BY TIM UHLER

Working With Large Beams

When you're framing a home, working with large beams is just a fact of life. On nearly every house we frame, we install large glulams or other engineered-wood beams. With a lot of these beams, we stage the lift before the roof has been framed or the trusses have been set, and, as a result, we often need to lift the beams over walls to the roof and upper floors. We have worked out processes to do this safely and efficiently, so what used to take us an entire afternoon to lift now may take less than an hour—with good planning and the right equipment.

CUTTING LARGE BEAMS

Every framing crew needs at least one 10¼-inch circular saw. For a long time, we have been using a Big Foot (bigfootsaws.com) 10¼-inch saw to cut beams. It's one of the last corded saws we still use, though Makita recently came out with its 40-volt XGT 10¼-inch saw, which is quickly becoming our go-to choice. We have a 14-inch Big Foot Big Boy, too, but we prefer to use it only for exposed beams, where we want a very clean cut end.

Because the maximum depth of cut with 10¼-inch saws is about 3⅞ inches, we have to cut from both directions on most beams. We typically cut from one side of the beam, and then from the other, cutting vertically with the beam on edge. When you do this, make sure you keep track of what side of the line you're cutting so you don't end up with a stepped end cut.

We also keep a chain saw in the truck and use that to cut beams whose ends won't be exposed. When we use a chain saw, we first cut with a 10¼-inch saw to define cut lines, and then finish them off with the chain saw. Even with the saw cut to define the cut line, it's still faster with a chain saw, because it's a few less moves. Handling big beams is more dangerous than cutting them, so it's always best to limit how much you handle them. And when you do move them, it's often better to use a machine. While it can be a point of pride to manhandle a beam into place, it isn't safe and it isn't efficient.

HANDLING LARGE BEAMS

It's not unusual for us to work with 18- or 24-inch-deep glulam beams. Because these are often too heavy for my crew (typically just two guys) to lift, much less flip over and cut to length, we use an all-terrain forklift. We have had a forklift on site since 2002 to do our heavy lifting.

Training. There's a lot to learn about safely operating a forklift (see "Rough-Terrain Forklift Training," Sep/19). It's critical that the

The maximum cut on a 10¼-inch saw is about 3⅞ inches, so cutting through a 5½-inch glulam requires two cuts. With the beam positioned on edge and crown up on the forks of the forklift, Kyle Davis cuts vertically from one side **(1)** and then the other **(2)**.

Photos by Tim Uhler


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Another way to maneuver a beam is with a "beam wrench," which can be made on site with plywood or OSB scrap **(3)**. This simple moment arm gives the author enough leverage to tip the beam on edge safely and quickly **(4)**. For beam ends that won't be exposed, Kyle makes a first pass with a circular saw and finishes the cut with a chain saw **(5)**, without moving the beam at all.

driver be certified as a "lift driver." It's not a one-time training; that person also has to maintain their certification over time. In addition, it's important that everyone else on site be trained about working around a forklift, so they know what to do or not do—like not pass under the forks. In the middle of a lift, people can get excited and forget what they're doing. Calm and concentration during the lift is important for all. Our perfect "no accident" record is no accident; it comes from not being cowboys on the jobsite.

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 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.

Recently, we have been using a "beam wrench" (see photos 3 and 4, above). Made from plywood or OSB, this simple site-made tool allows us to quickly and safely tip monster beams on edge that we otherwise couldn't move.

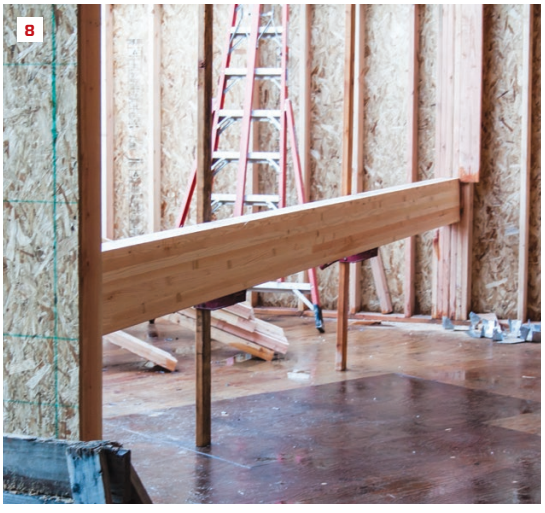
Lifting and setting. To lift a beam into place, we use two basic approaches. The first, easier method works well for most garage beams and other beams that sit on first-floor walls that we have direct access to. We center the beam on the forks and lift it into place on support columns or walls.

A variation of this technique is to attach the support columns and hardware to the beam while it's on the ground; we then lift the whole assembly into place. 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 while working from a ladder.

The second approach is to carry the beam from rigging straps. 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 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. (Please note: Some states have specific rules about who can rig, so be sure to check what may be required locally.)

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 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



One of the safest ways to lift a beam into place is to first attach the support columns and then lift from the center of the beam with the forklift **(6)**. For larger beams that require more control, the author uses rigging straps **(7)**. If the crew can't use a forklift, they use wall jacks **(8)**, making sure to brace them back to the framing to keep the jack poles straight **(9)**.

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. What's most important is that everyone on the crew uses exactly the same signal style, and that the operator stays focused on the framer who is doing the signaling. We learn to watch the hand signals, but just as important, the driver pays attention to 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 occasionally on a new house, a change will occur after the trusses have been set and the building dried in, and we have to walk a beam inside and lift it with wall jacks. In one example, we had to set a 42-foot-long, 5½-by-12-inch glulam. It needed to go up 14 feet in the air—and we had just three guys on the crew. To get this done, 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. This allowed us to wheel the beam into place and then use two wall jacks to lift it up, bracing the jacks to keep them straight.

However we move heavy beams, we alway take the time to come up with a good plan. We can't afford either a miscut or someone getting hurt.

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