BY TIM UHLER

Working With Large Beams

On nearly every house we frame, we install glulam or other engineered beams. Most of the designs include large open areas and vaulted ceilings, which require reaching over distances and lifting some monster beams to great heights. But what used to take us an entire afternoon to lift now takes minutes with good planning and the right equipment.

CUTTING LARGE BEAMS

Most of the time, we use a Big Foot (bigfootsaws.com) 10¼-inch saw to cut beams **(1)**. Every framing crew needs at least one of these saws. We have a 14-inch Big Foot Big Boy, too, but we prefer to use it only for exposed beams, where we don't want saw marks on the cut end. We also keep a chain saw in the truck and use that to cut beams whose ends won't be exposed **(2)**. To keep the cuts straight, we may use the Big Foot to define the cutlines and then finish them off with the chain saw.

HANDLING LARGE BEAMS

It's not unusual for us to have to deal with 18- or 24-inch-deep glulam beams. These are often too heavy for my crew (typically just two guys) to lift, much less flip over and cut to length.

Use a machine. We have had a forklift on site since 2002 to do our heavy lifting. While it can be a point of pride to manhandle a beam into place, it isn't safe and it isn't very smart or efficient.

Our first forklift was a later '70s model that we bought for $7,500, and it had nothing but mechanical problems. It was clear right away how much labor and time a better one could save, so a year later (2003) we took advantage of an economic stimulus plan to buy an Ingersoll Rand


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VR90B (ingersollrandproducts.com). This machine has required only routine maintenance. In 2005, we bought an Ingersoll Rand VR1056, which gives us a 56-foot reach straight up. We were fortunate to be busy enough over the next three years to pay it off.

Planning. We order all of the engineered beams at once and have them bundled together apart from the rest of the lumber package. This makes them easy to store on site and simplifies moving them. I don't like to manually pull or lift a beam unless there is no other option. Instead, we'll use the forklift to pick up one end of the beam, set stickers, and lower it back down. This gives us the clearance we need to pick the beam up from the center for final placement.

Cutting. We often use the forks to tip a beam on edge (crown up or "top" stamp up), then pick it up and hold it on the forks at about knee or hip height so we can cut both sides while the beam is in a vertical position. That way, when the thickness of the beam exceeds the capacity of our saw, we don't have to flip it to cut from the other side. It also eliminates any stresses that might bind the blade.

Lifting and setting. To lift a beam into place, we use two basic approaches. The first is the easier method and works well if we can get direct access to the beam's final location. We just center the beam on the forks and lift it into place on support columns or walls **(3)**. We do this for most garage beams and for some beams that sit on top of first-floor walls.

A variation of this technique is to attach the support columns and hardware to the beam while it's on the ground, then lift the whole assembly into place **(4)**. Often this is the safest, most efficient way of handling the beam. We can work faster on the ground, and when we set the beam, we only need to plumb and brace it—no drilling or fastening hardware up high.

Rigging. The second approach is to strap the beam with rigging straps **(5)**. This takes a little longer but gives the guys on ladders or scaffolding more maneuverability to guide the beam into a pocket. We have an assortment of rigging straps that are rated

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for far more weight than we'll ever lift. To locate choke points for the straps, we typically split a beam into thirds. The strap angle off the beam should be 60 degrees or greater. (Note: Some states may have specific rules about who can rig.)

We often have to drive with the boom in the air, which can cause large beams to swing all over the place. This can be very dangerous, but we have never had an accident, because we take our time and always use at least one tag line so that the beam doesn't swing out of control.

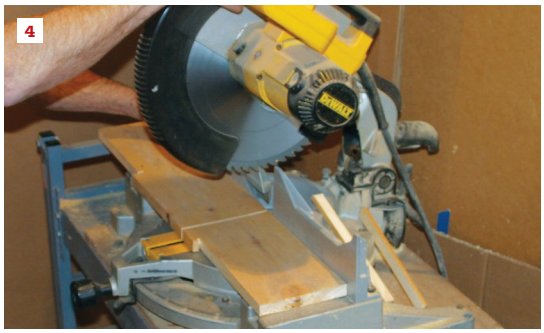
Hand signals. There are standard hand signals for signaling a crane or forklift operator. We've modified them so that they make sense to us, and we train anyone new on our sites to use our version. It's important that everyone on the crew uses exactly the same signal style and that the operator stays focused on the framer who's doing the signaling **(6)**. We learn to watch the hand signals, but the driver also takes note of the signaler's facial expressions and body language.

Lifting without a machine. Sometimes we have to set a beam where we can't use a forklift. This comes up more often in remodeling situations, but on one new house, the owner didn't decide until after the trusses were set and the roof was dried-in that he wanted exposed interior beams. To give him the look he wanted, we had to set a 42-foot-long, 5 ½-by-12-inch glulam. It needed to go up 14 feet in the air—and we had just three guys on the crew.

We had the lumber company drop the material as close to a window as possible. From there we were able to slide the beam onto a section of rolling scaffolding. We simply wheeled the beam into place, then used two wall jacks to lift it up **(7)**, bracing the jacks to keep them straight.

Whenever we work with large, heavy materials, we take the time to come up with a plan. We don't want to cut a beam incorrectly or have anyone get hurt. With good planning and equipment, big beams don't slow us down.

Tim Uhler is lead framer for Pioneer Builders, in Port Orchard, Wash.



A Safe Push Stick in 60 Seconds

BY CARL HAGSTROM

When it comes to table-saw safety, there is no substitute for a good riving knife or blade guard—period. But the unfortunate truth is that jobsite table saws with this equipment are rare birds. A close second in table-saw safety equipment is a good push stick. (And no, a chunk of 1x3 with a V-cut in the end does not qualify). Here's how to make a push stick in less time than it will take you to read this article.

You're on the jobsite and just broke out your portable table saw to make a couple of rips when you realize that you left your push stick back at the shop. The temptation is to make the rips bare-handed—after all, by the time you set up to make a push stick, you'd be done, right? You might reconsider, though, if you knew you could make a push stick in less than 60 seconds using just a chop saw. In fact, I'll show you how to make two push sticks in that time.

For material, I use a scrap of 1-by or ¾-inch plywood a couple of feet long and narrow enough so that I can cut it standing up in the chop saw (most larger chop saws can handle a 1x6 on edge). Then I follow these steps.

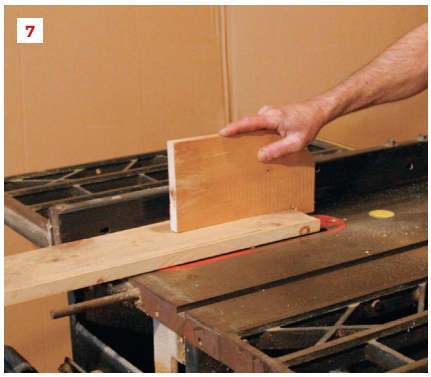
First, I square both ends of my scrap, then place the narrow end against the fence and plunge the blade into the board for a rip that takes off a strip ½ inch to ⅝ inch wide. (The 2-foot length of the board allows me to hold the board a safe distance from the blade). I lower the head of the saw until it bottoms out, which determines the length of the rip. If your saw has a fine-cut trim blade, slowly "bounce" the blade in and out of the rip so that the blade doesn't overheat **(1)**.

Flip the board over and lower the blade into the same kerf to finish the rip from the other side so that the length of the rip is equal on both sides of the board. Reverse the board and make the same plunge cuts for a rip on the other end **(2)**.

Next, I stand the piece on edge and cut off the strip I just ripped at the point where you can't see daylight through the kerf. (Do the same at both ends of the board) **(3)**.

Now I cut the push stick to length, slicing through at least 2 inches from the cut I just made to leave a 2- to 3-inch heel **(4)**.

Photos: Brett Hagstrom



Finally, I chamfer the corner of the push stick above the heel where my hand will rest. One 45-degree cut will work, but I like to nibble at it with a few more cuts to round off the corner for a smoother, more comfortable grip **(5, 6)**.

In 60 seconds I've made two push sticks and still have time for a sip of coffee. When you push stock through the saw with this push stick, your hand is pushing parallel to the saw table in a stable, controlled fashion rather than in a straight line toward the blade **(7)**.

A couple of additional notes: If I'm ripping material thinner than ¾ inch, I cut down the heel so that it doesn't quite contact the bed of the table saw when the push stick is placed on the material being ripped. If you feel safer with a handle grip, you can take an additional minute and cut out a hand hole with a jig saw **(8)**. The hand hole also gives you a convenient way to hang the push stick on the fence of the table saw to keep it handy.

So take that one minute—it could mean still being able to count to five on one hand.

JLC contributing editor Carl Hagstrom runs the professional woodworker site WoodWeb.com.