# Deck Boards

## Tips and techniques for installing a sturdy deck floor

BY MIKE GUERTIN

On the face of it, building a deck looks like an easy project, and for the most part, it is. There are lots of ways to plan and install deck boards, and it seems as if I've tried most of them. Over the years, I've refined a process that works for me. Depending on the deck, I might vary the process a bit, but for the most part, I follow the same practice: Order deck boards, manage joint layout, lay down boards with correct spacing, and attach the decking with neatly aligned screws. At each step I try to work efficiently, because it's easy to get bogged down if you're not careful.

### First, protect the joists

I used to assume that pressure-treated deck joists would last forever, but they can rot, especially boards made of incised hem-fir or Douglas fir whose treatment penetration doesn't reach the core of the lumber. Deck fasteners act as wedges and split the joist tops. This splitting might not occur initially if the joists are still wet, but it's inevitable that over repeated drying and wetting cycles, the joist tops will crack. Capillary action draws moisture between the deck boards and the joist tops, and that moisture settles into the cracks. Add bits of debris into the mix, and it's just a matter of time before decay takes hold like a cavity in a candy lover's tooth.

One simple way to help the joists resist water damage is to protect the tops with a strip of #30 roofing felt or roofing membrane cut at least a half-inch wider than the joist. The material sheds water that gets between the deck boards away from the joist. I first

Note: The membrane draped over the joists is part of an integral deck-drainage system that shelters the space below. See pp. 96-101 for more on deck-drainage systems.

Drawing: John Hartman

# Done Right

### 1 Plan 'em out

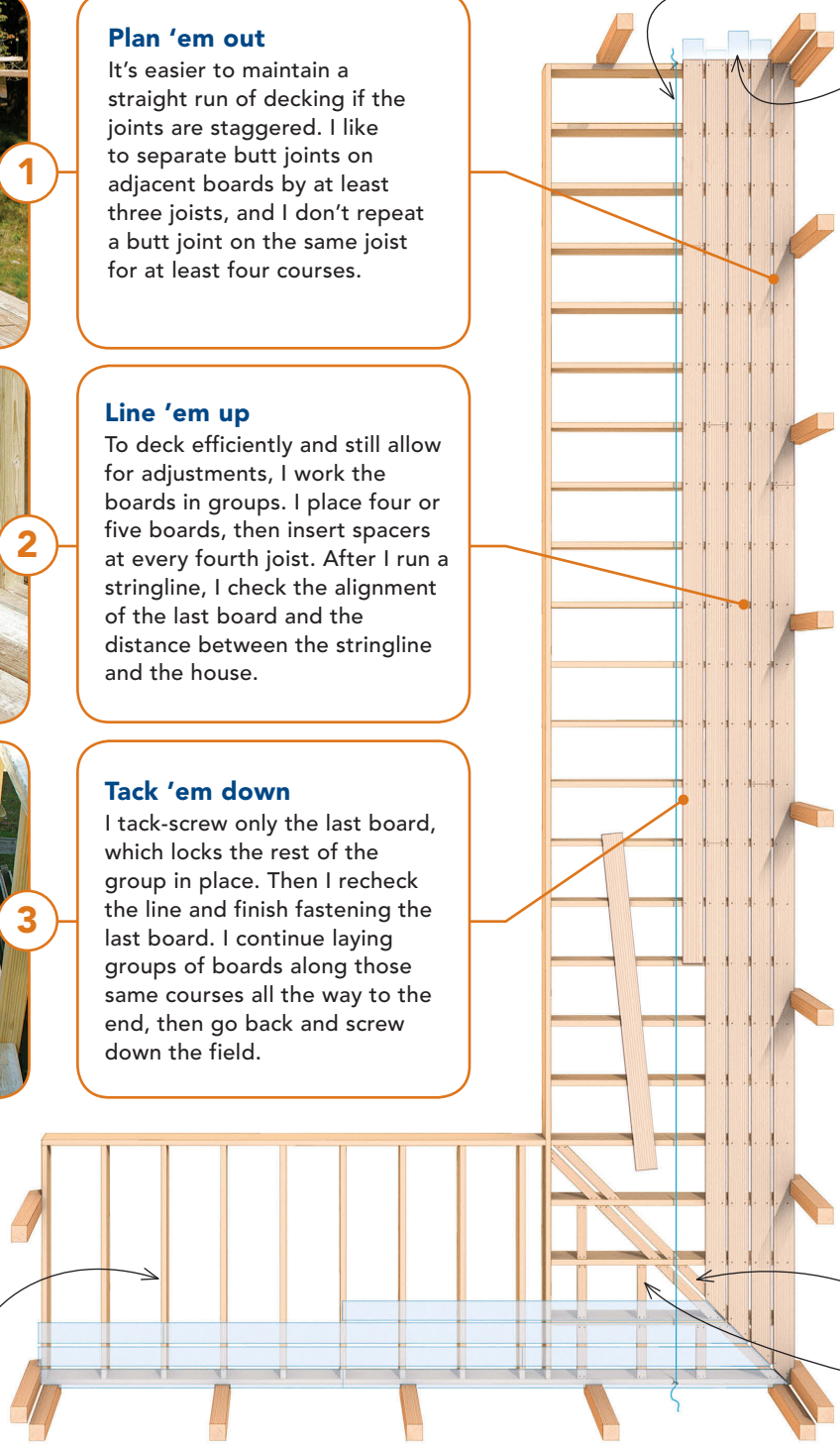
It's easier to maintain a straight run of decking if the joints are staggered. I like to separate butt joints on adjacent boards by at least three joists, and I don't repeat a butt joint on the same joist for at least four courses.

### 2 Line 'em up

To deck efficiently and still allow for adjustments, I work the boards in groups. I place four or five boards, then insert spacers at every fourth joist. After I run a stringline, I check the alignment of the last board and the distance between the stringline and the house.

### 3 Tack 'em down

I tack-screw only the last board, which locks the rest of the group in place. Then I recheck the line and finish fastening the last board. I continue laying groups of boards along those same courses all the way to the end, then go back and screw down the field.




### Create the 100-year joist

To keep water from invading the joists through splits caused by deck fasteners, staple a 2-in. strip of #30 roofing felt or roofing membrane on the tops of all joists.

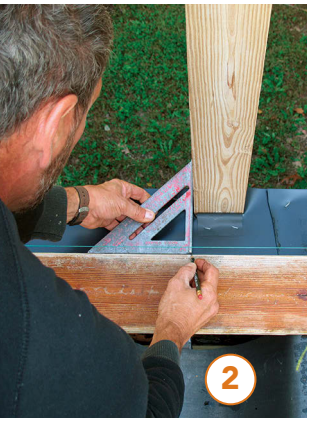

1. **Vycor** (gcpat.com)
2. **YorkWrap** (yorkmfg.com)
3. **Synthetic roof underlayment**
4. **#30 roofing felt**

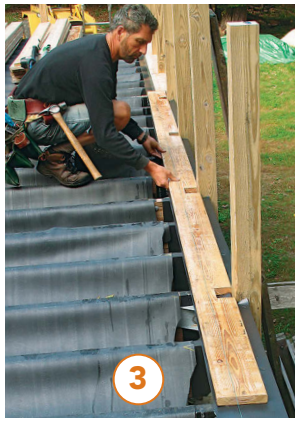
### Mitered decks need extra blocking

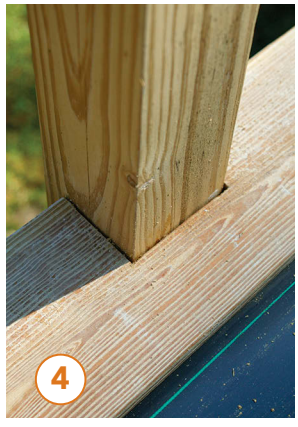
**Where the framing changed direction, I added blocking to support the last few feet of decking.**

## START WITH A STRAIGHT RUN AND CLEAN NOTCHES

I align the first board by pulling a string from one end of the deck to the other to represent the inside edge of the board. Keep in mind that this board will overhang the rim ¾ in. I measure the distance between the string and the post, and transfer that measurement to the board, marking the depth of the notch **(1)**. I use a Speed Square to locate and transfer the locations of the post sides **(2)**. When cutting the notch, I aim for a notch that's 1⁄16 in. to ⅛ in. bigger than the post **(3)**. The gaps permit water to drain through rather than be drawn into a tight joint between decking and post. Posts are likely to swell and shrink with moisture changes, too, so the gap allows seasonal movement of the post that won't split the board **(4)**.







saw this technique when dismantling an old porch floor. Even though the decking had reached the end of service, the 80-year-old Douglas-fir joists were in nearly perfect condition; each was capped with a 3-in.-wide strip of #30 tar paper. Where the tar paper had failed, the joists were rotted. Many manufacturers sell plastic, rubber, and self-adhesive strips just for this purpose. Instead of buying material, I often cut my own joist caps from roll ends of tar paper and synthetic roof underlayment that I've saved. With the joists protected, I can start installing the decking, using the layout I planned.

### Board lengths should reflect deck size

When a deck is short enough, I order boards to span the full length. This works well for decks that are 12 ft., 16 ft., and even 20 ft. if you can find long boards. When I'm framing the deck, I often downsize it slightly (15 ft. 10 in. instead of 16 ft., for example) so that a full-length board will have enough overhang at the ends for a clean trim cut.

When a deck is larger than stock lengths can span, I plan for the joints to fall in a sequence at least 4 ft. apart. The decking looks better, and it's easier to keep decking straight when joints are spread throughout the field of boards. I also avoid boards shorter than 4 ft. at the ends for appearance's sake. Rather than just ordering a mountain of single-length boards and cutting them as needed, I select a combination of lengths to match the overall deck length. For a 22-ft. deck, I might order 16-ft. and 12-ft. boards (half a 12-footer is the makeup); on a 42-ft. deck, I would work with 16-ft. and 10-ft. boards.

The L-shape of the 58-ft.-long deck shown here leaves a variety of cutoffs that I could use to finish one course or to start the next. The trick is managing those pieces to avoid waste. I worked with 16-ft. boards as my primary stock. Starters were 16 ft., 12 ft., 8 ft., and 4 ft. I ran out the courses with 16-ft. boards and used the cutoffs as starter stock. Boards sometimes have snipe near the ends that creates a narrower or wider spot within 18 in. of the butts. Offsetting the joints by 4 ft. spreads out these differences in width through the field.

### Start at the rim, and work to the house

Many builders start the decking from the house and work toward the rim. This sequence is fine provided that you plan the course spacing or design the deck frame so that you don't end up with a narrow board at the outside edge. Narrow boards (less than half a board's width) at the perimeter are hard to fasten, limit the overhang, often loosen, and look funny. I work from the rim toward the house so that I can start with a full-width board at the posts.

Notching accurately around the posts is critical to getting a straight start for the decking. After the first board is established, I select a bunch of straight, uniform boards and lay down three to four courses. Spacers placed every 4 ft. to 6 ft. help me to gauge the gap between the deck

## Screw guns that save your back and knees

An auto-feed screw driver isn't as fast as a pneumatic nailer, but it does allow you to work upright rather than on all fours. And screws have much better holding power. I'm a fan of auto-feed drivers with either a handle or shaft extension. Once you develop a rhythm, you can drive screws with near-pinpoint accuracy. One key to driving consistently is to follow through the drive with even, determined pressure until the driver has finished setting the screw.

FastenMaster, Makita, Muro, Senco, Simpson Strong-Tie, and other manufacturers offer complete auto-feed driver kits or accessory extensions that cost about $450.

## THE FIRST STRAIGHT RUN SETS THE STANDARD

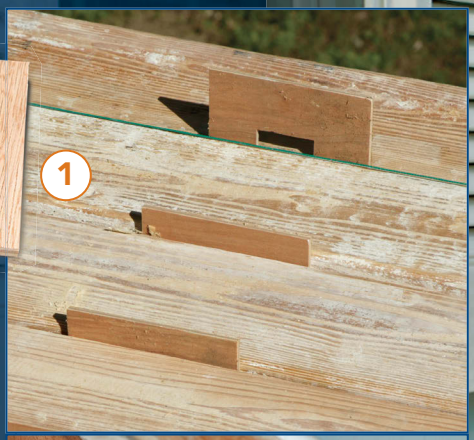
To establish the first straight board at the posts, I drive a screw into every fourth joist. After using a stringline to check that the board is straight, I adjust as needed and drive the rest of the screws (1). Decking looks better when the fasteners are installed neatly. To this end, I make a low-tech jig from a piece of thin plywood marked for each screw position. I orient the guide along the joist edge viewed between the deck boards, and I use my foot to hold it while driving screws from an auto-feed gun (2). My goal isn't precise screw location, just close alignment that doesn't catch the eye.


## If you use screws, match them to the decking

***Wood decking screws*** *have ribs (or wings) on the underside of the screwhead or wings that open a countersink or press the deck board into the decking.*

***Screws made for composite and plastic decking*** *have wings or reverse threads under the head to cut a pilot hole for the head to seat.*

## SPACERS KEEP THE GAPS CONSISTENT






I save scraps of thin plywood and cut U-shaped spacers that straddle the joist to stay in place. The spacers I made for this job were about 3/16 in. thick. There are also commercial plastic devices made in different thicknesses and styles. As the decking courses near the house, I make sure that the last board isn't too narrow (not less than half a board) and that the gap between the house and the board is about ¾ in. wide **(1)**. Here, to close the space at the house, I padded the plywood spacers with plastic coil stock on the last five courses; the incremental gain added up to 5/16 in., just enough to bring the gap at the house within tolerances **(2)**. I levered a flat bar against the house to tighten the last few courses; a scrap of decking protects the siding **(3)**. Spacers also keep miters open and dry. After using a rip guide to cut the 45° angles in place on one side of the deck's miter, I could cut the mating pieces on a miter saw first and screw them down. To keep joints at a uniform space that would drain properly, I used a strip of plastic coil stock as a gauge **(4)**.

boards. (On this project, I used decking that was kiln-dried after treatment, or KDAT, so I needed to establish uniform gaps between the boards.)

When I'm driving deck screws or nails without pilot holes, I skip the board ends and return later to drill the pilot holes for stainless-steel trim screws. I'm less likely to split boards using that technique.

Decking doesn't always run precisely parallel to the building. This can be due to the rim and building being out of parallel or to the deck boards going out of alignment during installation. There are a couple of ways to deal with out-of-parallel decking: A couple of boards in the last set of decking can be ripped with a taper, or the joint spacing can be adjusted. Minute adjustments in board width or joint spacing spread out over several courses won't catch the eye. Using one of these microadjustments avoids a severe taper rip of the last board next to the house, where it can be seen easily.

I always leave a ½-in. to ¾-in. space between the last deck board and the house. Water and any debris falling into the area will be flushed out rather than become trapped against the flashing, where it can fester and accelerate corrosion of metal flashing or rot the deck board. On this project, the last set of deck boards ended 1⅛ in. shy of the building, which is a bigger space than I prefer. To close the gap, I added 1/16 in. to the last five spaces by inserting a couple of shims made of plastic coil stock at each plywood spacer. The resulting space to the building was a strong ¾ in.

### When the decking changes direction, don't forget the blocking

The framing of this L-shaped deck ran perpendicular to the building. The decking met at the corner in a 17-ft.-long miter. From the corner of the house to the corner of the deck, I added diagonal blocking between the joists to pick up the 45° cuts (drawing p. 79). Rather than a single line of blocking, I added two rows of diagonal blocking spaced about 2 in. apart along the 45° cutline. The space lets water drain through the butt joints and moves the screw location farther from the end to reduce the chance of splitting the boards.

I also had to cross-block joists parallel to the deck boards from the bottom of the L. Blocking is screwed to the joists and is cleated beneath the drainage membrane for additional support.

I ran the first section of decking beyond the 45° cutline. Then I snapped a chalkline and used a plywood straightedge to guide a perfect cut. I cut 45° ends on the adjoining boards with a miter saw, then ran the rest of the deck pieces in each course toward the end of the deck. I trimmed the butt ends overhanging the deck after all the decking was laid. □

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## Three tools tame wild wood

**Pressure-treated deck boards are often warped, but there's no reason to discard them—just tame them with a board straightener. Years ago, I'd screw a cleat to a joist and drive a wedge-shaped block between the unruly board and the cleat to straighten the board. Now, there are tools to straighten boards efficiently. Each is engineered to use the nearest joist as an anchor and then is levered into the crooked board. The levers can be held in position until the board is fastened.**


**CEPCO BOWRENCH**
**$70**
**Pro:** Great leverage; use with either hand.
**Con:** Can dent soft decking.

**VAUGHAN BOWJAK**
**$45**
**Pro:** Small; compact; easy to use.
**Con:** Can rip joist tape.

**STANLEY BOARD BENDER**
**$45**
**Pro:** Can be foot-activated; great clamp.
**Con:** Shorter range of movement against board.