Photo: Sue Burnet

Installing Engineered Horizontal Siding

Working efficiently ensures durability and profitability

BY GREG BURNET

Horizontal lap siding, or clapboard as it's known in some areas, has been widely used as an exterior cladding on American houses for centuries. And while it's relatively simple to install, new generations of materials require installers to pay closer attention to details to ensure durable, trouble-free installations.

As the quality of lumber has diminished over the years, manufacturers have developed siding that is composed of synthetic, composite, or engineered materials. These materials are durable but less tolerant of installation errors, and each has a unique set of installation guidelines that must be followed to avoid failure. It would be impractical to cover the nuances of all engineered siding products in one article—and most manufacturers provide clear instructions for installing their products, and many offer online courses or other programs—so I'll focus instead on general techniques and best practices learned over the 30-plus years that I've been installing siding.

EFFICIENT JOBSITE SETUP

One of the keys to a successful siding project is setting up the jobsite to minimize wasted steps as well as the number of times the material is handled. This involves staging the material, setting up a cut station, and erecting scaffolding as required. Thinking

through this part of the operation carefully can make or break your profitability.

Our supplier typically delivers siding orders with either a roll-back- or forklift-equipped truck. If possible, we unload and store material close to where the cutting station will be—which ideally should be centrally located on the property to allow easy access to all sides of the building. On larger jobs we may load material for multiple cutting stations, or stack the material at multiple locations and move the cutting station as we work around the building.

Our cutting station consists of a simple cutting table—usually a 2x4 frame **(1)** with a fence **(2)**—with enough space directly behind the cutting area to put a sizable stack of siding, which we usually reload several times a day. We do most of our crosscutting with 7¼-inch circular saws fitted with 40-tooth carbide blades **(3)**, and the engineered wood we typically use (LP SmartSide) is strong and light enough that we can gang-cut multiple pieces to the same length **(4)**.

FASTENERS AND NAILERS

Fasteners are critical to the longevity of any siding job. Cheap nails often rust prematurely, leaving unsightly streaks on the siding. In extreme cases, nails rust away completely, and the siding falls off. So at the very least we use double-hot-dipped galvanized ring-shank nails where siding gets blind-nailed. Any trim or siding with exposed fasteners gets stainless-steel ring-shank fasteners.

While nails can be hand-driven into some engineered siding, a coil siding nailer is a must for fastening denser siding or trim products **(5)**. Most of these nailers can shoot nails in lengths from 1¼ inches to 2½ inches (5d to 8d), and a few can fire 3-inch (10d) nails. The nails come in either wire or plastic collation, with each coil holding up to 250 fasteners—meaning less frequent reloading than with a stick nailer. A must-have feature is an adjustable depth of drive; many nailers have a thumb wheel for this purpose. This practically eliminates the need to leave the work area to adjust your compressor's regulator. I also like no-mar rubber or plastic nosepieces, which greatly reduce the risk of damaging prefinished material.

GENERAL LAYOUT

Before we start laying out the siding, we inspect the weather-resistive barrier (WRB), making sure all the seams are taped and repairing any damaged areas. Most engineered siding needs to be

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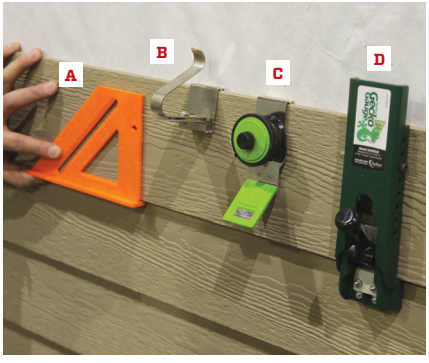
GAUGES FOR INSTALLING SIDING

There are dozens of different gauges; four are shown in the photo below. Gauges can be as simple as a plastic framing square cut to the size of the siding reveal **(A)**. (We label ours with their size and store them in a bucket for future projects.) The second gauge **(B)** is preset to the size of the overlap and slips over the top of a siding course to hold the board above in place, allowing one person to install long lengths. The third one **(C)** also slips over the top and lets you dial in the size of the reveal. The fourth gauge **(D)** clamps to the bottom of the course below. It adjusts to the size of the reveal and locks in place with a lever.



fastened to the framing, so we mark the location of every framing member on the WRB using a permanent marker **(6)**. This way, we don't need to search for studs during the installation, which saves us time.

When possible, we pre-assemble components such as window trim and corner boards. Building them in the shop is faster and easier than on the jobsite. On some smaller jobs we've even pre-fabricated the entire soffit assembly. We install these components directly over the WRB.

The crew uses a laser level to shoot a horizontal control line around the entire building prior to installation. This line gives us a benchmark and allows us to level our starter strip. It also helps to alert us to potential challenges so we can formulate strategies to deal with them. As an example, a soffit that's out of level an inch over 24 feet is easily masked by adjusting multiple courses across the entire surface of the wall. But it's not as easy to hide if you suddenly notice the discrepancy while you're installing the last two courses of siding just below the soffit.

Depending on the type of siding we're installing, we plan some of our cuts and leftover pieces, especially for the front of a building. Engineered wood siding comes in 16-foot lengths, so we use as many full or close-to-full pieces as possible. Because front elevations are often interrupted by doors, windows, and other details, it's often possible to span between these elements with continuous lengths of siding, therefore creating fewer butt joints where they would be most visible.

FIXED VS. VARIABLE SIDING REVEALS

This debate is as likely to start an argument as the one about wormdrive saws vs. sidewinders. Fixed-reveal proponents claim that their method is faster and uses less material because siding can be installed to the maximum reveal stated by the manufacturer. Those who favor the variable-reveal approach point to historic design, where the horizontal edges of the siding align with other horizontal wall elements such as window and door heads and sills, arguing that anything else is just plain ugly.

Despite the passion that both sides feel, either method is acceptable, and I have used both approaches successfully on different projects. Beyond personal preference, your choice may also largely depend on what part of the country you live in, what your

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customer's expectations are, and whether you're being asked to match existing conditions or other buildings on the property.

If we go with fixed reveals, we usually install the siding using gauges to set the width of the siding courses (see Gauges for Installing Siding, page 47). Gauges are always used in pairs, to support the ends of the siding planks at the proper reveal while they are being nailed in place. There are many different gauges, props, holders, and other accessories for installing different kinds of siding, and a lot of them are designed to let you work solo. I've also seen some ingenious homemade gauges. Many gauges are specific to one particular type or thickness of siding, so be sure the gauge you buy works for the siding you're installing.

Variable reveals, on the other hand, are usually laid out with a story pole. I used to make a story pole for each facade of a building, carefully noting all the window and door heads and sills on it. I'd then calculate each measurement, dividing it by the target exposure of the siding and marking each course on the pole. This method works well but often requires a bit of trial and error, not to mention a fractional calculator. More recently I've stopped trying to calculate each course, after realizing that variations of up to ½ inch between courses with a 6-inch exposure (or more) are barely perceptible.

Instead, I lay out individual areas of the wall, such as from the starter strip to the window sill or from the window sill to the window head, and I make a story pole out of strapping or some other material that's longer than the height of each location. At the bottom of the story pole I taper the sides to a point like the top of a fence picket. Then I lay out the ideal (target) exposure for the courses along the stick **(7)**, squaring the lines across the face and onto the edges.

On the building, I mark the locations of each horizontal element across the WRB, bringing a line out to the edges of corner boards. Then I bring the story pole to one side of an area that I need to divide, and place the bottom of the pole at the level of an element that has already been installed (such as a window sill) or on one of our lower reference lines. I rotate the pole diagonally (the point on the bottom allows the stick to pivot without it lifting off the work) until one of the story-pole lines intersects with an upper element, such as the window trim **(8)** or an upper reference line.

Holding the diagonal story pole in place, I transfer the marks for each course from the pole onto the WRB **(9)**. I repeat the process for the other side of the area **(10)**, then connect the marks on the WRB

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with a chalk line or a straightedge. These marks represent the *bottom* edge of each course and will be impossible to see as the siding is installed. So after the reference lines are drawn or snapped, I transfer them onto the edge of the trim where they can be read as the siding is installed.

THE STARTER STRIP

Once all the trim that the siding butts into is in place, installation of the siding can begin. Because the first course must be installed at the same angle to the wall as the rest of the siding, we install a starter strip **(11)**. Unlike taper-sawn wood clapboards, most engineered siding is the same thickness across the width of each board. So for the starter strips, we rip a length of whatever material we're installing into 1½-inch widths. We often use leftover pieces of the same material from previous jobs, because the color doesn't show. When we don't have scraps to make the starter, we order extra siding material for this purpose. For 8-inch-wide siding, for instance, we order one extra lineal foot of product for every 4 lineal feet of starter that we need.

The starter strip is treated like any other piece of siding: Any cuts, including ripped edges and crosscuts, are sealed with paint or primer prior to installation, and the strip is fastened directly to each stud with 8d double-hot-dipped galvanized (or stainless steel) ring-shank nails. If we didn't install the starter strip with the same care as the surrounding siding—for example, if we used fewer nails—the strip could bow off the wall, bulging the first course of siding. The only way to correct this problem would then be to face-nail the lower edge of the first course in an attempt to draw both layers back tight to the wall.

We're careful to install the starter parallel to the level control line we established earlier. This way the first course of siding should be level as long as its bottom edge is flush with that of the starter strip. We also set the starter strip at the correct elevation above grade. By code, siding materials should be held at least 6 inches above finished grade. For siding above an intersecting roof or hard surface, such as a patio or porch, most manufacturers call for a one-inch minimum for vertical clearance. In these cases, we install a flashing and counterflashing on the wall before installing the siding or trim. We usually form the flashing out of black aluminum, which creates a nice shadow line once the siding is on.

Photos: Sue Burnet

CUTTING AND INSTALLING THE SIDING

For the actual installation, a two-person team works best: one installing and one cutting. An experienced cutter, though, can sometimes keep multiple installers going at the same time. After getting a measurement for the first piece, the cutter cuts the siding to length and seals any cuts.

If the installers are using gauges, the cutter also scribes a line along the siding's face at the proper reveal to help the installers align the second course without having to measure and mark the reveal in an awkward position. The installer then blind-nails the siding through the top edge and into the studs, placing the nails the distance from the top edge that's prescribed by the siding manufacturer. Most engineered siding can be blind-nailed, which looks better and helps to protect the fasteners from corrosion.

Working from left to right, additional courses install in a stair-step fashion **(12)**. We stagger each butt joint at least a stud or two from the one below, and we make sure to break the end of each course on a stud as we work our way up a wall, minimizing any chance for the end of a board to work loose.

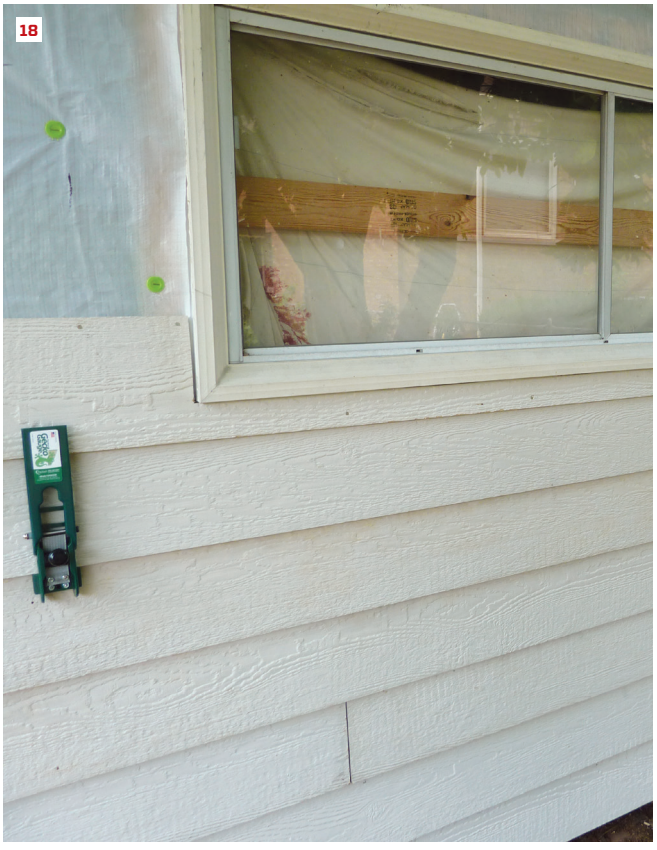
The butt joints in each course are flashed using aluminum coil-stock that we form ahead of time into pans or cards. Each card starts out about 4 inches wide and is as long as the nominal width of the siding that we're installing. We then form a 90-degree leg at the top that is as long as the thickness of the siding **(13)**. The bend lets us place each card at the end of a siding course without nailing it in place **(14)**. Because the card moves with the board, we can adjust a row of siding if necessary to compensate for a slightly bowed piece.

I've remodeled old houses and found tar-paper splines at butt joints of siding. While this method is okay, I prefer to make our flashings out of rigid material that isn't adversely affected by UV rays, moisture, or other environmental conditions. I want the supporting materials we use to last as long as the siding.

To gang-cut siding, the cutter takes material from the pile and stacks it against the cutting-table fence. When working with finished siding, we prefer to make our cuts with the finished side facing down—to minimize chipout—but manufacturers usually alternate the finished and unfinished sides for shipping, so it's not always practical to have the unfinished side facing up.

After squaring the ends of the boards **(15)**, the cutter pulls the measurement **(16)** and cuts through the entire stack at once **(17)**. A

Photos: Roe Osborn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7¼-inch circular saw can usually cut four or five boards at a time.

Successive courses of siding are installed as described above. The only difference is when a piece needs to be notched, such as around a window **(18)**. Engineered-wood siding is usually notched by the cutter on the ground, but fiber-cement siding is usually notched by the installer to minimize breakage during handling. The exposed edges of the siding are sealed immediately after cutting, before the modified piece is installed. Install a starter strip to support the siding above the window **(19)**.

The vertical edges of the notched pieces typically abut a projection such as window trim, so we add a thin bead of caulk to the backs of these areas before installing the siding. For the pieces above a projection, we hold the siding up ⅜ inch above the flashing to keep the siding from wicking moisture and to allow water to drain away freely **(20)**. We generally don't caulk horizontal areas, to avoid trapping moisture behind the siding.

FLASH EVERY PROJECTION

As we work our way up a wall, we inevitably need to deal with window and door heads, light-fixture blocks, hose bibs, and other elements that project horizontally beyond the plane of the siding. No matter the component, we flash it the same way: We install a piece of rigid material over the top of each projecting element, integrate the top of the flashing into the WRB, seal it tight to the weather, and then seal around it with caulk **(21)**.

Because the window, door, and deck-ledger flashings at home centers and lumberyards rarely meet the dimensional requirements of our projects, we usually make our own on a portable sheet-metal brake. The flashing is usually formed out of painted aluminum coil stock in a color that matches the siding or trim **(22)**. (We have also used copper or PVC on occasion).

We add up the total width of the various legs and horizontals and shear a strip that size from the coil. We typically make the downward leg around ½ inch and make the horizontal projection slightly wider than the thickness of whatever we're flashing. We then make the upturned (vertical) leg of the flashing at least 4 inches tall, which is a code minimum in many areas. Rather than bending each portion of the flashing at right angles, we add a 10 to 15 degree bevel on the horizontal portion of the flashing to prevent water from pooling on top.

Photos: Sue Burnet

To install the flashing, we make a horizontal slit in the WRB directly above the trim that's being flashed. The resulting flap of material is lifted and tacked out of the way. The flashing then slides into place and attaches to the building with the same type of nails as the flashing material—aluminum nails for aluminum flashing, copper for copper, and so on—to prevent galvanic corrosion from dissimilar metals being in contact. The upturned leg of the flashing is taped to the sheathing with a strip of peel-and-stick flashing tape, and the flap of WRB is brought down over the flashing and sealed to it with tape approved by the WRB manufacturer to preserve the integrity of the air barrier.

FINISHING UP

When we've completely sided a wall, we finish it off as we travel down on the pump jacks. If the siding is prefinished, we touch up exposed nail heads or minor scratches that may be visible on the siding or trim, starting at the top of the wall and working down. We do paint touch-ups with a cotton swab to minimize "flashing," where touch-up spots have a noticeably different sheen than surrounding areas. Flashing usually occurs when too much finish is applied; as the mil thickness of the finish increases, that area wears differently than the surrounding areas.

This is also the time we apply sealant to all areas that require it, such as where the siding abuts vertical surfaces **(23)**, doors, and windows and at the soffit or frieze juncture. Using a good-quality caulking gun, we apply the sealant, aiming for a bead that has a slightly concave shape when viewed in cross-section **(24)**. For joints that are wider than ¼ inch, such as where the siding or trim abuts a window or door, we insert foam backer rod into the joint before applying sealant. The backer rod prevents the sealant from filling the area, where it could form a three-sided bond and fail prematurely.

If we've installed primed siding, we sometimes leave the scaffolding in place for the painter, or we may simply paint the job ourselves. We've found most engineered material to be very easy to paint, and we're not shy about wielding paintbrushes if it's a profitable use of our time.

Greg Burnet is a Chicago-based window and siding contractor, and a presenter at JLC Live, where some of the photos for this article were taken.

Photos: Sue Burnet