

FRAMING



Layout for Exterior Wall Framing Working in the right order gets you ready to assemble walls more quickly

BY MATTHEW ANDERSON

In the previous issue of *JLC*, I wrote an article describing the process that our crew typically follows when snapping accurate layout lines for the exterior walls of a house (“Layout Lines for Exterior Walls,” Apr/16). That procedure took two lead carpenters only about 30 minutes. While the rest of the crew continued to chip away at their prepared lists—cutting cripples, jacks, and studs and assembling headers, corners, and partition studs—the same two lead carpenters started on the next step: cutting and laying out the wall plates.

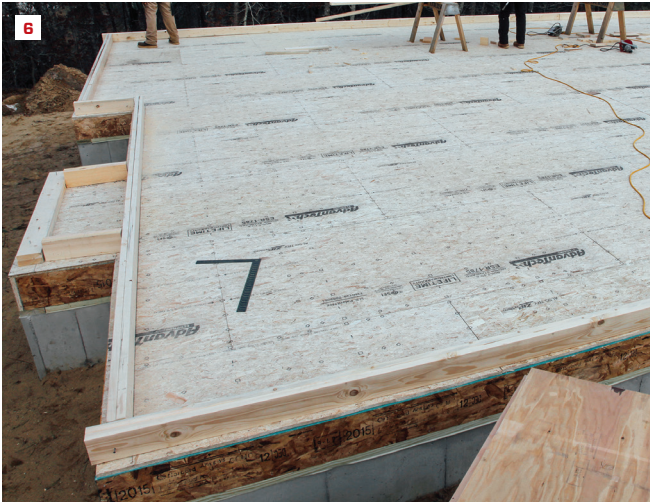
The first task is setting up a cutting station for the plates. Two heavy-duty sawhorses are set up in a central but out-of-the-way

location on the first-floor deck. A lift of 16-foot 2x6s labeled “plates” had come from the lumberyard, and the crew loaded a few dozen of those boards onto the sawhorses. As they went through the pile, they set aside warped or twisted boards, keeping only the straightest boards to use as plate stock.

SQUARE THE STOCK AND CUT TO LENGTH

Once the stock is loaded and ready to go, two crew members start laying out plates on opposite sides of the house (to stay out of each other’s way). They take measurements directly from the wall layout before measuring and cutting the plates to length.

Photos by Roe Osborn



Cut and square the plates (facing page). After a load of plate stock is stacked on sawhorses, one end is cut square **(1)**. If the plates are shorter than the plate stock, they are measured and cut in pairs and then tacked together **(2)**. The pair of plates is set in the proper place on the perimeter of the deck **(3)**.

Dealing with longer plates. If the walls and plates are longer than the stock, both ends are squared on two lengths. The boards are set in place with one end of each board at an end of the wall, and the other ends overlapping and tacked together **(4)**. The remainder for each end is then measured **(5)**, and the pieces are cut and tacked in place. All the plates are cut and set in place before layout begins **(6)**.

Framing stock rarely comes from the supplier with perfectly square ends, so we always saw one end of the board square before we cut it to length **(1)**. We pull our measurement from the squared end and cut the plates to length. If the length of the plate is less than the length of the stock, two plates (top and bottom for the wall) are cut and tacked together at each end **(2)**. We then place the paired plates on the deck where the wall will be built **(3)**.

If the wall is longer than the plate stock we've been given, we square both ends of two lengths of stock—one for the top plate and one for the bottom plate—and then set the boards in place with one end of each board at an end of the wall and the other ends overlap-

ping in the middle. After aligning the ends exactly on the layout lines, we tack the two pieces together at the overlap **(4)**. Then it's just a matter of measuring from each end to the overlap and cutting the fill-in pieces to complete both plates **(5)**. We use a second top plate, so we never try to break the plates exactly over a stud. In fact, I've been told that nailing the ends of two plate sections to the same stud can create a weak point in the framing.

We usually don't start the actual layout until all the plates are cut and set in place around the perimeter of the deck **(6)**. To keep the framing consistent throughout the house, we always pull layouts from the same point. This keeps the framing members aligned

for direct load transfer from the rafters all the way to the mudsills. For this house, we used the side of the house opposite the garage and the back wall of the house as starting points for the layout.

LAY OUT THE ROUGH OPENINGS FIRST

The openings for doors and windows are the first items to be laid out. Close attention must be paid to exactly what the dimensions on the plans refer to. Sometimes they denote the distance to the centerline of opening, and other times the measurements on the plans are to the center of an architectural element of the house. For example, the dining-room slider on the rear of this house was

centered on a screened porch. An open deck next to the porch became the centering element for a double kitchen window. Dimensions given on the plans were for the porch and the deck with indications that the openings be centered on those elements.

On the front of the house, a triple window was centered on the living-room wall, with the three windows separated by double 2-by stud pockets. The crew member doing the layout pulled the initial measurement from the side of the house (in this case, the end of the wall) and marked the centerline of the wall, which was also the centerline of the middle window **(7)**. The rough-opening (R.O.) dimensions for each opening had already been noted on the plans, so



Openings are laid out first (facing page). Working from the plans, a carpenter measures to the center of the opening for a window (7). Working from the center point, he marks the sides of the rough opening (8). Here, a center window flanks two side windows. After marking out a double 2-by stud pocket that separates the windows, he measures the rough opening for one side window (9), then marks the edge (10).

Framing for the openings comes next. Rough-opening dimensions are written on the plates at each opening for reference when the walls are assembled (11), and jack and king studs are marked out for each opening (12). Next, intersecting walls are laid out. Here (13), the intersection for a fireplace bump-out is drawn as two studs separated by the width of the intersecting 2x6. The marks on the right indicate the stud for sheathing nailing, while the pair on the left show the king and jack studs for the fireplace opening.



next he marked out the R.O. width of the center window (8). Using a layout square, he drew lines for the stud pockets and then measured the R.O. width of the side windows (9), drawing a square line to mark that opening (10).

The carpenter doing the layout also writes the R.O. dimensions either next to the centerline or in some conspicuous place within the opening (11). These dimensions correspond to the list of headers, cripples, and jacks that the rest of the crew is working from. When we're ready to "load" the lumber for each wall, we can just go to the various piles and grab the framing member that has the same dimensions that are written on the plate.

SPECIAL WALL FRAMING ELEMENTS ARE NEXT

With the openings roughed out on the plates, the layout crew turns its attention to the framing around each opening. This house was being built on Cape Cod a short distance from the Atlantic Ocean, and the plans called for prescriptive high-wind framing with doubled king studs and jacks for each opening more than 5 feet wide, and tripled kings and jacks for openings more than 7 feet wide. The layout crew marks out the required king studs and jack studs on each side of the opening (12) depending on its width.

Next, we locate the partition backers for intersecting walls. We build a backer as an L-shaped assembly made from a 2x6 stud with

an attached perpendicular 2x6. For the layout, we draw a stud with a 5½-inch space next to it. Again, the locations of the interior walls are spelled out on the plans, and the layout crew measures and marks those locations on the plates. Close attention is paid to the size of the intersecting walls. Most interior walls are framed with 2x4s, and for these walls, the 2x6 L-assembly provides ample dry-wall nailing for both sides of the wall. If the intersecting wall is framed with 2x6s, as are the exterior walls of the fireplace bump-out, we make the partition backer as a U-shape (13). It gets laid out as two studs with a 5½-inch space in between. An example of an interior wall framed with 2x6s is a wall that houses plumbing.

The last pieces of specialty framing to be marked out on the plates are the corners. There are many different techniques for framing corners, but we usually build U-shaped corners unless requested to do otherwise. These corner assemblies are installed on the ends of the walls that extend past other walls.

STUDS ARE LAST

With all the wall elements finished, the final layout items are the studs. Again, the crew member pulls the layout from the designated point and marks out the studs at the proper spacing. For this house, the 2x6 studs were spaced 16 inches on-center. Pulling the



Stud layout (facing page). The last wall-framing members to be laid out are the studs. If the wall begins at the edge of the deck, the measurement is pulled from the end of the wall. The stud locations are marked $\frac{3}{4}$ inch to one side of the highlighted marks on the tape to center the studs **(14)**. For walls that don't begin at the edge of the deck, the carpenter sets the tape on the end of the wall at the width of the framing and marks the first layout. He drives a nail at that point and hooks the tape on the nail **(15)** before pulling the layout **(16)**. At a jog, he continues the layout from the previous wall **(17)**.

Final steps. The garage plates are laid out last, starting with the openings for the garage doors **(18)**. To mark out multiple framing members quickly, set the square at the edge of the opening and mark two widths in the open center of the square **(19)**. Then just slide the square down to the marks and draw the lines across the plates **(20)**.



layout from the end of the house, the stud layout is marked $\frac{3}{4}$ inch to one side of the 16-inch increment highlighted on the tape **(14)**. That marks the edge of a nominal 1 $\frac{1}{2}$ -inch stud on a 16-inch-on-center layout. Studs are marked across the entire length of the wall, including across all the openings, where marks locate the cripples (short infill studs) below the window sills and above the headers, if required.

For the walls that begin at the edge of the floor deck, stud layout is easy—just hook your tape on the end of the plates and go. The walls that start inside another wall are a bit trickier. The layout still starts at the edge of the deck, but the end of the wall is the width of

a 2x6 away. For those walls, we line up the 5 $\frac{1}{2}$ -inch mark with the end of the plates and mark out the first stud location. We drive a nail at that point **(15)** and then hook the tape on the nail to pull the layout **(16)**, remembering that the layout is now marked at the highlighted 16-inch-on-center marks on the tape, and not $\frac{3}{4}$ inch away as before.

If the wall has a jog in it, simply measure the distance between the last layout mark and the end of the previous wall. Subtract that amount from the on-center measurement (in this case, 16 inches), and set your tape at that number at the beginning of the next wall to continue the stud layout on that wall **(17)**.

FINISHING UP

The plates for the two-car garage were the last to be laid out. Both openings were to be spanned by a single LVL header, but the plates received the same layout treatment. After the centers of the openings were located, the sides of the rough openings were marked out **(18)**. Plans called for massive built-up framing to support the LVL header, and marking out multiples is an easy task with a layout square. First, line up the edge of the square with the rough-opening line across the plate, and in the open center of the square, mark the positions of the next two members using the lines on the square **(19)**. Then just slide the square down and draw

the lines across the plates as the edge of the square lines up with the marks **(20)**. Repeat the process until all the multiples are laid out.

Laying out the plates for this house took just under an hour and a half, again less time than it took to describe the process in words. So in two hours, we had lines snapped and the wall framing laid out, ready for the walls to be built. There was still more “factory” work to be done, so our layout crew jumped in to help. In a few more hours, the crew would be ready to start building and raising the first walls.

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