

My clients were frustrated with their house, a 1960s-style ranch that had just been renovated. Once this long process was over, they quickly realized two things: First, having the kids play outside meant that a little bit of yard rode in on their feet every time they entered the house (this is Portland, Ore.); and second, the two doors opening to the backyard weren't leading to a welcoming destination.

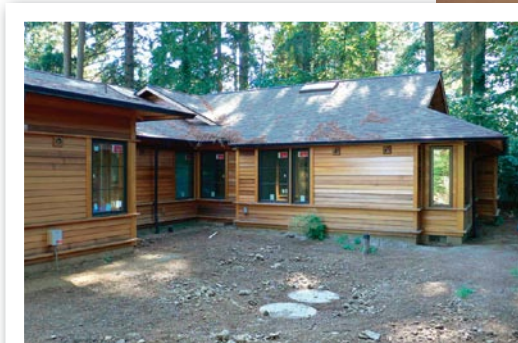
Even when the renovation got under way, there had been talk of a deck in the backyard, but those discussions were sidelined in the push to get back into the house. Now the homeowners knew they needed to structure the yard both to mitigate the dirt entering the house and to create an inviting outdoor space. Because I had done the renovation, I had a good sense of both the house and their needs. Dirt mitigation is easy enough, but "inviting" provided more of a challenge.

A Grade-A Deck

Neat details help this low deck make a graceful connection to the outdoors

BY SCOTT GRICE

I ended up building a long wraparound deck positioned to catch the most sun on this forested site. The largest section adjoins the public part of the house, with a smaller platform off the master bedroom. The two sections are connected by a narrower strip of decking that runs along the side of the bedroom wing.



One deck with multiple details

Linking the two sections gave me the opportunity to build in a few features that would make this simple, on-grade deck stand out. To start, I wanted a picture-frame border. Picture-framing is a clean way of hiding the visible ends of the deck boards by running a long deck board perpendicular to those ends, giving them something to die into. Because the deck turns a corner and wraps partway around the house, I faced having a field of deck boards running at right angles to each other. This would be a perfect spot to run a herringbone weave; 45° miters only open over time, and having a stark junction of perpendicular boards interrupts the flow of a deck.

The homeowners also requested an opening with removable panels in the deck to accommodate a small tree. Because this tree was to be installed after I completed the project, I had to frame the opening in a way that would support removable deck panels that went around the tree and also would allow the landscapers to remove enough of the deck frame so that they could plant the tree.

Although the appeal of each of these features is primarily visual, modifying the framing is the first step in constructing each of them, and what I'll focus on here.

Scott Grice is a builder in Portland, Ore. Photos by John Ross.





SOLUTIONS FOR TIGHT SPOTS

The lowdown on working on grade

The house sits low to the ground. I had about 14 in. from the ground to the kitchen door's threshold and 12 in. at the family-room door. That left enough room to bring the top of the deck in just under the house's cedar skirtboard. I planned to have a ledger to pick up the deck's load at the house and to run beams to carry the leading edge of the deck.

I cut spacers from $\frac{3}{4}$ -in. pressure-treated plywood to allow drainage between the ledger and the foundation. Before installing the ledger boards, I cut them to length, tacked them in place with regular concrete screws, and temporarily placed the 4x8 beams that would carry the other end of the deck. I strung lines around the deck's perimeter and marked the footings.

Once the footing holes were dug, I cut the beams to length. I then temporarily placed the first beam and determined the joist layout. Because the deck sat so low to the ground, I took the ledger down and attached all the hangers for the joists with the ledger boards and beams on sawhorses. With the hardware installed, I bolted the ledger boards to the foundation with $\frac{5}{8}$ -in. by 6-in. Simpson Titen HD concrete lag bolts (photo below), then set the beams.

With the deck so close to the ground, the beams sat right in the post bases. I put the bases on the beam first and then, using a stringline, a laser level, and some stakes, set the beams for final placement. With the beams in place, I filled the footings. While the concrete cured, I measured and cut the joists, returning the next day to install them.



Held fast. The ledger boards are bolted to the foundation. Angle-top spacers allow drainage and prevent rot.

Framing the border

Although most of the joist system was straightforward, I made slight modifications for the picture-frame border. When creating this type of border, I find it's a good idea to leave a drainage gap in the framing below the line where the deck boards meet the border so that water won't pool there. The framing also has to provide enough support to the border, which cantilevers off the edge of the deck by 1¼ in.

My answer was a triple 2x8 joist with ¾-in. shims (angled on top so that water will shed off them) placed between the second and third 2x8s (photo top left).

The double joist sits under the border. The single joist catches the end of the deck boards dying into the border, and the spacers allow water to drain. I left the rim board of this tripler long so that I could through-screw it into the end beam (photo left).

Installing the frame boards requires marking where the board will sit on the structure, snapping that line, and face-screwing the piece to the line.

Hidden fasteners can't be used here because the boards sit over a 4x8 beam. Because I didn't want the screws visible, I used a ¼-in. Forstner bit to recess the screw ⅝ in. so that I could fill the hole later with an ipé plug. After making the hole for the future plug, I drilled pilot holes and then used stainless-steel trim-head screws to fasten the board in place.

Because frame boards overhang the deck's skirtboard, the board can move a bit to remain parallel to the house or to true up a corner. With the frame boards in place, the field boards could be cut and installed. Before I did that, though, I put a ⅛-in. roundover bit in my router and used it on the cut ends of the deck boards to give them a more finished look (photo bottom left).

QUICK TIP

Check prevention. A wax emulsion applied to the freshly cut ends of ipé helps to prevent checking.



SOLUTIONS FOR TIGHT SPOTS

When hardwood meets hidden fasteners

For this deck, I used Deckmaster hidden fasteners. I've tried several hidden-fastener systems, but none has performed as well as Deckmaster. Ipé is a strong wood, and if it decides to move—which some ipé deck boards do—I have found that screws are the only things that hold fast.

Ipé is beautiful wood, but it is rarely straight and is difficult to make straight. Before installation, I take some scrap ipé and cut a bunch of shims the thickness of the gaps between the deck boards. I cut a lot and all at the same time for consistency. With my bag of shims and sized deck boards, I begin installation. As indicated in the photo at right, I use pipe clamps to get the board where I want it; then I use two drills, one to make a pilot hole, the other to install the screws. Here's more on the challenges of working with ipé and hidden-fastener systems.



Pipe-clamp persuasion. Deck boards are rarely perfectly straight, and ipé is no different. The difference is how much force you need to straighten them. Use bar clamps: They can span almost any distance, allow a great deal of precision, and by reversing the heads can be made to push instead of pull. Use scraps for spacers to maintain a uniform gap.



Mounting the hardware is the easy part

Deckmaster brackets mount on alternate sides of the joist. Having the ends overlap slightly ensures that a bracket is always available.



Ipé needs pilot holes. Use a drill bit slightly smaller than the diameter of the screw. Use a stop collar to prevent drilling all the way through the deck board. Many drills now come equipped with headlights, which are helpful for this type of work.



Bad for the back. Be forewarned: While this system is easy to install on the joists, installing the screws through the brackets and into the bottom of the boards when the only access is from above will have deleterious effects on knees and backs.

Crafting a herringbone corner

Because the deck turns a corner and wraps partway around the house, I faced having a field of deck boards running at right angles to each other—a perfect spot for a herringbone weave. This, too, required a minor alteration to the framing: To support the corner, I had to run a double joist at a 45° angle into that corner (top photo, below). This allowed me to keep my regular joist layout and catch the ends of the boards where they meet together in the weave. The double joist consists of two 2x8s with ¾-in. spacers sandwiched between.

With the boundaries of the herringbone set, I measured all the boards in the corner, and cut and detailed the ends. I then used spacers to lay them all in place to see if any adjustments were necessary to make the deck boards parallel to the house (bottom photo).

Everything was square in this case, but had the corner been slightly off, I've found that playing with the reveal between the boards will erase most discrepancies. Once I knew that the layout worked, I started with the longest board and worked my way to the corner.



Tie one header into the ledger



Turning a corner. The finished weave lets the deck turn the inside corner without interrupting the flow.



Planning for a built-in plant

Frame the opening

My approach to building the removable panels to accommodate the small tree my clients wanted to plant in the corner of their deck was basically the same as my approach to the picture-frame border. Like the border, the deck boards would die into the frame of the panels.

I used normal joist layout to determine one side of the box. From there, I laid out the dimensions of the box on the surrounding joists and built the frame of the box.

The side and header joists have to carry extra weight, so they are doubled.

I also extended the ledger board to the header to help tie everything together. I built triplers to support the panels and to allow for drainage. In this case, I left the framing loose in the hangers so that the landscapers could remove the framing when it came time to plant the tree.

I ran the deck boards around the box so that I could be certain that the layout of the boards in the panels matched the layout of the surrounding deck, and that I would have only full boards in the panels, not ripped pieces.



Double the side and header joists



Set removable supports



Mark center hole for tree trunk



Use spacers to lay out panels



Glue stretchers in place

Shop-built panels are detailed and fitted on site

I built the removable panels in my shop. The two panels were actually built as one unit and then cut down the middle to form the two units. This helps to ensure that everything is aligned.

I started by using a compass to mark the hole for the tree. Then I cut the two side rails and clamped them in position on my workbench. I then measured and cut the infill pieces.

Using spacers and clamps, I laid out the whole thing face down. Once it was laid out, I marked where I wanted to cut the dadoes for the 3/8-in. by 3/4-in. ipé stretchers that hold the panels together.

With everything marked, I cut the grooves and dadoes on a tablesaw, put the whole puzzle together again, then glued and screwed the stretchers in place. After the glue dried, I cut the panel in two and used a jigsaw to trim the middle stretcher flush with the panel's edge. Later, on the deck, I used a router with a roundover bit to put the finishing touches on the tree hole.

The finished panels have framing support on all sides except where they meet in the middle. Where the two panels meet, I screwed a 1x2 on the bottom side of one panel to support the other panel.



Trim middle stretchers



Finish edges of panels



Attach center supports



**Titen anchors are not
for exterior use**

Scott Grice's use of Simpson Strong-Tie Titen HD heavy-duty screw anchors to mount the deck ledger to the concrete foundation in "A Grade-A Deck" seems like an ideal use for the fastener (*FHB* #213 and online at FineHomebuilding.com). But when you read the manufacturer's fine print, you'll find that the screws are recommended only "for permanent dry, interior non-corrosive environments or temporary outdoor applications." They should not be used as deck-ledger mounting fasteners. I almost made the same mistake myself until a friend alerted me to the Titen's limitations.

—MIKE GUERTIN
editorial adviser