Installing Horizontal Wood Siding

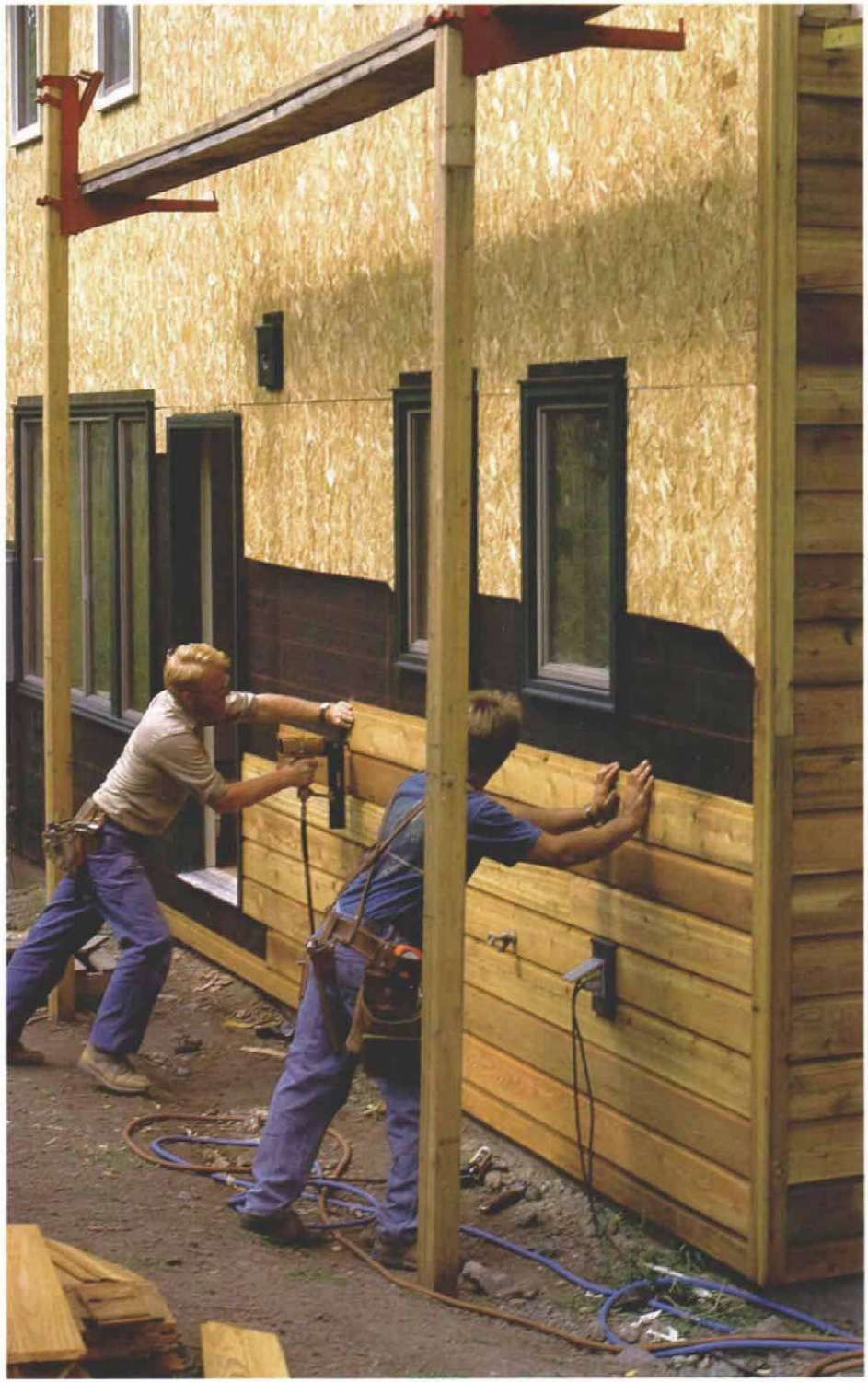
A carpenter's tricks for accurately laying out, cutting and fitting the classic wood siding

by Felix Marti

I've installed a lot of wood siding during my 20-plus years in the building trades. And whenever I'm given the option, I prefer to install the siding horizontally. On the aesthetic side, I like the way horizontal shadowlines emphasize the shapes of houses. But more important, horizontal siding lasts longer than vertical siding, especially in wet climates. That's because water running down a piece of vertical siding inevitably hangs along the bottom edge for a while, where it can be wicked into the end grain of the wood. The result: rotted wood, peeling paint or both.

In this article I'll offer some suggestions for selecting wood siding, establishing a workable layout and then installing the siding. Here in southwestern Colorado, we typically side a house with rough-sawn, unpainted red cedar, such as the channel-rustic siding shown in the photos that illustrate this article. But the techniques I'll talk about are equally appropriate for painted clapboards on a colonial house.

The style of your house will strongly influence the siding pattern you choose and the grade of the material. For example, rough-sawn, knotty



The layout depends on the openings. Full-width siding boards without notches will tuck nicely under the windows when the next two courses are applied. That's because the board at the bottom of the wall was ripped to a narrower width to simplify the cuts around the windows.

cedar or redwood evokes a rustic feeling. Clear, vertical-grain clapboards on a crisply painted colonial house, on the other hand, are more patrician. You can bet that patrician costs more than rustic when it comes to siding.

If you are budget-minded and if you plan to paint your siding, there is a relatively new composite product on the market called Inner Seal lap siding (Louisiana-Pacific, Corporate Communications, 111 SW Fifth Ave., Suite 4200, Portland, Ore. 97204; 503-221-0800). Inner Seal is 7/16 in. thick, and it comes preprimed in 8-in., 9½-in. and 12-in. widths. The pieces are 16 ft. long. I used Inner Seal siding on a house in the wet part of Oregon with good results. It paints beautifully, and it is stable and straight. I also like the fact that Inner Seal siding is top-nailed, which conceals the fasteners.

Ordering material and checking for defects—The pattern you choose influences the equation for determining how much siding you need. Measure the surface area of the walls to be covered, then subtract the square footage of the windows and doors. Refer to the chart on p. 82 to see what factor you need to multiply the footage by. Add 10% to this number for defects and waste, and you've got your siding total.

There are bound to be some defects in wood siding. Some are easy to spot, and some aren't. Some defects can be dealt with, and some can't. Discuss the grade of the lumber you want with your supplier, and agree before you place your order what is going to be acceptable.

Among the obvious defects are loose knots. Cut them out if they aren't too numerous, and use the resulting boards in places where shorter lengths are suitable. If loose knots are unacceptable in the grade you ordered, reject the material. In the premium grades, I think it's also fair to reject boards damaged by forklifts or the banding that holds the bundles together.

Warped or crooked boards often can be tamed with some additional fasteners. Bows should be cut out, and twisted or cupped boards should be rejected. Wane, the barky surface of the tree that sometimes shows up on the edges of boards, is always attached to sapwood. Depending on the grade you ordered, reject waney boards.

Checks are cracks in the ends or in the surface of the boards. Surface checking is caused by too-rapid drying and leads to stresses within the lumber: best to reject. End checking is common, but more than a few inches of check indicates too-rapid drying. Accept conditionally.

Fuzzy lumber probably was surfaced with too high a moisture content. If the rough surface is to be the exposed face, go ahead and use the board. If the smooth face is to be exposed, you can sand or plane the board smooth once it's dry. Boards with white specks or decay have been affected by fungus. Paint or stain will hide the specks, but you should cut out decayed portions. If the lumber won't be subjected to wet conditions, further decay won't occur.

Another problem that is virtually impossible to see is case hardening. This condition results from too-rapid drying and creates complex stresses within the lumber. Two signs of case hardening

Dip tank and drying rack

Siding takes a bath in a long dip tank. The author prefinishes cedar siding (photo left) in a trough lined with cross-laminated polyethylene. Five gal. of finish makes a bath about 2-in. deep. As one board soaks up the finish, another is held by a pair of brackets while excess finish drips off. Unused finish is returned to its can (photo right) by opening the end of the tank up and extending the plastic liner into a temporary spigot.

Drying rack. A pair of tilted 2x4s with 80d nails supports the siding as it dries.

are binding of the sawblade or explosive splitting of the wood when you cut it. Ask for replacement pieces.

Prefinishing with a dip tank—Both the California Redwood Association and the Western Red Cedar Lumber Association say you should prime, or seal, the back of your siding (called back priming) and finish it with a water-repellent mildewcide for a natural finish. If you put finish on just the exterior of a piece of siding, it can cup if the backside is exposed to moisture. So for a job like the one pictured here, I dip the boards in Penofin, a linseed-oil-based clear finish (Performance Coatings, 360 Lake Mendocino Drive, P. O. Box 1569, Ukiah, Calif. 95482; 707-462-7333). Penofin provides UV and water protection, and it offers a mildewcide treatment. To speed the process, I submerge my siding in a dip tank. For cedar siding to be painted, I prime it with a stain-blocking oil or latex primer. I prime other species of siding with acrylic latex primer.

My tank's bottom is a wooden I-joist (top left photo, p. 81). The sides are ½-in. plywood screwed to the I-joist and to 1x2 stiffeners at the top. I made the ends out of 2x10 scraps. One end pivots for draining the tank (top right photo, p. 81). I fastened a couple of drip brackets to the inside of the upper edge of the tank. After dipping a piece of material for 15 seconds to 20 seconds, I set it into these brackets so that the excess Penofin can drip back into the tank. While this piece drips, I fetch another, submerge it and leave it in the trough while I move the previous piece to the drying rack. At first I lined my tank with 6-mil poly, but it wasn't up to the attacks of

Nailing recommendations

Nailing patterns vary depending on the profile of the siding. But no matter what the pattern, one thing remains the same: Don't nail through overlapping pieces. To do so will eventually split the siding as it seasonally expands and contracts. Nails should penetrate at least 1½ in. into studs or blocking (1¼ in. for ring-shank or spiral-shank nails). Spacing should be no more than 24 in. o. c. Use box or siding nails for face nailing and casing nails for blind nailing.

Estimating coverage

To calculate the amount of material required to side a house, first figure the square footage of the walls minus any openings. Add 10% for trim and waste. Now multiply your answer by the appropriate board-ft. factor or linear-ft. factor to tally the amount.

Bevel

6 in. and narrower	8 in. and wider
 1 in. overlap. One nail per bearing, just above the 1 in. overlap.	 1 in. overlap. One nail per bearing, just above the 1 in. overlap.

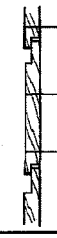
Nominal width	Dressed width	Exposed face	Factor for linear feet	Factor for board feet
4	3½	2½	4.8	1.6
6	5½	4½	2.67	1.33
8	7¼	6¼	1.92	1.28
10	9¼	8¼	1.45	1.21

Shiplap (Dolly Varden)

6 in. and narrower	8 in. and wider
 One nail per bearing, 1 in. up from bottom edge.	 One nail per bearing, 1 in. up from bottom edge.

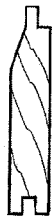
Nominal width	Dressed width	Exposed face	Factor for linear feet	Factor for board feet
4	3½	3	4	1.33
6	5½	5	2.4	1.2
8	7¼	6¾	1.78	1.19
10	9¼	8¾	1.37	1.14
12	11¼	10¾	1.12	1.12

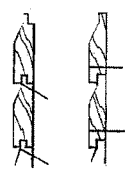
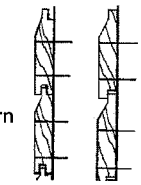
Channel rustic

6 in. and narrower	8 in. and wider
 One nail per bearing, 1 in. up from bottom edge.	 Use two siding or box nails, 3 in. to 4 in. per bearing.

Nominal width	Dressed width	Exposed face	Factor for linear feet	Factor for board feet
4	3⅜	3⅛	3.84	1.28
6	5⅜	5⅛	2.34	1.17
8	7⅛	6⅞	1.75	1.16
10	9⅛	8⅞	1.35	1.13

Drop



6 in. and narrower	8 in. and wider
 T&G pattern. Shiplap pattern. Blind nail T&G patterns; lace nail shiplap patterns, 1 in. up from bottom edge.	 T&G pattern. Shiplap pattern. Two nails 3 in. to 4 in. apart to face nail, 1 in. up from bottom edge.

Nominal width	Dressed width	Exposed face	Factor for linear feet	Factor for board feet
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Chart adapted from Western Wood Products Association Publication A8

ragged grain or the ever-present staples in the siding. So I switched to a cross-laminated polyethylene liner called Cross-Tuff (Manufactured Plastics, 2162 Market St., Denver, Colo. 80205; 303-296-3516). Cross-laminated polyethylene is amazingly tough and tear-resistant. It's typically used under slabs and in walls as a vapor barrier.

My drying racks consist of a pair of cheapo sawhorse brackets, four legs and two predrilled 2x4s with gutter spikes in the holes (bottom photo, p. 81). Placing the dripped-dry piece of siding upside down in the rack will prevent beading of the finish on the bottom, exposed edge. This step is really only a concern if you're using a heavy-bodied stain.

As I dip the boards, I study each one for defects. When I encounter boards bad enough to be returned, I set them aside without dipping. After the boards have dried on the rack, I sort them into completely good boards, boards with some defects and boards that must be cut into short lengths.

The best boards go near the entry and where the weather does its worst: the south side and the lower courses of the house. Okay boards go into less visible locations, where they are protected from the weather. The worst stuff goes way up high, out of sight and out of the weather.

Felt and foam—I use 15-lb. felt building paper to protect the sheathing from moisture that might get by the siding. I don't use housewraps, such as Tyvek, because I'm not convinced they're worth the extra money. What's more, 15-lb. felt makes a great background for the chalklines that I use to lay out the courses of the siding. I generally apply the felt as I go up the building. This technique saves me from ascending the wall twice, and I'm fairly certain I'll have the felt covered before the wind takes it off, or before rain or sun buckles it.

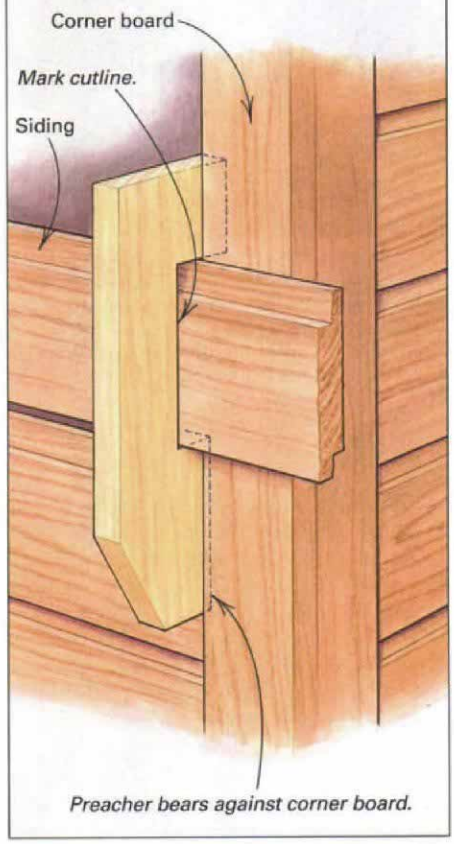
If you're going to apply wood siding over rigid-foam sheathing, remember that foam sheathing has no nail-holding ability. Use nails that are long enough to penetrate through the foam and 1½ in. into the studs.

Two poles tell the layout story—I use a layout pole and a story pole to lay out the courses of siding before I cut a single board. The layout pole has saw kerfs along its length that mark the distance between each course of siding (photo above). I find this distance by measuring a dozen boards to determine their average width. The industry standard is to leave a ⅛-in. gap between siding boards. But here in southwestern Colorado, it's a rare board that doesn't shrink. That being the case, I leave a 1/16-in. gap between pieces of siding. Once the boards shrink, I'll end up with the recommended spacing. So the marks on my layout pole represent the average width of a piece of siding, plus 1/16 in.

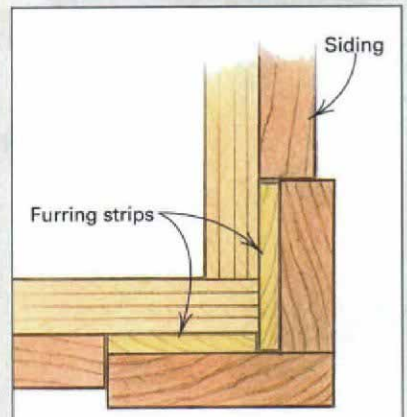
The story pole shows where window and door trims will be, and where the siding starts and stops. To determine the best layout for the siding, I place the layout pole alongside the story pole, and I slide it up or down to see where the siding will break on window and door trims. The goal here is to avoid narrow rips of siding above or below a window or door. I rarely discover a

Layout pole. The author uses a water level to locate the bottom courses of siding on all the walls. Then he marks the subsequent courses with the help of a 12-ft. stick with saw kerfs that correspond to the tops of the siding boards.

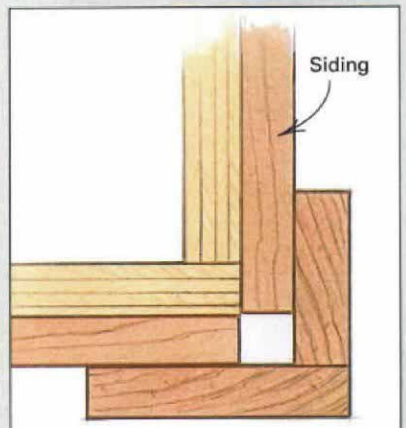
Using a preacher. *To measure a siding board with a preacher, position the board against the corner board and tuck the preacher over the siding and against the corner board. Now mark the cutline with a utility knife on the side of the board closest to the corner.*



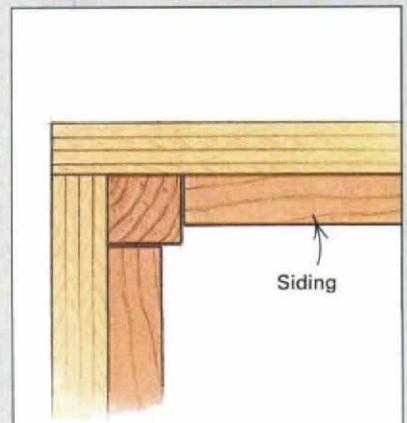
Corner details. *Although the variations are endless, there are two basic types of corner boards for houses with horizontal wood siding: butted corner boards and applied corner boards. The applied variety is the easiest to install, but that variety can create voids that invite insects, spiders and wind-borne grit.*



Butted outside-corner boards

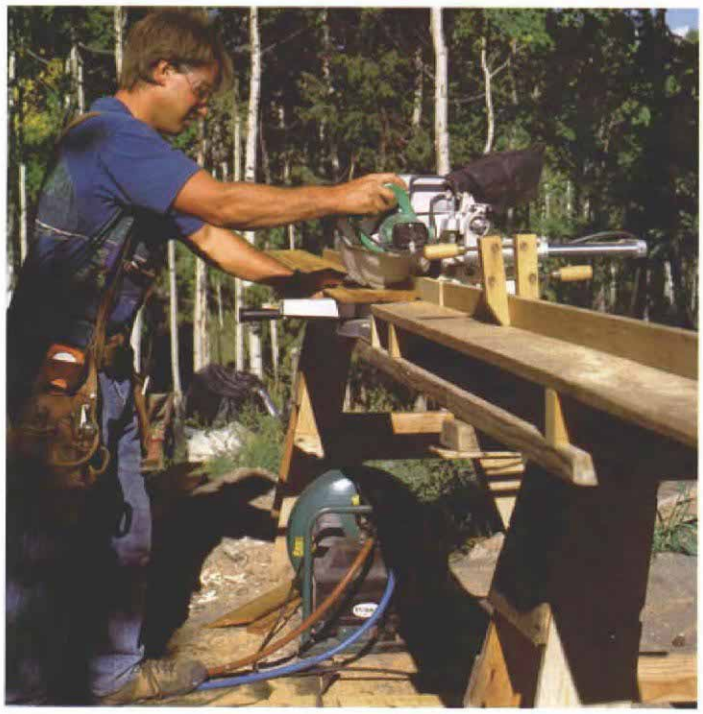


Applied outside-corner boards



Butted inside-corner boards

Drawings: Dan Thornton



An accurate, portable cutoff rig. A sliding-compound saw, such as the Hitachi C8FB, can make precise crosscuts in siding up to 12 in. wide. Long extension tables support the stock.

Shooting board for acute angles. A straightedge screwed to a pair of fences guides a circular saw through repetitive cuts that are beyond the swing of the sliding compound saw.

sublime layout, but I usually identify the difficult areas before climbing a ladder with siding in hand. Sometimes I'll discover that the best way to avoid a nasty string of notched siding boards is to start the first course with a row of siding that has been ripped down to a narrower dimension (photo p. 80). Another strategy that can help avoid a string of complicated notches is to use a wide trim board above or below the windows.

Next I go around the house and jot down the rough measurements between the corners of the building and the openings, such as doors and windows. This list helps me to determine how best to use the short lengths of siding that accumulate as the job progresses.

Once I've decided on the elevation of the siding on the wall, I use my layout pole to guide the marks for my chalklines. I use a water level to transfer the marks from one side of the wall to the opposite, and then around the corner and down the next wall.

Divert runoff away from sidewalls. A gable roof that abuts a sidewall can direct water behind the siding at the junction along the roof's edge. Thwart the problem with a flap of flashing that directs runoff away from the wall.

You've got options at the corners—At outside corners, I prefer to butt the siding to corner boards that stand a bit proud of the siding (right drawing, p. 83). I typically use rips of siding to make the corner boards, and I fur them out with strips of plywood or rips from framing-lumber scraps.

Applied corners are similar to butted corners except that the installer can be fairly rough with end cuts. Because the corner is applied over these cuts, the ends of the boards will never be seen. This trim detail is much faster, but it has its drawbacks. Where the corner boards overlap certain kinds of siding, such as channel-rustic or beveled siding, you can create hundreds of little nooks for wasps, bees, spiders and windborne grit. And it isn't easy to get paint or stain in there, either. If you choose this corner detail, be sure to seal the bottom of the corner so that it doesn't become a vertical gallery for mice or insects. Incidentally, you've got the same option at doors and windows as you do at corners. You can put casings around windows and doors (my preference) and then run the siding to them, or you can apply casings over the siding.

Mitered corners are another option, but my advice is to avoid them. They are supremely time-consuming, and even when done right, they will eventually open up as the weather does its seasonal work on the wood.

At inside corners I butt the siding to a corner board that is square in section (right drawing, p. 83). Applied inside-corner boards are faster, but they don't look as good and invite the same problems as applied outside-corner boards.

Fasteners—Within budget constraints, use the best fasteners available, especially in wet climates. My fasteners of choice are screws. I've used both square-drive stainless-steel and Phillips-drive brass flathead screws to affix siding to houses over ½in. plywood sheathing. When the sheathing is this thick, I don't bother to break the siding over a stud because the screw threads get such a good bite into the plywood. I predrill all holes in the siding, which eliminates splitting, and I'm delighted in the resulting totally random siding pattern. I don't believe it takes much longer to screw siding in place than to nail it by hand. It probably costs no more if you consider the savings in material by not trimming the siding to break on a stud. The better lumber yield compensates for the extra time. What's more, using screws makes it a lot easier to replace damaged siding or to open a wall for remodeling.

Siding nails, in my order of preference, are stainless steel, hot-dipped galvanized and aluminum. Spiral or ring-shank nails hold best, and you can generally count on dropping one size in nail length when you use them. The chart on p. 82 shows the recommended nail sizes and patterns for different types of siding.

In my experience, pneumatic nailers can too easily overdrive siding nails. The driver promotes splitting, especially at board ends, which gives

water an easy access point. This point said, I must confess to using a ½-in. pneumatic crown stapler with 2-in. stainless-steel staples on my most recent rustic-siding jobs. The siding is ⅞in. thick, and I ran staples into all the studs and the midpoints between them. The fasteners go in with the speed that makes pneumatic nailers so valuable, and they are virtually invisible on the fuzzy surfaces of rough-sawn cedar siding.

Before committing to using staples, I made several test installations and tried to remove the pieces of siding. The fasteners hung on for dear life, and the boards broke before the staples pulled through the siding or out of the studs. Be aware, however, that staples do not receive official sanction from the trade associations that represent redwood- and cedar-siding producers.

A three-man crew is just right—Putting up siding is almost like painting siding: All the prep work seems to take forever, then the job rolls along at a good clip. Three people on a crew is optimum. One person can cut the siding to length while the other two take measurements, snap chalklines and fasten the siding. A two-person crew is also efficient, and except for the huge amount of climbing up and down, one person can get it done. A carpenter working solo can support the far end of a piece of siding with a J-shaped hanger made of baling wire or use a coat hanger.

I use a Hitachi C8FB sliding saw for making most of my cuts on a siding job. I mount the saw in the middle of a long 2x12 that I place across a couple of sawhorses. Extension tables and fences flank the saw, supporting long pieces of siding during cuts (top left photo, facing page).

For acute-angle cuts that are beyond the swing of the Hitachi, I use a shooting board to guide my circular saw (top right photo, facing page). I screw my shooting board to a pair of fixed fences on a temporary bench top. The fences are 1/16 in. thicker than the siding, which allows me to slip each piece of siding under the fixture to make my rake cuts.

Start installing the siding with the bottom board, ripped to whatever width you determined by way of the layout stick and the story pole. The top edge of the board should align with your chalkline. I like the pieces of siding to abut the corner boards snugly, but I don't force them into place. Forcing the boards will push the corner boards out alignment.

A piece of wood with a notch cut in it, sometimes called a preacher, is a superb little tool for marking exact lengths (center drawing, p. 83). But using a preacher takes more time than simply measuring because you must lift the siding into place, mark it (use a utility knife), take it back down to the saw bench and then put it back up. A remodel job that has out-of-plumb corner boards is the perfect place to use the preacher because the cuts won't be quite square.

As I install the siding, I use a urethane caulk to seal the butt joints wherever the siding boards abut a window casing, a door casing or a corner board. I also use the urethane caulk on the back of the siding to secure any loose knots. The caulk will glue the knots in place.

Weatherize the penetrations. The holes made by hose bibs, pipes and junction boxes need to be sealed just like doors and windows. This outlet box has a metal flashing folded over its top, plus a flap of waterproof membrane to seal the joint at the wall. A bead of urethane caulk seals the sides and bottom.

Keep water out at the joints. The author uses narrow strips of waterproof membrane to prevent water from working its way behind the butt joints in the siding.

If I'm using nails or staples to attach the siding, I mark the stud layout on the tar paper with chalklines. Then I break the siding over a stud at butt joints. At each joint, I put a narrow strip of self-adhering waterproof membrane behind the joint (bottom photo above). The bottom end of this material is led out and over the top edge of the previous piece of siding, preventing water from going through the joint and behind the siding. Tar paper is often used for this detail, but I prefer waterproof membrane because it's less likely to become brittle and crack at the crease. I trim the little flap that protrudes below the siding with a utility knife. Inevitably, there are protrusions such as hose bibs, light fixtures and outlet boxes that penetrate the siding. These situations are good opportunities for trim carpenters to show how fastidious their scribe cuts can be. We mark the cut with the siding held in place, and we use a jigsaw to notch the siding. A bead of urethane caulk seals the edges (photos top left).

I don't like to see a row of butt joints on a wall, so I make sure to stagger them by at least three rows on the same stud. Try to avoid butt joints near an entryway, and never butt trim boards over an entry. This advice would seem obvious, but I see the wrong technique over and over again. Do the splice somewhere else if the trim can't be done with one piece, and if a splice is needed, do it with a scarf joint.

Trouble spots need flashing—Unless they are protected by roof overhangs, the head casings atop windows and doors should be sealed against the weather with a flashing. I prefer to use copper flashings, but they're pricey. If copper flashings are beyond the budget, galvanized sheet metal, though bright and ugly, is a lot less expensive. These days, there is quite a selection of colors in baked-enamel sheet metal. If the job budget won't buy copper, it will usually accommodate the baked enamel, such as the ones we used on this job.

Where a roof meets a sidewall, you have several options. First, let the roofer roof, then side over his step flashings. Run the building paper over the flashings, but don't put any nails through them. If you do nail the flashings, you make it impossible for a roofer to jockey the flashings around at reroof time.

Your second option is to put up the siding before the roofing, making certain your fasteners are 2 in. to 3 in. up from the bottom of the siding and not so tight that the roofer can't slip his flashing under the siding. The third choice is to fasten a strip of counterflashing in place, side over it and let the roofer slip his flashing under yours.

Siding often suffers at this intersection, usually because it has been applied too near the roof. Capillary action can draw water up between the siding and the wall. This process can stain the siding, and it can promote rot. Leave a minimum of 2 in. between the siding and the roof. More if possible, say 4 in. to 5 in., especially if the roof is exposed to heavy weather. The greater clearance is insurance against saturation from mounded snow, soggy leaves and the buildup from additional roofs.

If your sidewall continues beyond the roof's eave, fasten a piece of flashing along the roof's edge to keep water from going behind the siding (bottom photo, facing page). Confer with your roofer before proceeding with any of these options because he's the one who will have to stand behind the roof. And make sure that both you and the roofer are using the same kinds of flashing materials. For example, don't mix copper and galvanized. □

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