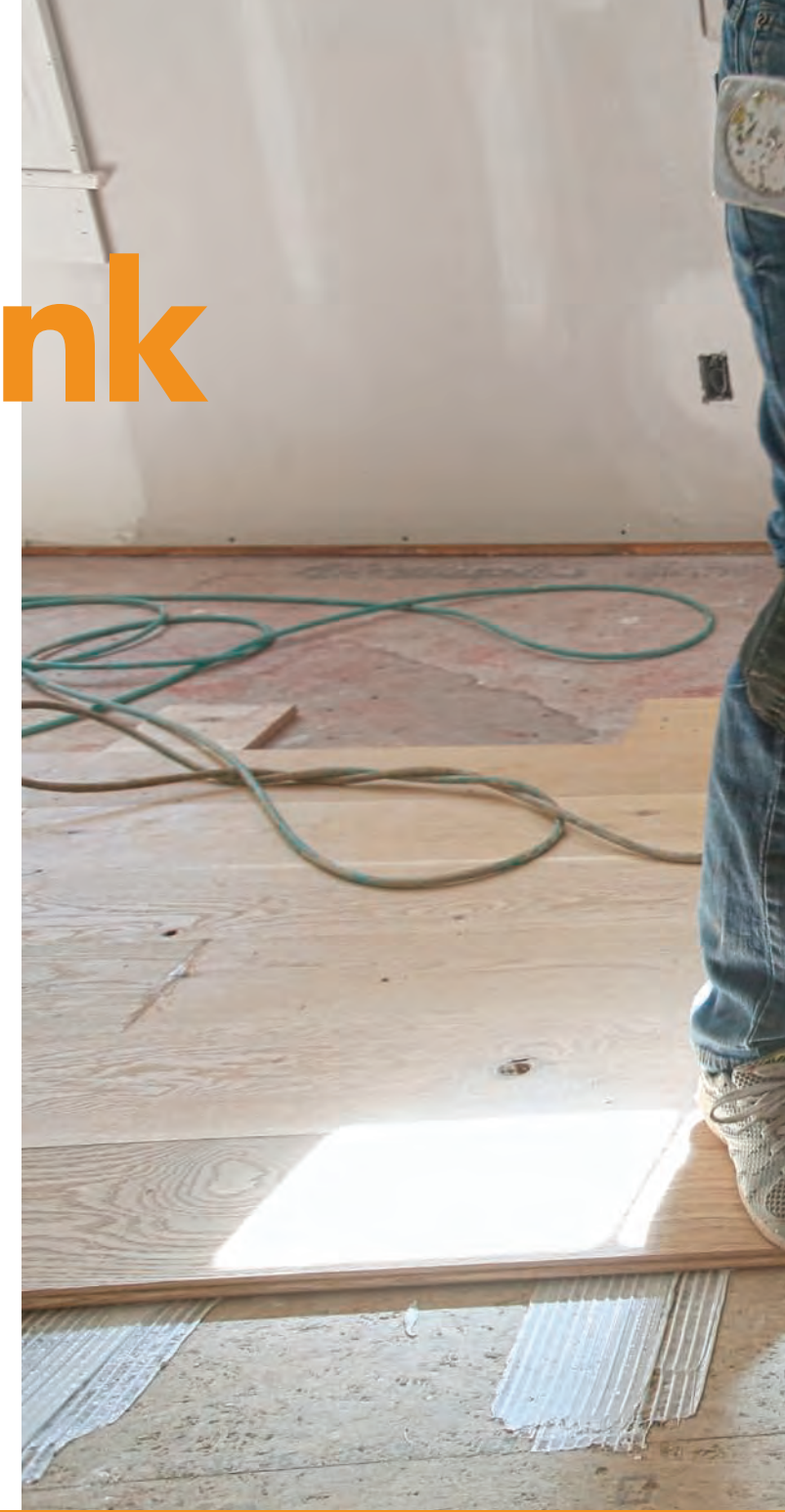
Fine-Fitting Solid-Plank Flooring

A long-lasting, good-looking floor starts with a smart layout and strong fastening

BY DREW RYDINGSWORD



Wood floors hold a special place in the history of home building. In the past, master craftsmen might labor on the same floor for years, meticulously cutting each intricate inlay or pattern by hand. Even the rough, hand-scraped planks that floored the homes of wealthier commoners were still the result of a painstaking process.

Historically, wide-plank wood floors were milled with square edges from whatever wood was available on the property, and they were nailed directly to the joists. By *wide,* I'm talking 14 in. wide, and as these planks expanded and contracted with seasonal changes, so did the drafty cracks between them.

The wood-flooring industry as we know it today was revolutionized just before the turn of the 20th century. In 1885, a new milling machine—called a *side-matcher*—made blind-nailing possible by creating the first kiln-dried tongue-and-groove boards. In

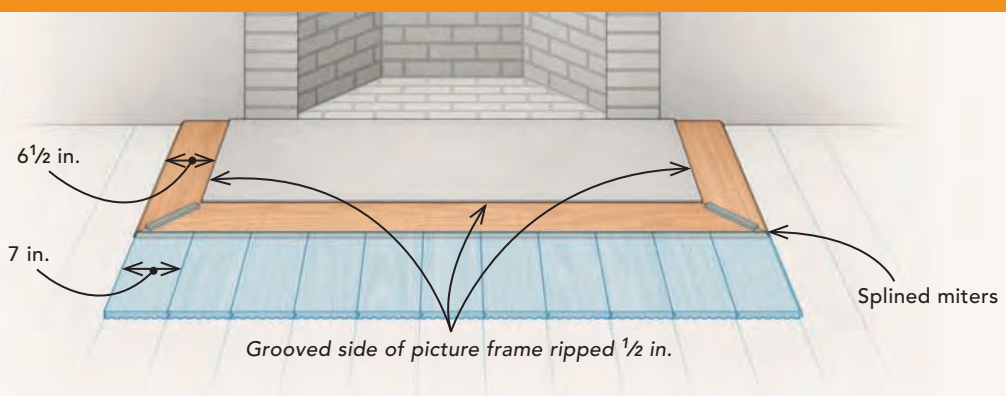
CHOOSE A STARTING POINT

Flooring layout looks best when it's driven by a focal point. The focal point depends on the situation, but for many jobs it's the fireplace hearth, which must tie purposefully into the positioning of the floorboards. This ensures that the hearth is centered and has even—ideally, full-width—boards on each side. To achieve this, I often create a picture-frame border that allows me to control the transition between the hearth and the rest of the flooring. It looks best if I rip these picture-frame boards to a width that will accommodate full-width boards to run in front of the hearthstone.

Drawing facing page: Christopher Mills

PICTURE PERFECT

Laying full-width scraps of flooring on each side of this hearthstone and then measuring (photo left) shows that it would take 11 full-width boards to go across the front without interruption; however, ½ in. will have to be ripped off the groove side of the picture-frame boards for the layout to work. The boards are installed tongue side out so that the subsequent floorboards interlock.



1898, the *end-matcher* appeared; until then, ends had to fall on joists because subfloors were not in common use.

Because my company's customers prefer a traditional look, most of the solid-wood floors we install are made of wide tongue-and-groove planks, but there is a price to pay: These plank floors cost at least 50% more than a typical 2¼-in. strip floor of the same grade. But nothing compares to the look of a plank floor's broad field of wood grain underfoot (see "A Closer Look at Solid-Wood Flooring," *FHB* #257).

We work with vendors who specialize in supplying the hardwood-flooring trade, which allows us greater creative control and less waste. The typical plank floorboard we work with is 8 ft. to 16 ft. long and 5 in. to 10 in. wide, side matched, and rough cut at the ends so we can square or end-match the boards on-site. When I order floorboards, I allow 10% to 15% for waste depending on the degree of complexity.

Be proactive, not reactive

Monitoring moisture content with solid-wood flooring is critical to achieving a proper installation. Balanced moisture ensures a long-lasting floor without gaps or buckling. Before I have any flooring delivered, I make sure that the HVAC system is up and running, which will help control the interior

A clean slate. *Thorough inspection of the subfloor helps avoid oversights or surprises once installation begins. Be sure to address any voids or squeaks, and shim, scrape, or grind for flatness. Here, a roofing scraper removes drywall mud.*

PICTURE FRAME SETS THE STAGE

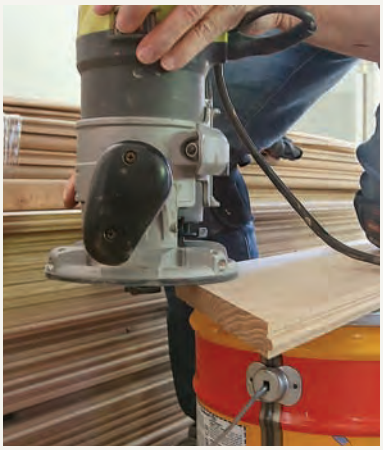
The picture frame around the hearth anchors the layout because it will determine where to snap the chalkline that guides the first course of floorboards.

Before I install the picture frame, I route a groove in the miters so that the joints can be splined together for extra strength. The boards are then buttered with glue and blindnailed tongue-side facing out with finish nails.

The first course of floorboards needs to be dead on, so they are glued and installed with the help of guide blocks that follow the chalkline. That way, I can make any necessary tweaks before entering a faster production mode, where errors can compound.

The starting line. *Butt a scrap board to the dry-fitted picture frame to establish a line of reference. Measure the distance from the line to the wall it runs parallel to, and check the wall for square. Repeat the measurement at the other end of the room, and snap a chalkline between the marks.*

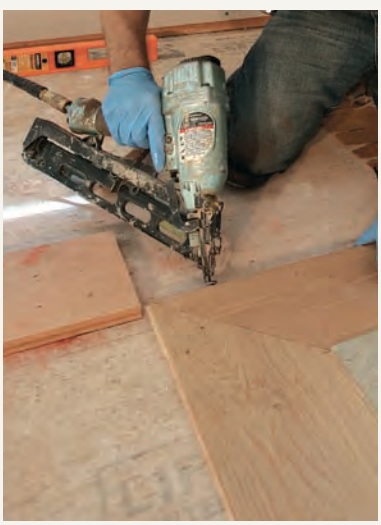
Hold the line. *With the chalkline in place, tack a series of flooring scraps to the subfloor along the line—groove side toward the line—with finish nails. This prevents the first few courses of boards from creeping under the force of the flooring stapler during installation.*



Custom grooves. *A router with a standardized bit for cutting grooves affords strong joints and more flexibility with design. Here a groove is routed in each miter of the picture frame.*

Spline joint. *Spline material joins and reinforces the miters of the picture frame. This is a way to add strength and avoid face-nailing, which is unsightly and runs the risk of splits.*

Buttered bottoms. *Like the floorboards that will be installed across the rest of the room, the picture-frame boards are secured in part with Bostik's urethane-based hardwood-flooring adhesive.*



No face nails. *Blindnailing through the tongues of the picture frame with finish nails is all that's necessary to secure the boards until the adhesive sets up and provides a permanent bond.*

Measure moisture. *Ideally, the flooring has been on the job site to acclimate for at least three days. Before installing, use a moisture meter to make sure the flooring is within ±2% of the subfloor. This will avoid problems such as gaps and buckling down the road.*

humidity of the house. That way, the flooring has a chance to acclimate and stabilize before it's installed; best practice is to wait at least three days. This helps to prevent deformations that can be caused by an imbalance in the moisture content between the subfloor and the flooring.

Before scheduling a time to start installing, though, I make sure that the other subcontractors have finished any work—such as a hearth, threshold, or stair bullnose—that might affect my layout or the appearance of my installation. In doing this, I'm not only able to avoid a callback for a damaged piece or a hearthstone cut into my finished floor—which is bound to reflect poorly on the quality of my work—but it also allows me to control the final appearance of the job. For instance, by using a picture-frame detail around a hearthstone, I'm able to eliminate any awkward rip cuts on either side of the hearth and compose a balanced appearance around this significant focal point. □

Drew Rydingsword is the founder of Franklin Hardwood Floors in Roxbury, Conn. Photos by Aaron Fagan.

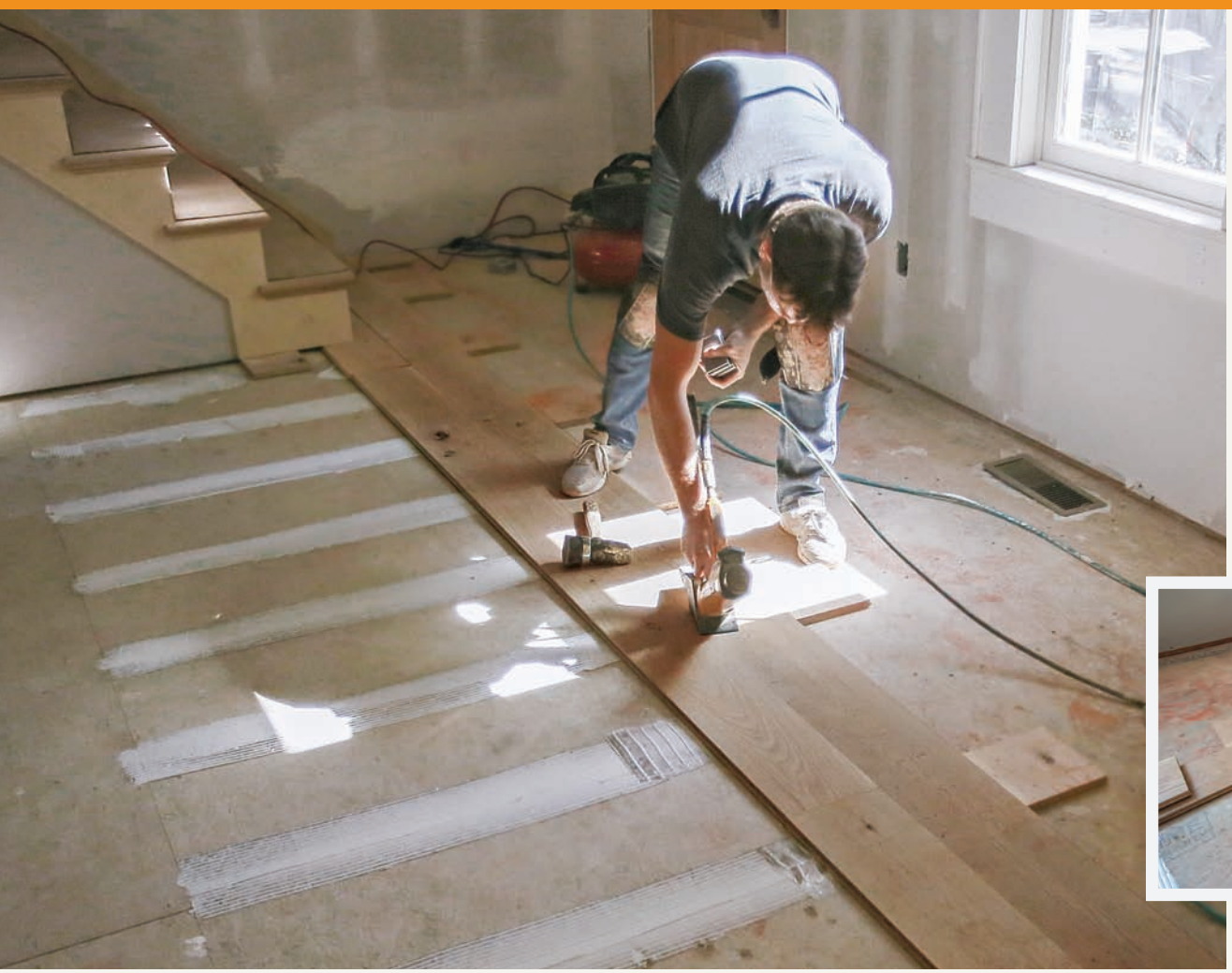
RUNNING AND GUNNING

With the first course down, it's faster to trowel glue directly on the subfloor than it is to apply it to individual boards. To reduce waste, trim boards to length by cutting off either less than 2 in. or at least 3 ft. Including pieces shorter than 3 ft. looks awkward with the long lengths we use. As far as patterning, I make sure that ends don't line up or align in a stair-step pattern, even if they're separated by a board.

Once a few courses are in, I remove the starting blocks and reverse direction with the help of a spline. If the last course looks like it will be less than 3 in. wide, I order extra boards that are wide enough to allow me to finish with a solid piece.

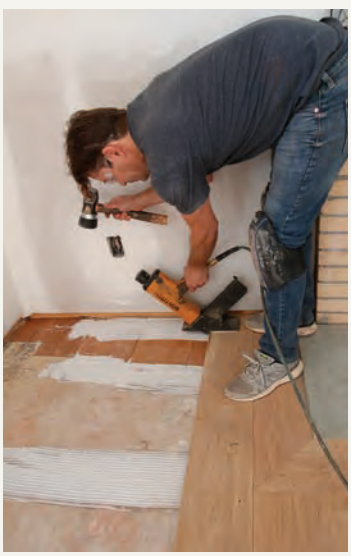
Trim to fit. *As floorboards are installed across the front of the picture-frame hearth surround, trim them as necessary to meet tightly. The picture-frame boards have the tongue facing out, so the floorboards meeting it are backcut with a 2° bevel and grooved with the router.*

Starter course. *Butter the first board with glue, and then secure it in place with a flooring nailer loaded with 2-in.-long 15-ga. flooring staples. For ¾-in.-thick plank floors, the nailing schedule is every 4 in. to 6 in. and 2 in. from the ends.*



And they're off. *Production begins with skip troweling glue every 2 ft. or closer. From this point forward, board selection is driven in part by where butts might appear, so as to create the most cohesive appearance possible. To keep things moving, butter ends from a neighboring line of glue, making these joints just as strong as end-matching. Backcutting with a 2° bevel ensures a snug fit.*

Reverse direction. *Purchased separately, spline stock is like a long piece of double tongue that can be cut to length and seated in a board to bring two groove sides together.*



Take it home. *Once the spline is stapled like a regular course, production now can begin in the reverse direction. The next course perfectly aligns with the picture frame.*

Flooring jack. *The flooring stapler won't fit close to the wall, so the second-to-last row of boards is held tightly in place with a flooring jack and then face-nailed sparingly.*

Expansion gap. *Leaving a ¾-in. gap between the flooring and any obstructions allows the planks to expand with moisture fluctuations.*