

There are just three
secrets to a long-
lasting wood floor:
great materials,
careful installation,
and a fine finish

TOP FLOOR

BY MICHAEL M^CWILLIAMS

PHOTOGRAPHS BY DAVID CARMACK

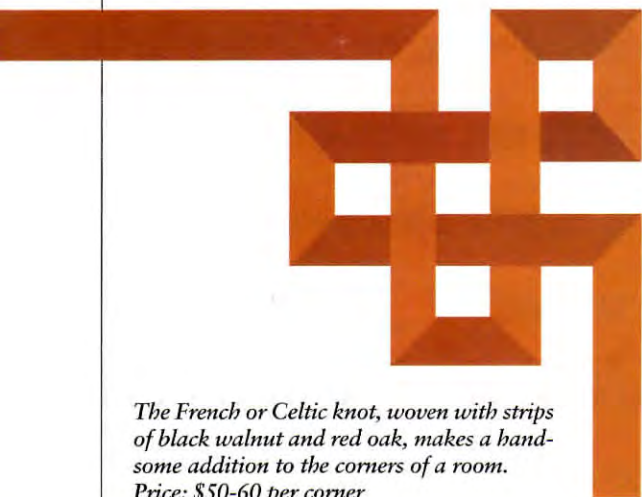
It's 7:30 in the morning. Already, a power saw is shrieking in the next room while someone upstairs is warming up a hammer. Yet in Dick and Sandy Silva's bare-walled dining room, Tim Taggart stands as still as a meditating monk, pondering his upcoming job: the installation of a new wood floor. Around him lie stacks of custom-milled, white oak strips—2¼ inches wide, ¾ inch thick, and up to 8 feet long—which he will spend the next five days cutting and fastening to the plywood subfloor. "It's like creating a great big puzzle," Tim says. "I love it."

FACING PAGE: *A diamond of quartersawn white oak graces the vestibule leading to the Silva's dining room.*
THIS PAGE: *Yellow pine, the flooring used in the bedrooms, displays the tight, parallel figure characteristic of quartersawn softwoods.*

Taggart, a veteran installer for Hunt Hardwood Floors, is laying wood through most of the Silva's house. (Kitchen, mudroom, and bathrooms are covered in linoleum.) When he's finished, the rooms will be carpeted with rich expanses of furniture-grade material, alive with eye-catching grain patterns that only nature can create: a perfect complement to the house's painted walls and woodwork. In the bargain, the Silvas will have a surface that's also easy to clean

BORDERS TO ORDER

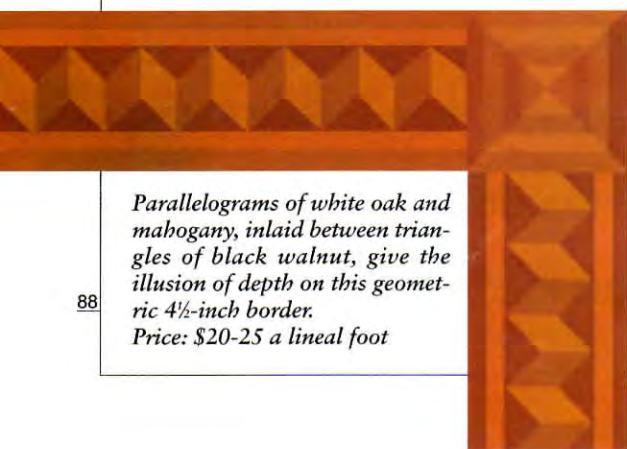
Introduced to North America by 19th-century craftsmen from Eastern Europe, floor borders add an old-world accent to a new floor. A border can be just a simple change in the direction of the flooring strips, as in the Silva's dining room, or intricate inlaid designs cut from tiny pieces of exotic wood. Once, these would have been cut by hand on site, but these days, with sophisticated laser-cutting techniques, borders can be ordered, ready-made, from a catalog and dropped in by the installer. Pre-fab borders, such as the ones pictured below, range from \$25 to \$100 per foot, depending on the width and complexity of the pattern.



The French or Celtic knot, woven with strips of black walnut and red oak, makes a handsome addition to the corners of a room. Price: \$50-60 per corner



A 5-inch-wide rope border ties together mahogany and maple on a background of red oak. Price: \$45-55 a lineal foot



Parallelograms of white oak and mahogany, inlaid between triangles of black walnut, give the illusion of depth on this geometric 4½-inch border. Price: \$20-25 a lineal foot

and long lasting. "If they take care of it, this floor will be here well through this century," says Patrick Hunt, Taggart's boss.

The Silvas chose two kinds of wood for their floors: soft yellow pine for the bedrooms, and durable white oak for the downstairs. It's the same mix found in many 19th-century houses, where home builders sensibly put hard oak in high-traffic areas and less-expensive pine in the private chambers.

Charles Wilson, of Wilson Woodworks in Stafford, Connecticut, provided the project's 3,400 square feet of flooring. Wilson milled boards, cut from trees in the Ozarks, into narrow tongue-and-groove strips, then culled out any that didn't meet his high standard. "The quality of this flooring is extraordinary," Taggart says. Indeed, every piece is clear—free of knots, stains, or other defects—and quartersawn, sliced from the log so that the grain runs more or less at right angles to each strip's face. Wood cut this way is less likely to warp and splinter, wears better, and is more stable than flatsawn boards.

A stable wood is especially important for the Silvas because of their radiant-floor heating. Taggart says that some minor separation between the strips is inevitable with most flatsawn flooring. "But with wood of this quality, we expect hardly any visible lines at all, even with the radiant heat." To top it off, quartersawn wood is visually without peer. In the pine, the narrow, parallel grain streaks each strip like butterscotch combed through vanilla. On the oak, light-colored tiger stripes fleck its surface.

All this beauty and stability come at a price, of course—about \$6 a square foot for the custom-milled oak (twice as much as standard clear red oak), and about \$8.50 for the quartersawn pine, which is nearly three and a half times more expensive than top-grade flatsawn.



ABOVE: Using a sliding T bevel, Tim Taggart marks the angle of a cut on a strip running the length of the room. BELOW: With a swing of a mallet, his pneumatic stapler simultaneously snugs each strip to its neighbor and anchors the wood to the subfloor.



BELOW: Steve Dubuque guides a sander in three separate passes over the floor, making the rough wood smooth.





WHAT WOOD WOULD YOU CHOOSE?

Flatsawn red oak, with its attractive combination of durability, stability, and relatively low price, is the most popular wood flooring today, and the benchmark against which others are measured. If you're exploring alternatives, just keep the following in mind:

COLOR Contrary to what you might expect, lighter woods, such as oak, ash, maple, or hickory, "tend to make a room look smaller," says Gideon Gelbar, an interiors specialist for architect Dennis Wedlick. "And very dark floors against light walls tend to make a room feel airier and bigger." Brazilian cherry, Santos mahogany, and black walnut all fit that bill, and they need no stains.

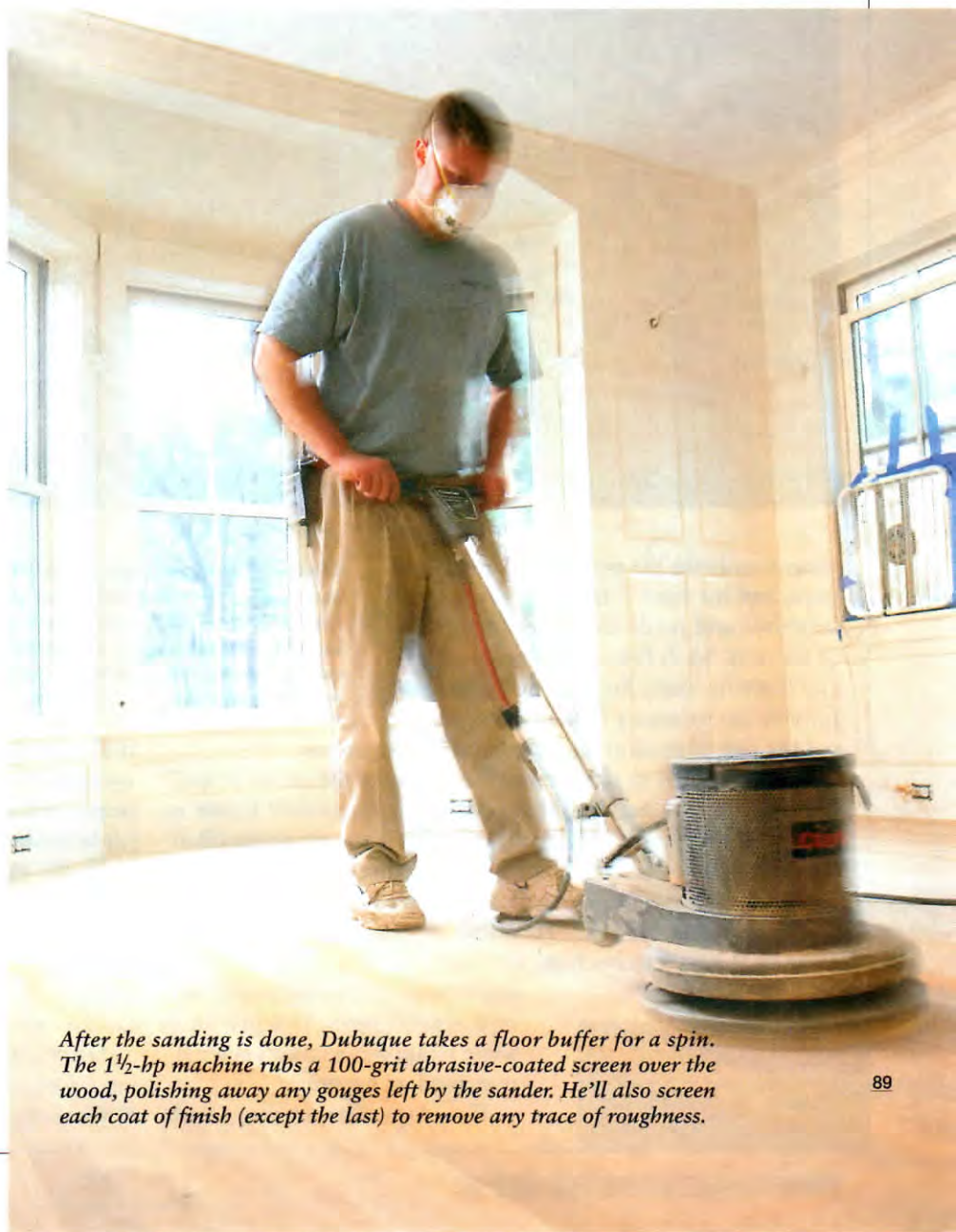
PERFORMANCE High-traffic hallways, family rooms, and kitchens demand hard, durable flooring. But looking only at hardness can be misleading. Hickory and maple are harder than oak but not as stable; they tend to cup or leave gaps as the humidity changes. A wood's lack of stability can be mitigated somewhat by milling narrow strips (less than 3 inches wide) and by quartersawing, which minimizes movement and improves durability.

PRICE *Low* (\$3-5/sq. ft.): Douglas fir, maple, birch, beech, ash, red oak, white oak, yellow pine. *Medium* (\$5-8/sq. ft.): mesquite, Brazilian cherry, black cherry, Santos mahogany, jarrah, hickory, pecan. *Expensive—or use as an accent* (\$8-15/sq. ft.): wenge, black walnut, teak, heart pine.

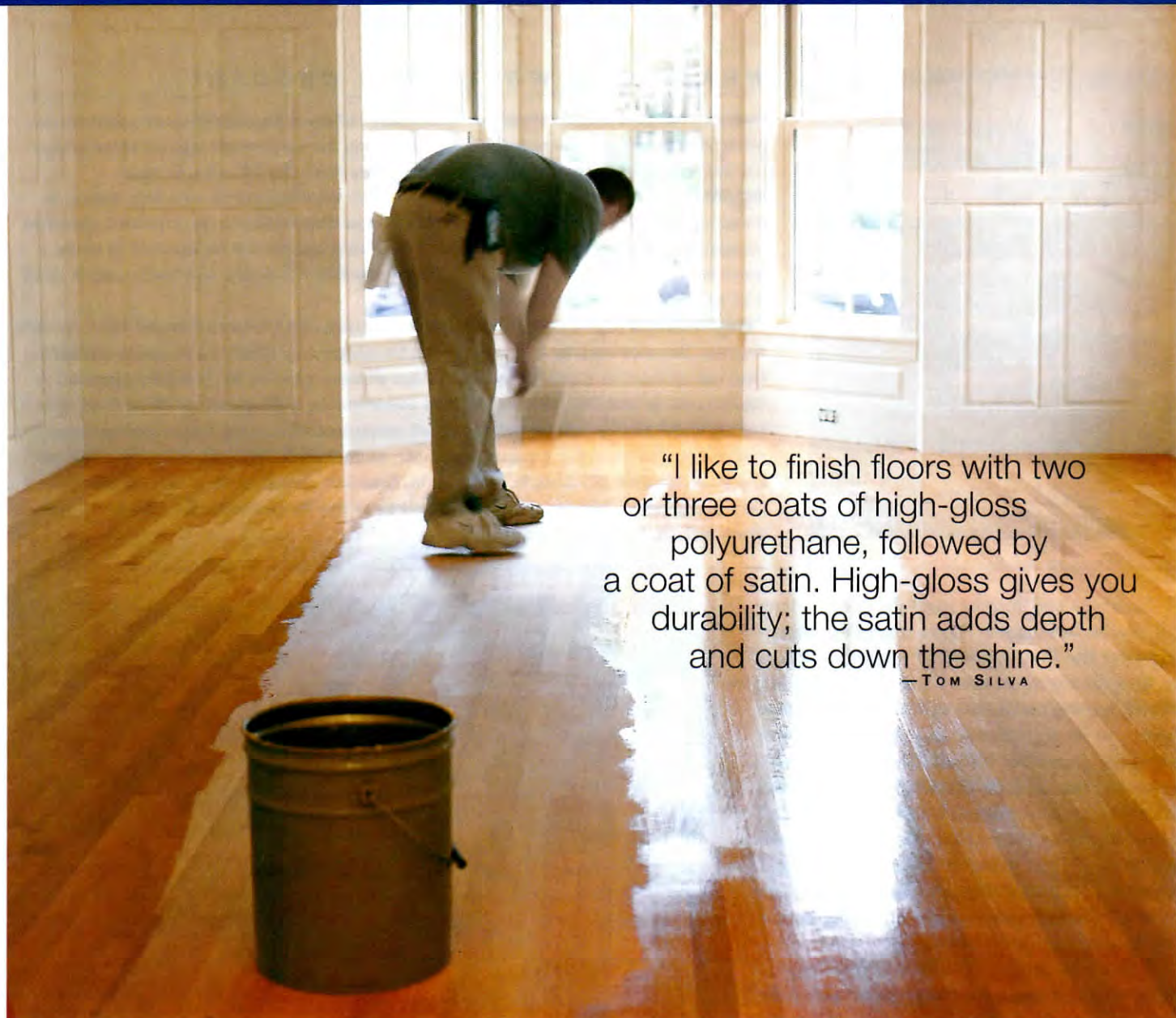
Such high-end flooring naturally deserves careful, precise installation. So the first thing Taggart did after the flooring arrived in the house was to turn the thermostat to 65 degrees and wait. Wood flooring needs time to acclimate to its new home, or it will shrink and move and leave unsightly gaps after it's installed. The heat also drives out the moisture emanating from the fresh plaster and paint, and even from the new concrete foundation—moisture that can swell the wood and make a tight job next to impossible. After about a week, when Taggart's wood probe indicates a moisture content below 6 percent, he and his flooring team start to roll.

Their first order of business is to sweep up loose nails and then cover the plywood with rosin paper to keep the floor from squeaking. Once the subfloor is papered, it's time to lay out the flooring. The first strip, placed along the long wall with its tongue toward the center of the room, is the most critical. Tim positions it about a half-inch out from the walls to allow the wood to expand. Without that space, which will be covered with a shoe molding, the floor might actually buckle in humid conditions. Then, using chalk lines, measuring tape, and straight edges, Taggart adjusts the strip ever so slightly to insure that all the other pieces will remain parallel to the long walls all the way across the floor.

After face-nailing the first few strips in place, being careful not to mar the floor with his hammer, Taggart has enough room to bring out his big gun, the pneumatic floor stapler. He seats it against the strip to be fastened, then whacks a rubber mallet against the tool's rubber trigger. With a pop, the stapler shoots a 1-inch galvanized staple at a 45-degree slant through the strip's



After the sanding is done, Dubuque takes a floor buffer for a spin. The 1½-hp machine rubs a 100-grit abrasive-coated screen over the wood, polishing away any gouges left by the sander. He'll also screen each coat of finish (except the last) to remove any trace of roughness.



"I like to finish floors with two or three coats of high-gloss polyurethane, followed by a coat of satin. High-gloss gives you durability; the satin adds depth and cuts down the shine."

—TOM SILVA

tongue and into the plywood. A few more pops, and the piece is fastened tightly to its neighbor and ready to receive the groove of the next. Most floor installers shoot special flooring nails, but the shorter staples provide the necessary holding power without the risk of puncturing the radiant-heating tubes.

"You also have to think about the lengths of the starter strips," Tim says. "If you cut them right, everything else should follow in a way that looks right." Practically speaking, it doesn't matter where the cut ends land—he can nail the strips anywhere into the plywood—but Taggart observes certain rules established at a time when floors had to be nailed into joists. He makes sure the end joints are staggered by at least 6 inches from one row to the next, and he's careful

Moving a lambswool applicator in the same direction as the strips, Dubuque quickly covers the floor with an even coat of oil-based polyurethane. He works facing a window, so that the light reflecting off the wet finish reveals any missed spots.

not to repeat that position in the second or third rows. This produces some scrap, but guarantees a natural, random pattern.

Five days after starting, with

every piece of white oak and yellow pine in place, the team starts sanding. Steve Dubuque uses an 8-inch Hummel belt sander on the center section of the floors and a squat disc sander, called an edger, along the walls. The Hummel covers the floor in three passes with successively finer sandpapers—60-grit, 80-grit, and 120-grit; the edger takes two passes with 80-grit and 120-grit papers. Afterward, Dubuque steers a buffer over the floor—its 100-grit screen erases the fine grooves left by sanding—then hand-scrapes corners the machines can't reach.

To this finely polished surface, DuBuque applies four coats of oil-based polyurethane, buffing between each one for good adhesion and perfect smoothness. Although two or three coats are standard, four coats offer an extra measure of durability. The effect of the finish on the oak is astounding to witness; as the first coat flows over the dun-colored wood, its grain pattern appears as if by magic.

Getting to this moment took about ten days of precise, painstaking effort, and a lot of math. But no one has to ask Tim Taggart if it's worth it. "Just look at the wood," he says proudly. ■

Visit www.thisoldhouse.org for Billerica flooring installer Patrick Hunt's tips on how to choose the right flooring for your house.