Contemporary Arts and

Updated design combines solid walnut with veneered panels

BY MICHAEL CULLEN

A few years back I made a pair of solid walnut nightstands (*FWW* #247), and recently I decided to design a bed to complement them. The design echoes the same elements: simple lines, tapering posts, and a touch of through-joinery to evoke the Arts and Crafts period. But here's the twist—the bed also includes veneer, something you don't often see in pieces from that time period. Using veneer on the broad panels of the headboard and footboard meant I could eliminate wood movement and all the considerations that accompany it. The bed still appears to be made of solid wood, but its classic lines carry a more contemporary sensibility. And because I sawed my own veneer from the same stock I used for the solid-wood parts of the bed, the grain and color matching are perfect.

Photo, this page: Tyler Chartier; drawing (opposite): John Tetreault

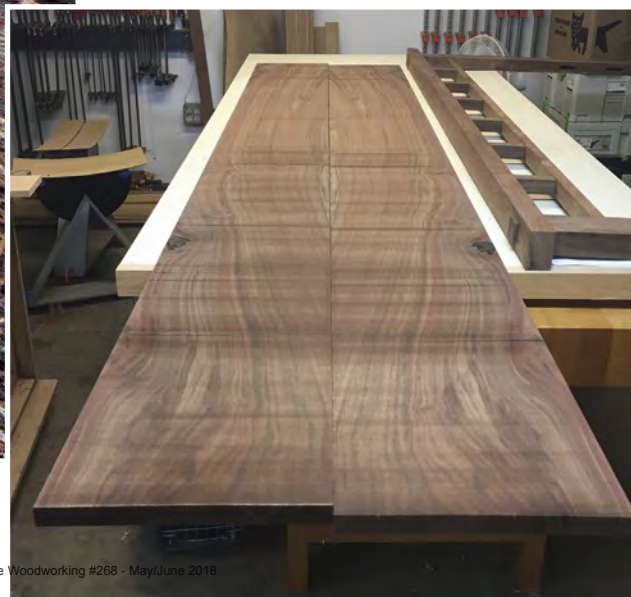
Crafts Bed

Juglans hindsii

Claro walnut

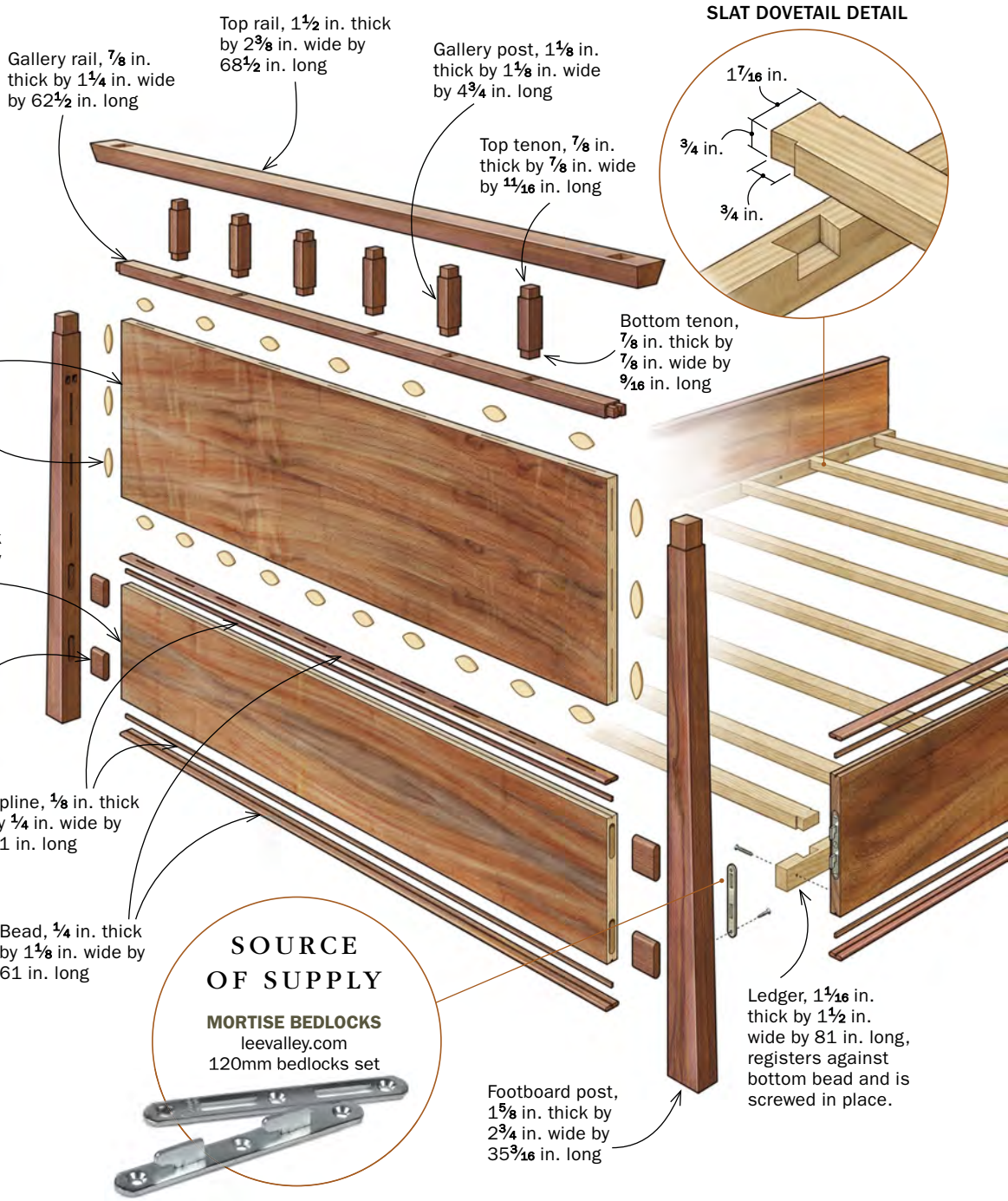
Claro is specific to California, where I live, and it's a standout species. It has wonderful color—chocolate brown with purple highlights and black streaks—and extraordinary grain that can shift in one board from a tranquil quartersawn pattern to what I call quasar grain, which spins and crinkles like nothing else I've seen. It also comes in huge planks, making for beautiful one-board tabletops. Claro is so scarce that it can usually be had only from a sawyer. One back-country sawyer I know, who carts his chainsaws around in an old white Cadillac, tracks down claro in the Sacramento Valley.

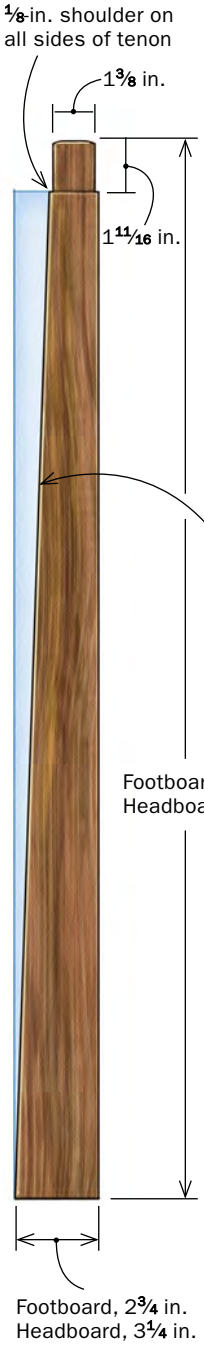
According to Matt Ritter, a botanist (and woodworker) with expertise in California plants, claro is also known as Northern California black walnut, and its Latin name is *Juglans hindsii.* But he says *J. hindsii* was used as rootstock for English walnut orchards and often hybridizes with other species of walnut. As a result, there's confusion in the marketplace, and several different species and hybrids are sold as claro.



CLARO WALNUT BED

Using shopsawn veneer on the bed's headboard and footboard panels, Cullen made economical use of his supply of claro walnut and obtained a perfect match with the solid-wood parts of the bed. The Baltic-birch plywood substrate eliminates wood movement across the panels.





POST

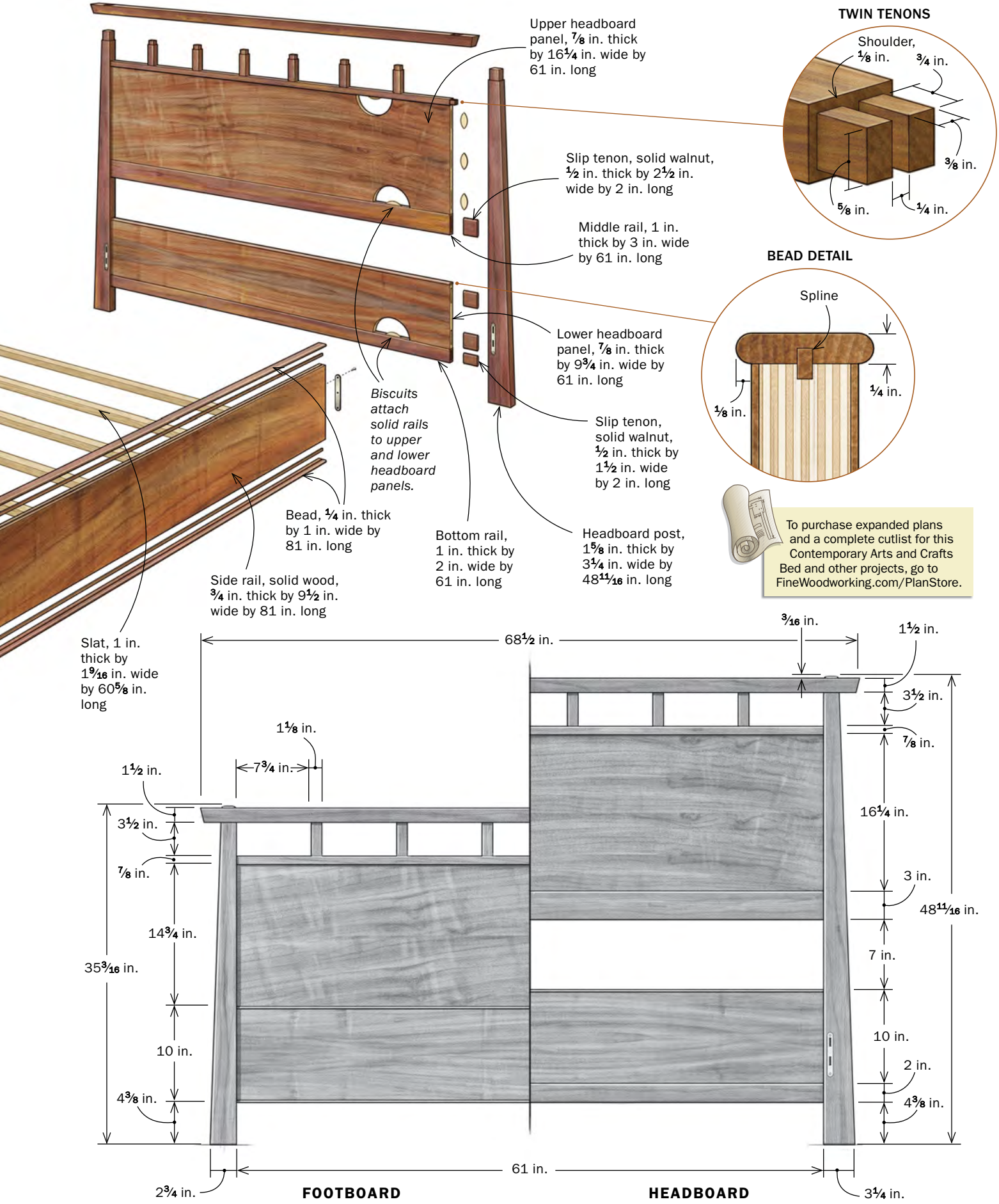
TIP FOR CUTTING DOUBLE TENONS

Check outer cheeks first. *After cutting the outer cheeks of the tenons, check their alignment with the outer walls of the mortises.*

Inside afterward. *Next cut the inside cheeks with a tenoning jig and bandsaw the waste between them. Sneak up on the fit.*

Chisel cleanup. *Having laid out the joint so the gap between the tenons equals the width of your mortise chisel, clean up by hand.*

Photos, except where noted: Jonathan Binzen; drawings, except where noted: John Hartman



MORTISE FIRST

Multi-Router mortises. *Cullen likes the Multi-Router for mortising because of its speed, accuracy, and easy setup.*

Multiple mortises. *For extra strength, the lower gallery rail connects to the posts with double tenons.*

Chisel carefully. *The through-tenon in the top rail is the bed's signature detail, and Cullen chisels to layout lines on both faces of the rail to make an impeccable mortise.*

BEVEL THE RAIL

Important angles. *Cullen uses a crosscut sled on the tablesaw to cut the ends of the top rail to a 14° angle. Then he saws the side bevels, ripping with the tablesaw's blade set to the same angle.*

END BEVEL

SIDE BEVELS

This bed frame is designed for a queen-size mattress and box spring, but you can adjust the dimensions to suit any mattress. Whatever mattress I use, I want the top surface to be 26 in. above the floor, which is ideal for sitting with your feet touching the floor. If you are using a box spring, the trick is to hide it behind the bed rails. I like to have its top surface 1 in. or more below the top of the side rails so that the area where sheets and blankets get tucked in is hidden. I also leave a ½-in. gap for bedding between the mattress and the bed rails on all four sides.

Choosing the lumber

I had a few choice large planks of claro walnut for this project. Because claro is precious and difficult to procure, I took considerable care in choosing and sawing out the parts. When choosing post stock, I looked for pieces whose grain and color would be balanced between the right and left posts. For the solid horizontals I wanted long, pleasing quartersawn grain if possible, so that the eye would not be distracted by a sudden change of color or line. There were many choices for veneer stock in this particular slab, from highly figured to subtle. I'm always attracted to the highly figured areas because of their dazzling beauty, but for this bed, in keeping with the understated feel of the nightstands, I eventually opted for quiet grain that rose in a subtle arc and had almost no color changes.

Handsaw works well for roughing it out

When cutting parts from unmilled planks, I usually use a sabersaw or a circular saw, but with boards like this claro, with a lot of cupping, twisting, and figure change, I use a handsaw. That way I can keep the kerf straight and vertical despite the twisting terrain, and

THROUGH-TENON ON THE POST

Tenons on top. *Cullen cuts the cheeks of the through-tenon first, using a shopmade tenoning jig.*

Shape the shoulders. *With a crosscut jig on the tablesaw, Cullen cuts the tenon's shoulders: small ones first, wide one last.*

I can make perfect stop cuts so unused parts of the board can be saved at their largest possible size and put aside for future projects.

Post and gallery joints

I start the joinery with the through-tenon where the post meets the top rail. This is the most important joint in the bed for two reasons. First, because it's a through-joint that is so visually prominent with its beveled top, the fit needs to be flawless. Also, the location of these mortises will determine the placement of all the other joinery in the headboard and footboard. Remember that the distance between the posts will also be the distance between the side rails—so double-check that this span is just right for your mattress.

I cut the through-mortises using a Multi-Router. A plunge router used with a good jig will also work well, but I prefer the Multi-Router for several reasons. Because the router is bolted in place and the workpiece is clamped to the table, the cuts are clean, fast, and repeatably accurate; there's no chance of the bit wandering off course. The stops are easy to set, with no fussy alignment. Another attractive quality of the machine is visibility: Both the workpiece and the cutter are in view, and the depth of the cut is easily monitored. It wasn't inexpensive, but it easily earns its keep.

After the through-mortises are cut, I cut the double mortises for the gallery rail, also at the Multi-Router. Then I cut the through-tenons on the tablesaw. I use a tenoning jig for the cheeks and a crosscut sled for the shoulders. I really take my time checking and adjusting the fit until the tenon slides up through the mortise smoothly and its shoulders seat cleanly against

Build the pyramids. *After marking around the tenon where it emerges from the upper gallery rail, Cullen uses a block plane, rasp, file, and sandpaper to shape the top to a softened pyramid.*

Shopsawn sheets. *Sawing his own veneer enabled Cullen to match the solid wood in the bed exactly. He used a bandsaw to cut the claro walnut veneers 1/16 in. thick, then had them thickness sanded to 3/64 in. thick.*

the bottom of the rail. With both joints fitted, the exact distance between the posts has been established, and now the gallery rail can be cut to length and its double tenons can be marked and cut.

I cut the double tenons with a tenoning jig on the tablesaw. I first cut the outer faces of the two tenons and check to see that they match up with the outer wall of the mortises. From there, I move on to the inner faces. I use the bandsaw to remove the waste between the tablesaw kerfs, and do final fitting with a chisel.

With the post joinery for the rails complete, I lay out the short posts for the gallery. I cut all the mortises for them on the Multi-Router and square up the corners with a chisel. The tenons are cut at the tablesaw.

Make the veneered panels

I used shopsawn veneer over a plywood substrate for the headboard and footboard panels. It is much easier and quicker to buy commercial veneer than to saw your own, but in taking the harder route you gain the great advantage of being able to perfectly match the grain and color of the veneer to the solid wood. And there's peace of mind in using bandsawn veneers, which are double the thickness of their commercial counterparts, so there's minimal chance of sanding or scraping through to the substrate.

I cut the veneers at the bandsaw, setting the fence at just over 1/16 in. After slicing the veneers I sent them

Benchtop jointer. *Two lengths of plywood edged with solid wood and fitted with dowels at the ends for alignment comprise Cullen's rig for routing dead-straight edges on a stack of veneers.*

Glue and press. *Making a tent of adjacent sheets of veneer, Cullen applies glue to the edge joint. After laying the sheets flat and stretching blue tape across the show face of the joint, he applies glue to the other face and the substrate and slides the panels into his vacuum press.*

Prepare the panels

Space for a spline. *After trimming the veneered panels to width, groove the edges to accept the spline that will align the bead.*

Slip tenons in the ends. *After carefully cutting the panel to length at the tablesaw, Cullen routs mortises for a pair of slip tenons in each end.*

through a friend's wide-belt sander, so they finished out between 1/32 in. and 3/64 in. thick. Using veneer much thicker than that should be avoided, because it will tend to act like solid wood and move significantly with seasonal changes. Once I had the veneers sanded to thickness, I jointed their long edges with a router and a shopmade jig.

After this I taped the sheets together—having applied a thin bead of glue to the edges. I use Baltic-birch plywood as my substrate and urea-formaldehyde for gluing down the veneers in my vacuum press. To be certain the panel will remain stable and flat, it's important to choose high-quality, dead-flat substrate

Becoming a bead. *Cullen rounds the edges of the bead stock at the router table. The wide fingerboard dampens vibration on the thin workpiece for a smooth cut.*

Beads and biscuits. *When gluing on the beads, use cauls the same thickness as the panel to ensure the clamp pressure is properly directed. Afterward, to cut the biscuit joints through the upper bead, a piece of 1/4-in. sheet stock serves as a spacer.*

First glue-up

Long joints first. *Glue the panels together, dry-fitting the posts to them to ensure proper alignment.*

material and run the grain of the veneer 90° to the face plies of the plywood.

If I'm using commercial veneers I use a platen that goes on top of the panel in the vacuum bag to ensure that the pressure is distributed equally across the surface. Bandsawn veneers are thick enough that the platen is unnecessary.

Now that the panel's out of the bag ...

When the vacuum bag has done its bit, I clean one long edge of each panel, then rip them to width on a tablesaw. That's easily done, but when crosscutting them extra care should be taken to avoid chipout. The most vulnerable point tends to be at the end of the cut on the top face. The best insurance is to put a strip of blue tape along the line of cut and burnish it down, then saw through it. With the panels cut to size, I rout mortises for the pair of slip tenons in each end. I transfer the layout marks onto the posts and cut those mortises as well.

Next I glue ¼-in.-thick solid-wood beads to the top and bottom edges of the footboard's lower veneered panel (I do the same with the solid-wood side rails). The headboard's lower panel only has a bead on top. The bead stock gets a roundover along its edges and a groove in the underside for a spline. Cut the groove down the middle of the bead at the tablesaw. Then use a ⅛-in. roundover bit to create the beading profile at the router table. Once the beads are on and cleaned up, I cut the biscuit joints that join the upper panel to the lower panel, the posts, and the gallery rail.

Three-stage assembly

I begin assembly by gluing the veneered panels to each other and to the gallery rail. It's vital to keep them aligned perfectly end-to-end during this glue-up, so I

Now the posts get tapered. *After the panel glue-up, remove the posts and bandsaw the taper on their outside face. A few passes with a jointer plane make the sawn surface smooth.*

dry-fit and clamp the posts in place during assembly. I have yet to taper the posts, so they are still square, making for good cauls. When the glue has cured, I remove the posts and taper them, cutting to the line at the bandsaw and then cleaning up with a handplane.

Step two in the assembly is gluing the posts to the veneered panel subassembly. I save the tapered cutoffs and use those to give the clamps a square surface to grip, and one that I don't mind marring. I test-fit the top rail during this glue-up to be sure all is in proper alignment. Then, when the clamps come off, I finish up by gluing on the short gallery posts and the top rail.

With the headboard and footboard complete, I install the bed-rail hardware. I used the double-hook fasteners that allow you to drop the side rail into place. Simple to install and rock-solid in use, and let me avoid putting bed bolts through the post, a look I can't abide. □

Michael Cullen builds furniture, bandsawn boxes, and sculpture in a converted egg-sorting shed in Petaluma, Calif.

Final assembly

On with the posts. *Using the tapered cutoffs as cauls, glue the posts to the rails and panels.*

Online Extra

For a closer look at the bed-rail hardware Cullen used in this bed, go to **FineWoodworking.com/268.**

Capping it off. *Finally, glue on the gallery posts and knock the top rail into place. Cullen finished the bed with Minwax Wipe-on Poly Satin. He followed that with wax.*