Faster Wall Framing

By breaking the work into simple tasks, three men get one job done as quickly as possible

by Tim Uhler

Just about any framing job goes faster if you break it into small, simple tasks that can be worked on in parallel by different carpenters on the crew. This is definitely true of wall framing, which on our jobs begins after we snap wall layout on the deck.

I divide wall framing into three main stages: cutting and laying out the pieces, assembling the walls, and sheathing and standing the walls.

Cutting and Layout

This stage has three distinct tasks, each of which can be done by one framer. There are currently three framers on our crew, including me. While I cut and lay out plates, the second guy cuts headers and window packages, and the third builds corners and king stud–trimmer combinations.

The exterior wall plates and window packages are cut from the same pile of 20-foot 2x6 material. We position it on

Figure 1. The crew positions a pile of 20-foot 2x6s within easy reach of both the sawyer — who uses them to cut window packages and blocking — and the layout person, who uses them to make plates.

horses in the garage, so it's within easy reach of both the layout guy and the sawyer who cuts window packages (**see Figure 1**).

Laying out plates. I cut the plates in place, working to the snapped lines on the deck, and mark stud locations on them as I go. That way, if the other carpenters finish their tasks before I do, enough plates will be ready for them to begin assembling walls.

I cut the plates two at a time with a 10¼-inch Big Foot saw (**Figure 2**). If there's time, I also cut the double top plate. If the wall is shorter than 20 feet, I run the plates full length; if it's longer, I make the break at a 16-inch layout mark so that a stud centers on the joint.

On the plates that run through, I make a reference mark where they cross the intersecting wall, measure out another 5½ inches, and then cut them to length. Later, when we assemble the wall on the deck, we simply align the reference marks to the snapped layout so that the

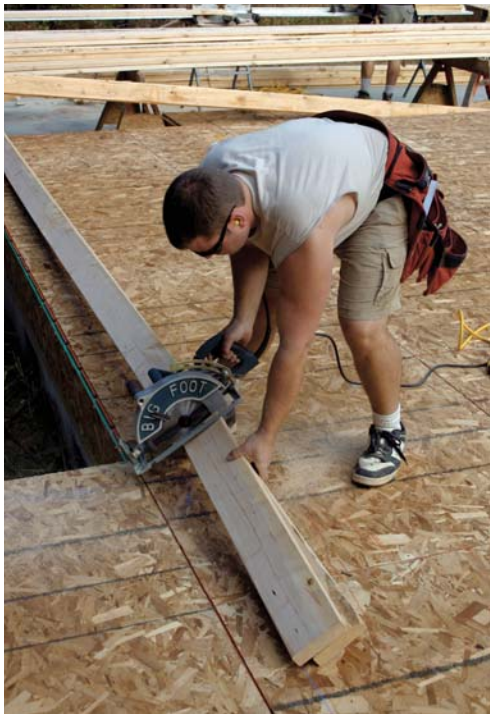

Figure 2. The author cuts exterior wall plates two at a time with a Big Foot saw (left). After marking the location of door and window openings, he uses a layout stick to space the studs (above).

wall is automatically square when we nail it together. We still check diagonals to be sure, but we rarely have to rack the assembly.

After cutting plates, I mark door and window locations, then use a layout stick to mark stud centers. On eaves walls (those that run perpendicular to the floor joists), I always put the first stud at a joint between sheets of subflooring; that way the studs stack over the joists. We do this as standard practice because it makes the building stronger, leaves open bays for mechanicals, and provides continuous nailing for metal straps.

An important part of the layout person's job is to determine the most efficient order for framing and standing walls. The goal is to build as many walls as possible before standing any. I always start with the longest wall (usually the back one) and those parallel to it.

Cutting window packages. The sawyer does more cutting than anyone else, so he typically works in the garage with a miter saw and outfeed tables. Most of the windows are the same height, so he can set a stop and cut all the cripples at the same time (**Figure 3**). This is the fastest way to cut multiples — much faster than marking each piece and cutting it with a circular saw.

Many framers say you should never move material to the saw because that's too much handling. In general, I agree — but not in this case: With 20-foot stock to work with, the sawyer might cut 12 cripples for each piece handled. Because the stock is nearby, all he has to do is grab it and put it on the saw.

When he's finished with the doors and windows, the sawyer cuts the scrap into $14\frac{7}{16}$-inch pieces for fire and panel blocking.

Figure 3. It's faster to cut short pieces with a miter saw and stop than to measure and mark individual pieces and then cut them with a circular saw.

Figure 4. A carpenter cuts trimmers from a pile of studs in the center of the deck (left). The finished corners and king stud–trimmer combos (above) are stacked next to the stud pile — close to where they'll be needed when the walls are assembled.

Assembling trimmers and corners. Working at a pile of studs in the center of the floor, the third framer builds all the corners and king stud–trimmer combinations with a nail gun and a circular saw (**Figure 4, page 3**). If we're using precut studs, he only has to cut trimmers. It's not just a cut-and-nail operation; he also culls badly crowned pieces and opposes the crowns when nailing trimmers to king studs. If there is wane on the trimmer, he faces it toward the king stud so there's a straight edge to follow later, when we use the router to cut the sheathing out of the openings.

After nailing trimmers to king studs, this framer makes up double 2x6s — or cuts 4x6s — to use at hold-down locations in shear walls. He then builds the two-stud L-shaped corners we use, which are sometimes called "California corners."

In the past we used these two-stud combinations where interior walls butt exterior walls (it was one less stud than the traditional three-stud channel and allowed the insulator to insulate the entire exterior wall).

Currently, we don't install any partition nailing; if the sheathing breaks at a partition, the nailer makes it difficult to install a stud exactly where it's needed.

We frame exterior walls without regard to partitions and nail up scrap for drywall backing after the partitions are in.

We stack the corners and king studs on an area of the deck where they're out of the way, or put them on a cart so we can wheel them to where they're needed.

Assembling Exterior Walls

We work together when assembling the walls (**Figure 5**). One carpenter nails framing together while the other two haul material, position door and window parts, and scatter and crown studs.

Figure 5. Working as a team, one carpenter packs material and crowns studs (above) while the other tacks the bottom plate to the deck (far right) and nails walls together (right).

Figure 6. Instead of lapping double top plates, the author's crew installs tie plates at the ends of walls (above left) and uses them to hold the corners together (above). This method is permitted by the IRC, provided the plate is at least 3 inches by 6 inches by .036 inch thick and fastened on either side with a minimum of six 8-penny nails.

Though the traditional way to join walls is to lap the top plate over perpendicular walls, we no longer do that. Instead, we use galvanized steel tie plates, which are permitted under the IRC (section R602.3.2). The plates must be at least 3 inches by 6 inches by .036 inch thick (20 gauge) and nailed on either side of the joint with six 8-penny nails. We use Simpson TP37 tie plates and, with our engineer's approval, eight $1\frac{1}{2}$-inch metal connector nails per side (**Figure 6**).

This approach allows us to cut and install both top plates and nail the sheathing to them while the wall is on the deck. We still occasionally lap top plates in some locations — for example, where a metal tie plate would make it hard to fasten a beam or framing connector.

Figure 7. Sheathing will run off layout if it's nailed flush to a plate that isn't straight. To avoid this problem, the author aligns sheathing with a snapped line $\frac{3}{4}$ inch down from the top of the double top plate (above). After nailing it off, he cuts out openings with a router (right).

Check with your building inspector and engineer before switching to tie plates. Some inspectors aren't familiar with them, and when they're covered by framing they're hard to inspect. We address this by installing the tie plates at the edge of the top plate so the inspector can see them from the ground.

Sheathing and Standing Walls

When we sheathe walls, two framers pack material and one does the nailing. The material packers place sheathing on the wall, tack it down, snap lines at the studs, and cut out openings with a router.

Because our area is seismically active, we're required to block all edges of sheathing panels. To reduce the amount of blocking needed, we run panels vertically and use material long enough to span from the top plate to the rim joist and mudsill below — or, if it's a second story, long enough to tie into the wall below. We use 9-foot panels for 8-foot walls, and 10-foot panels for 9-foot walls.

On long walls in two-story buildings, we align the sheathing with a line snapped 3/4 inch down from the top of the double top plate (**Figure 7, page 5**). This keeps the top edge of the panels perfectly square to the studs; otherwise, small errors in placing the panels can accumulate and push a panel edge off a stud.

If the wall is short enough, we stand it with manpower alone. For walls too heavy to lift by hand, we use either a forklift or, if we can't reach with a forklift, pump-style wall jacks (**Figure 8**).

Figure 8. An all-terrain forklift can stand walls too heavy for a small crew to lift (top). When there isn't sufficient access for the machine, the author's crew uses wall jacks (above).

Interior Wall Framing

While the crew finishes exterior walls, I lay out plates for interior walls. Around here, no one distinguishes between bearing and nonbearing interior walls — both get double top plates. While this method uses more material, it takes less labor because we can use the same precut studs in all the interior walls. And since we don't overlap the top plates, I can use the Big Foot saw to cut all three 2x4 plates on edge at the same time.

As I cut plates and do layout, the other carpenters frame behind me — one nailing and the other packing material. Once the walls are up, we plumb and align them (see "Plumbing and Straightening Walls," 8/07), then move on to the floor or roof above.

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