

# Success With Large Slabs



From flattening to butterfly keys, how to handle one-of-a-kind pieces of wood

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Normally, when you build a piece of furniture, you shape the wood to fit the style—ball-and-claw feet, cove moldings, raised panels, and so on. But when you work with a slab, you have to shape your woodworking technique to fit the wood. The slab is the star, with all its seeming blemishes—swirly grain, knots, splits, and sapwood—adding to its character. You may think of a slab as a thick piece that's very long or very wide, or both. Or, you may think that a slab must have a live edge. That's not always true. A slab can be small (or smallish). It can have four sawn edges. It's any piece of wood too big for your planer and jointer, with unique characteristics that you want to preserve and highlight, rather than remove or resaw away.

Like Hollywood stars, slabs can be temperamental and difficult to handle. Our furniture-making business builds period and contemporary designs. We've worked with plenty of slabs over the years, so we can show you how to make them behave.





You won't find slabs at every lumberyard, so we'll begin by talking about where and how to shop. Then we'll explain how to move big pieces without injury, the best techniques for flattening slabs and cleaning up their edges, and how to deal with splits, checks, and wood movement.

### Tips on buying slabs and moving them safely

If you're lucky, you already have a big, interesting piece in your shop. If not, you can buy slabs from hardwood dealers on the Internet or from a local lumberyard or sawmill. Whatever the source, something about the slab should draw you to it: lively grain or figure, say, or an interesting combination of heartwood and sapwood, characteristics that give the slab its organic appeal.

In our experience, lots of companies sell great slabs. Even if you buy from a dealer miles away, you can ask for digital images of the slab, with closeups of the grain and any unique details. Shipping couldn't be simpler. Chances are, the dealer will write your address directly on the slab and ship it bare. When shopping at a local dealer, bring a moisture meter and some water or mineral spirits to pour on the surface to reveal the grain. A small handplane also comes in handy to smooth a small area.

The slab needs to be dry when you buy it. If the wood continues to lose moisture when you bring it to your shop, it will check and split; other imperfections may worsen, too. Kiln-dried slabs have a moisture content of around 7.5%; in our experience, that will increase to around 11% if the wood is allowed to stabilize indoors; that's the maximum moisture content you want. On the other hand, in most of the country, slabs left outdoors to air-dry won't be dry enough even after years in a stack. Whenever possible, check the slab's moisture content before you buy.

Hardwood weighs about 5 lb. per board foot, so any slab will be very heavy. Some bubinga slabs in our barn weigh more than 1,000 lb. Make sure you round up enough helpers to handle the weight safely. Try to keep lifting and hand-carrying to a minimum. Don't flip the slab any more than necessary; it can slip and fall on someone or damage an edge. If you back your truck as close to the shop as you can, then slide the wood onto a sturdy cart, you may be able to move the wood without lifting it

## How to choose a slab



**Preview the finished look.** Mooberry floods the face of a slab with water or mineral spirits to bring out the grain and figure.



**Check the dryness.** Use a moisture meter to determine whether the wood is dry enough. Aim for a moisture content of about 11% or less.



**Plane a patch.** You can check the wood's color and grain by smoothing a small area with a block plane.





## Router jig flattens slabs



**Mark the high spots.** Lay a long straightedge across the slab to find its high spots, then mark those areas with a pencil or a lumber crayon.



**Steady the slab.** Push shims under the slab to prevent it from wobbling in the jig as you flatten the face.



**Cut away high spots.** A plywood sled holds the router as it's moved from side to side. A 1-in. straight bit (inset) quickly removes the waste. When one side is relatively flat, turn the slab over and flatten the other.

completely. Bottom line: Don't work with slabs that are too big for you to handle safely.

### A really big board needs a really big jig

Don't use a board that looks like a potato chip. Even after you flatten it, the board will tend to revert to that shape. At the same time, remember that wood doesn't need to be dead flat. We consider small amounts of warp, cup, or twist perfectly acceptable in a slab top as long as it is smooth enough for the table's purpose—a dining table needs to be flatter than a coffee table. If you don't need perfect flatness and don't want to make the piece too thin, try using only a random-orbit sander, even though it takes time and makes way too much dust. You also can flatten a slab with handplanes, and we've done that. But handplaning tends to be fun for the first 10 minutes, trying for the last four hours. A power plane is faster, but we often use a large router jig.

The jig is basically a plywood trough large enough to hold the slab, with sides about an inch taller than the slab. The router is screwed to a plywood sled that's more than twice the width of the trough, so it can be moved from edge to edge. Find and mark the high spots using a straightedge or winding sticks. Use a 1-in. straight bit and set the router to remove  $\frac{1}{8}$  in. of material from the highest part of the slab. Take multiple cuts across the board in an organized pattern, increasing the depth of cut as needed. Check your progress using the straightedge. When you're close to having





# How to shape edges

## **Just a cleanup.**

If you like the shape and texture of a live edge, just use a wire brush attachment in a drill or right-angle grinder to strip bark, dirt, and other loose debris without affecting the edge's unique texture.



the board flat, switch to a random-orbit sander to smooth the surface. Work on the bottom face first to flatten it. Make the bottom presentable, not perfect. Then flip the slab and sand the top, after fitting any butterfly keys or patches (more on that later).

With very large slabs that won't fit in a router box, you'll need to get creative. We once rented a four-head random-orbit floor sander (available at home centers). It did the job. When all else fails, find a shop with a combination planer-sander or a wide-belt sander and pay them. In our area, shop charges are \$50 to \$250 per hour.

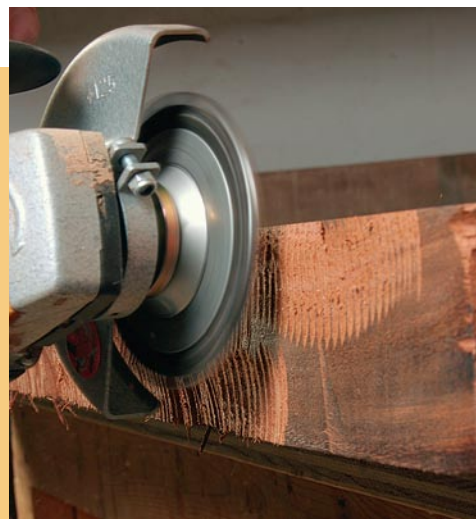
## **Refine the edge but keep the character**

When we select a slab, we always check the edges. One or both long-grain edges will be freeform, or live, while the cross-grain ends are sawn. We want to be sure that no one edge detracts from the overall appearance. There are several ways to finish a live edge. We usually remove any bark and strengthen punky areas with epoxy (we use West System, but any good epoxy will work). Then we smooth the edge with a star sander, flap sander, or wire brush, mounted on a right-angle grinder. A random-orbit sander works, too. We determine when we've sanded enough by touch. If it feels sharp and rough, we sand more.

If the freeform edge isn't where we want it to be, we move it with a chainsaw and work it over with a grinder, a rasp, and sanders. We may also reshape a cross-grain end if it seems too straight.

## **Keys turn minuses into pluses**

If stabilized properly, cracks, splits, and voids can enhance the



**How to rework a long-grain edge.** If you need to relocate it, use a chainsaw or try a Lancelot chain-grinding attachment (top). Follow up with a sanding disk (bottom) and other sanders to leave an irregular edge that's smooth to the touch.



**How to rework end grain.** Trim the end with a chainsaw (left). Use a wire brush (below) or sanding disk in a right-angle grinder to knock down sharp edges left by the chainsaw. Follow with sandpaper for a bit of final smoothing.





# How to inlay butterfly keys



**Lay out the keys.** Well-placed butterfly keys stabilize or hide defects, and enhance the handcrafted, organic look. Zuba uses a series of templates to decide how large to make each key and where to position them. Then he marks their location on the slab.

appearance of the slab. Cyanoacrylate glue fixes small problems, such as a splinter on an edge or a small check. When that's not enough, butterfly keys constrain a check or a split and keep it from opening further. A key can also conceal a defect such as a loose or missing knot or an ugly stain. Keys are a wonderful focal point. The butterfly says, "I meant to do this."

Make the key from interesting wood. We use a lot of rosewood, but other close-pored, attractive woods such as tiger maple will work. The contrast between the key and the slab is part of the attraction.

For strength, we make keys half to three-quarters the thickness of the slab. In our experience, thinner keys may not be strong enough. Pay attention to the shape, too. We have patterns for 30 different ones, ranging from small butterflies to huge pterodactyls. Lay the patterns on the slab and try layouts until you're happy. For some reason, an odd number of butterflies seems to look best.

## 1 POSITION AND CUT THE KEY



**Mark the blank.** Trace the shape of the key onto the blank, with the grain oriented lengthwise.



**Cut the key on the bandsaw.** Use a disk sander to smooth the cut edges, keeping the sides flat and square.

Once the top is patched, keyed, and smoothed, finish it with a clear finish—oil, shellac, varnish. Just be sure to apply finish to both sides of the top.

### Big top needs a sturdy, stable base

We design and build sturdy bases that don't use the top as a structural element. To avoid having a tippy table, use moderate overhangs, especially along the sides. On a 2-ft. by 4-ft. coffee table (see bottom photo, p. 60), for example, plan for no more than 8 in. of overhang on the ends and 4 in. on the sides. We attach the base to the top with lag screws, using elongated screw holes in the base to allow the wood to move. You can expect 1/8 in. of movement per foot of width, no matter how thick the slab. □

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## 2 MARK AND ROUT THE RECESS



**Score the slab.** Use a sharp knife to score the shape of the key onto the slab. The grain direction of the key should be roughly perpendicular to the slab's grain.



**Cut the recess.** Make a series of shallow passes freehand with a plunge router to remove most of the wood. Cut as close to the knife line as you can.



**Finish by hand.** Use a wide, sharp chisel to pare to the knife line and flatten the walls of the recess. Use a small square to check that the sides of the recess remain perpendicular to the top.

## 3 GLUE AND TRIM



**Big key, heavy blows.** Coat the key with glue and pound it home with a mallet.



**Trim the key flush and add finish.** After the glue has dried completely, use handplanes and sandpaper to pare the keys flush with the slab (left). The last step is to apply a finish (below).

