



# Shop-Sawn Veneers Make Better Furniture

Wrap one beautiful board around an entire piece

**T**he main reason for using veneer is the same now as in Tutankhamun's time: Veneering makes it much easier to cover a large area with very attractive or rare wood. Used with man-made sheet goods as a substrate, veneer also minimizes the construction difficulties posed by solid wood, which moves with moisture changes. These days, there are veneer options that weren't available when the pharaohs reigned, commercially cut veneers as

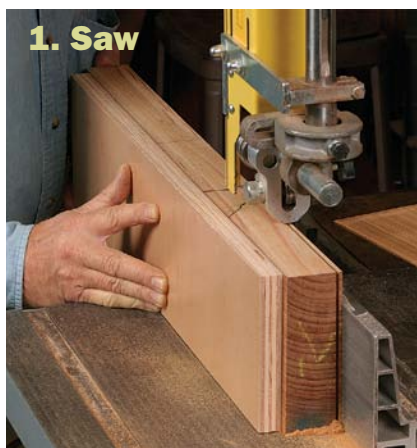
**BY DAVID WELTER**

well as shop-sawn. However, I only work with veneers I resaw myself at the band-saw. And that's what we teach at College of the Redwoods, in the cabinetmaking program founded by James Krenov.

Commercial veneers are available in thicknesses from 1/32 in. to 1/60 in., but the

slightest misuse of furniture with these thin veneers can cause damage that requires a repair with the same vulnerable material. And it is rare that you'll be able to perfectly match commercial veneers to the solid wood you'll need for the other parts of a furniture project.

In stark contrast, shop-sawn veneer, described by Krenov as "real," with a finished thickness of 1/16 in. to 3/32 in., can better withstand everyday use. And if the



**1. Saw**



**2. Join**



**3. Use**



veneer is damaged, it is thick enough to sand or even plane, restoring the surface. Also, you can cut veneer from the same boards you use for solid wood, providing harmony throughout a project. Furniture made this way stands out from the arranged marriages of commercial veneer and solid wood. And because shop-sawn veneer is thicker, it's easier to work with and doesn't bubble as much as commercial veneer during pressing.

Successfully sawing and using your own veneers isn't difficult. The keys are careful bandsaw setup, thoughtful layout, and a few edge-banding tips.

### Choose the right blade

No method of ripping or resawing is better than a bandsaw. And a few minutes of careful setup will yield great resawing results without great risk.



Photo: College of the Redwoods

The first thing to consider is the blade. A resaw blade needs deep gullets that can eject all of the sawdust that these tall cuts generate. I suggest a 3 tpi (teeth per inch) blade at least 1/2 in. wide. For dedicated resawing in widths greater than 6 in., a 1 1/2 tpi, 1-in.-wide blade reduces the effort needed to feed the stock and has more room to clear waste from the kerf.

Even if you have the blade set up just right, you might have to negotiate for drift, the tendency for the stock to wander away from the fence or for the blade to cut a

## The result is harmony

### A world of color in one board.

*Jim Budlong found startling color variation in an unusual piece of birch, and arranged its veneers beautifully around the doors and sides of this wall cabinet. The interior is veneered with ash, which gives it its own personality.*

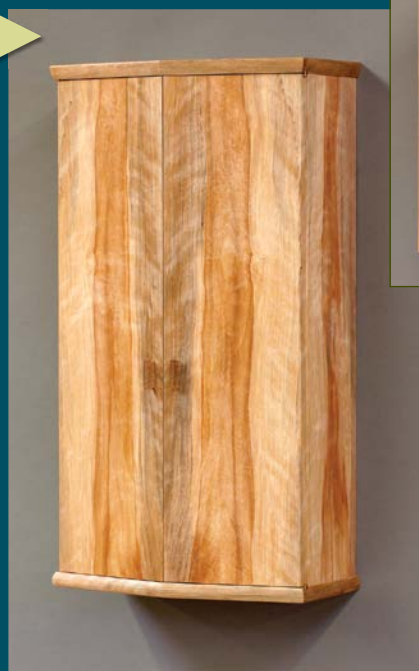


Photo: David Welter

**Combine solid wood with veneer.** Although all of the wood in this China cabinet is Douglas fir, Welter used shop-sawn veneers in the doors and sides, and solid fir for all of the frame parts.

### Seamless display.

*George C. Gaines spread Macassar ebony veneer over this buffet, with uninterrupted grain lines passing through the doors. The legs are Gabon ebony, which picks up the dark brown streaks in the veneer.*



Photo: Sean Sprague



## Smart setup for smooth resawing



**Center the blade.** The upper wheel is crowned, and the blade needs to run on the center of it to cut straight. While spinning the upper wheel by hand, gradually turn the tilt adjustment screw. A small tweak may be all that is necessary. Spin the wheel a few turns to see that the blade has settled in the right position.



**Adjust the guides.** Back the guides and thrust bearings away from the blade on both the top and bottom guide assemblies, and then set them as close as possible to the blade without touching it. You should just barely be able to see light between the guides and the blade.



**Match the fence to the drift.** To find out if your blade wants to drift one way or the other as it cuts, draw a straight line on a scrap piece, parallel to its edge, and move the rip fence out of the way. Now try to cut along the line. The angle you need to hold the board at is the angle of drift. Hold the scrap at that angle and turn off the saw. If the saw's fence allows adjustment, set its angle parallel to the scrap. Otherwise, use that angle to set up a shopmade fence.

wavy line. The solution is easy: Just angle the fence to match the blade's natural cutting angle (see photo, below).

### Get ready to cut

In most cases, the veneered panels will need edge-banding of some kind, and you want that to blend in seamlessly. So before you cut your first sheet of veneer, you need to cut the edge-banding from your board.

Estimate that you'll be cutting five veneers from 1 in. of stock. Most likely, you will be able to get at least six veneers, but the pessimist is rarely disappointed. Plan to cut the veneers slightly under 1/8 in. thick. If you are cutting a width greater than 8 in., favor a slightly heavier cut, but no thicker than 1/8 in.

Now you are ready to resaw. Start by surfacing one face of the board and then squaring an edge to it. After each cut, lightly joint the sawn surface. Each leaf then will have a jointed face and a sawn face. If the veneers will be thickened by machine, having one clean surface will give you a head start.

In your first outing, plan to cut veneers about 4 in. longer than the finished dimension. The extra length allows room for bobbles at the ends when cutting and for snipe at the planer. Additionally, it provides latitude for aligning grain. Also, give yourself 1/2 in. of extra width to accommodate jointing the edges before gluing the



## Resawing, step by step



**Remove edge-banding first.** Slice off solid banding now, and you'll be sure it will blend seamlessly into the veneered surfaces later. Mark the edges and ends of the board so you know which side the banding came from, and the order in which the veneers were cut.



**A few tips from a pro.** If you are cutting through the entire board, the last  $\frac{3}{8}$  in. can be tricky to handle. This problem can be solved by taping a  $\frac{3}{4}$ -in. backer board to the back face of the board (above). A steady feed yields the best cuts (right), so find a position from which you can feed the cut with little or no shifting. Use additional support such as rollers if the stock is long. Keep the stock in contact with the fence with the right hand, and use your left to feed the workpiece at a constant rate no faster than the blade will allow.



**Start at the jointer.** Joint one face and one edge of the board. These will be your reference points against the table and fence. After each bandsaw cut, rejoin the same face of the board to maintain a solid reference and give you a jump on smoothing the veneer. Stack the veneers in order.



## How to plane veneer safely



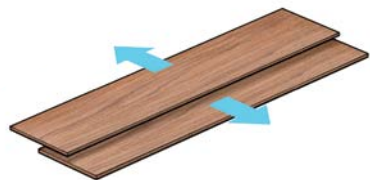
**Make an auxiliary bed for your planer.** If your resawing skills are good, the unjointed face of the veneer may not need to be machine surfaced. But if you need to smooth it further, use a thickness planer with sharp blades and a simple melamine auxiliary bed to support the thin pieces.





## Arrange leaves thoughtfully

### SLIP-MATCH



**Slip-match regular grain.** If the veneers have a consistent pattern across the face, as is likely in a quartersawn board, consider slip-matching. Place the first leaf on the bench, lay the second next to it, and so on with no flipping.



veneer leaves into a panel and squaring up the panels.

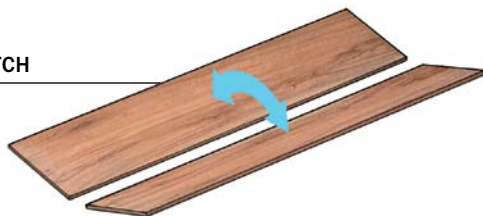
Remember, there's nothing like the security of having at least a couple more leaves of veneer than you need for a project. The extra leaves will allow more options for the arrangement of the grain pattern and serve as a backup in the event of a mishap.

### Arranging leaves

After you have cut a stack of veneers, you have an opportunity to play with the grain pattern to create a pleasing effect. The leaves can be arranged in a number of ways: book-matched, slip-matched, end-for-end, or a combination.

Of course these are only starting points. When book-matching, notice the way that light reflects from the veneer surfaces. A phenomenon known as chatoyance often occurs. One leaf may seem brighter than another. The effect may be most apparent on vertical surfaces. The resulting

### BOOK-MATCH



**For eye-catching figure, book-match.** Pick any two leaves as they came from the board and open one leaf as you would open a book. Open the book on the left, and then the right. Now look at each of those options upside down. With just two leaves, you already have four choices.



**A trick for three leaves.** Book-matching can look awkward with three leaves (left). Consider turning the middle leaf end-for-end (below), so the grain lines flow from one piece to the other.





## Tricks for flawless glue-ups



**Joint the edges with a handplane.** With the veneer elevated on a strip of stock and sandwiched under another piece, use a plane on its side to take light passes and joint the veneer edges. If the side of the plane is not square to the sole, plane one leaf face up and its mate face down. The resulting angles will be complementary, giving a good joint.



**White glue is best.** A fine bead of ordinary white glue is all you need to keep the joint together. Quicker-tacking yellow glue can begin to set before you've made final adjustments.

impression of striping can either be unsettling or used to good effect.

### Join the veneers like solid wood

When you are ready to glue the veneer leaves together to create a bigger panel, you must first joint the edges. Using the jointer isn't a good option because it will leave tiny scallops in the finished joint. But a handplane does a great job, as long as you sandwich the veneer between boards.

Some woodworkers use painter's masking tape to pull the leaves together. Be-



**Wedges instead of clamps.** Before applying any glue, test-fit the joint and close any gaps with selective handplaning. Clamp two fences to a work table, and use pairs of opposing wedges to apply pressure (left). To keep the veneers flat, just weigh them down with lumber (above).

cause it is a bit of a pain to remove the tape and it obscures the fit of the joint, I prefer a clamping method that uses small wedges to apply pressure. If you go with tape, do it on both sides, use more strips than you would clamps, and pay extra attention to keeping the veneer surfaces flush with each other.

After the leaves have been joined and the glue is dry, trim the veneer sheets to size. If you are applying an edge-banding after you veneer, you'll want to make the sheets the same size as the substrate, or slightly

smaller. The exposed substrate edge makes it easier to trim the panel to finished dimensions. If the sheets are to be applied to a substrate with captured banding, remember to include the banding dimension when you size the veneer sheet. After the veneers are glued to the substrate, you can trim them down to the banding.

On the jointer, joint one long edge of the sheet straight, then use a tablesaw sled to crosscut the piece to length before ripping it to width. A quick word about the substrate: You are taking pains to create



## Trim the sheets to fit the panels

**First, rip to width.** Joint one side of the veneer sheet (a regular jointer works fine), and then rip it to size on the table-saw. An auxiliary fence keeps the thin veneer from sliding under the rip fence.



**Now crosscut.** To prevent tearout on the lower edge, support the cut with an extra piece of plywood on the base of your crosscut sled, creating zero clearance around the blade.

an item of quality, so glue the veneers to a good, void-free substrate. Use multi-ply birch or maple plywood. Fiberboard products may be flat, but they do not hold fasteners well and will swell if they get wet, to say nothing of the off-gassing and noxious dust. So I don't use products like MDF.

The shrinkage of glue exerts significant force on the substrate. To minimize the risk of cupping, be sure to veneer both sides of the substrate at once, and orient the plywood substrate so that its outer veneer is perpendicular to the direction of the veneer you are applying.

### Edge-band before or after?

Unless your veneered panel is trapped in a frame-and-panel door and the edges won't be seen, you'll need to apply an edge-banding that covers the substrate, either before or after you veneer. This banding can be made wide enough to take on a shape, or at least to allow the edges to be softened. If you followed my advice and cut the banding from a board before it was sawn for veneers, your edging matches the faces of your panel, and the color or grain pattern continues from the top across the edge. This shows care and attention.

Captured bandings, about 1/4 in. thick, are glued to the substrate before the veneer is applied. They are most often used where the appearance of after-the-fact framing would be undesirable; for instance, if you want a pattern to flow uninterrupted from a door to a drawer above. Here, an applied edge-banding would be a visual disturbance and look like a production job on shop plywood.

Applied edge-banding is glued to the substrate after the veneers are in place and is rarely more than 1/2 in. wide. The thickness of an applied banding provides you with the opportunity to shape a profile on a tabletop or cabinet top.

Also, the two types of banding can be used on a single panel, such as a door. A panel can look like a solid board if the top and bottom are captured and the sides are applied. Applying banding at the sides of the door also allows for the shaping of overlapping rabbets where two doors meet. □

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## Two edging options

In general, use captured banding for end-grain edges and applied banding for long-grain edges.

### 1 Capture edge-banding before veneering

**Tape does the trick.** Because the veneer will cover this glue joint, tape is plenty strong for clamping. The edging should be proud of the substrate on each side and a little longer. Glue two opposite sides at a time, trim the banding to length, and then band the other two sides. Last, using a hand-plane, flush all the banding to the level of the substrate.



**Veneer both sides at once.** This will balance out the tension as the glue dries, and prevent cupping. You can use a different wood on each side, but the woods should be of a similar nature, such as quartersawn with quartersawn.



**Pressing issues.** Welter manages smaller work with hand clamps and cauls to distribute pressure. Larger panels go in a vacuum bag. For both, Welter goes through a dry run first, and uses blue tape to keep the veneers aligned.

### 2 Or apply edge-banding after veneering

**Applied edge requires more pressure.** The banding should be slightly wider than the panel is thick. Blue tape helps with alignment but isn't enough. Cauls and clamps must be used to keep this visible joint tight.



**Plane banding flush after the glue dries.** To keep the plane from tilting and overcutting near the edges, concentrate your pressure over the substrate. Welter uses one plane set for a thicker cut initially, and then switches to another plane to take thin cuts and flush the banding to the panel.