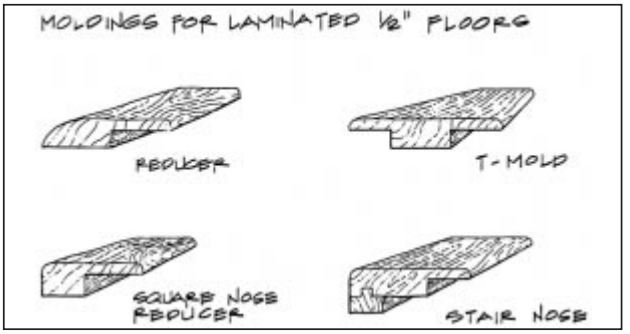


Figure 5. *Specially designed trim pieces, such as nosings and reducers, allow longstrip floors to float underneath a lip.*

Underlayments. Lay 6-mil polyethylene film, overlapped 6 inches and taped at the seams and lapped 4 inches up the walls. Trim the plastic after installing the baseboard by running a knife along the baseboard's top edge. The plastic will act as a vapor barrier, particularly important over concrete that is on or below grade. Next, lay (but do not fasten) a sheet of 1/8-inch closed-cell, high-density foam over the polyethylene. Do not overlap the foam, but simply butt the edges and cut to fit at the walls.

Expansion space. Once the foam is in place, plan the installation direction of the panels. Snap a chalkline parallel to the room's visually most important wall to make sure the flooring is installed parallel to that wall. The line should be at least 1/2 inch from the wall. In rooms 24 feet or greater, allow 1/4 inch of expansion at each wall for each 12 lineal feet of flooring.

In new construction, the line can run parallel to the wall surface. In remodeling, if the baseboard is to remain, remove the shoe molding and strike the line parallel to the baseboard. Be sure the shoe molding will cover the expansion gap after being reinstalled over the completed floor. If the room has no shoe molding, remove the baseboard and reinstall it to cover the space after laying the floor, or keep the baseboard in place and add a shoe molding.

Placing panels. Place the first panel parallel to the wall, at the right end of the starting line, with the tongue side facing away from the wall. Maintain expansion spacing at the end walls and the parallel wall using removable spacers. Apply PVA carpenter's glue to the *end* groove of the next panel to be installed in the first row and position it along the chalkline, engaging the end groove with the previous panel's tongue.

Cut the last panel in the row to length before applying the glue. Use a cutoff of at least 20 inches to start the next row of flooring. Alternate full-length and cut pieces as subsequent rows are started. This will minimize your waste and allow you to have at least a 20-inch stagger between the end butts of the panels in adjacent rows. The minimum 20-inch stagger between adjacent end-butts should be maintained throughout the installation.

Apply carpenter's glue to the groove of the first panel in the second row and position it at the right end of the previous row. Remember to maintain the half-inch expansion space to the end wall, again using spacers. Using a pounding block and hammer, fully seat the panels together. Work back toward the previous panel's end-butt to ensure a tight fit at the side and ends. Take care not to strike the tongue or top edge of the flooring directly with the hammer. Continue the installation, applying glue to the side and end grooves of each panel before it's installed. Continue to cut panels when necessary to complete the row, using the cutoffs to start subsequent rows.

You will probably have to rip the last row of modules to maintain the proper spacing at the finishing wall. Apply glue to the grooves of the last row and position the panels, pulling them together using a prybar and block or a pull bar and mallet (see Figure 4). Once the final panels are in place, remove the expansion spacers.

Installing trim. To complete the installation, attach the appropriate baseboard (to the wall), shoe molding (to the baseboard), or trim (to the subfloor). Never attach these pieces to the flooring, which would prevent the floating installation from moving independently of the subfloor. Longstrip uses specially designed trim pieces—such as reducer and nosing—that lip over the flooring like a threshold and allow the flooring to move freely (see Figure 5). They are available from the flooring distributor.

Maintenance

Maintenance of longstrip is simple. The products are finished with a UV-cured acrylic/polyurethane finish that requires no waxing. To keep the floor looking good, the homeowner should prevent damage caused by sand and grit. That means frequent sweeping and vacuuming. Floor protectors should buffer the floor from furniture, and the homeowner should check for grit and promptly use a rag to wipe it away from protectors. Walk-off mats should protect the floor at doorways. Spills require prompt attention.

The finish on longstrip flooring can be recoated using a quality water-based floor finish, which expands and resists cracking better than oil-based finishes. Make sure the finish manufacturer's instructions are followed closely. Finishes also are available from the floor manufacturers.

Floating floors can be sanded, but using standard hardwood refinishing sanders will damage the floor. This is not because floating floors are too thin to sand. In fact, the 1/8-inch top ply of a floating floor is effectively what you can sand on standard 3/4-inch T&G flooring. But since floating floors are not attached to the subfloor, heavy duty sanding may cause damaging vibration and should be avoided.

Make sure that you review the specific instructions provided by the manufacturer of the product you use. Products may vary slightly from the installation and maintenance procedures outlined in this article.

Longstrip flooring, when installed properly, can provide an outstanding hardwood flooring alternative to traditional hardwoods and other floor coverings. ■

For More Information

For more information about floating floors, contact these manufacturers: Kahrs International, 25057 Viking St., Hayward, CA 94545; 415/887-4420. Tarkett, Hardwood Division—North America, P.O. Box 300, Route 9, Riverview Road, Johnson City, TN 37605-0300; 615/928-3122. Boen Hardwood Flooring, Inc., Route 5, Box 640, Bassett, VA 24055; 703/629-3381.

Dennis R. Parks wrote and implemented the two-day wood flooring training school for the National Wood Flooring Association. He has 16 years of experience in selling and specifying flooring for residential and commercial jobs.