

Siding to Last a Lifetime

Rainscreen details that improve the durability of any lap-siding installation

BY JOHN CONSTANTINI

My partner, Joe Filanowski, and I have been working together for almost 20 years. He handles the business side of our custom-home-building business and I run the job site. Most of our work is along the western Connecticut coastline, where homes are routinely pounded by coastal storms packing savage winds.

Through our remodeling work, we came to the conclusion long ago that even the best siding jobs leak when subject to gale-force wind and rain. We've seen firsthand the rot and structural damage that occurs when rain is forced behind siding and can't get out. The stakes are even higher with modern insulation and air-sealing requirements, because there's often very little drying potential when the inevitable leak occurs. For all these reasons, we now insist that clients install lap siding over an airspace on major remodels and new builds.

We nail the siding to 3/4-in.-thick furring strips, and assembly often described as a rainscreen. Vents at the top and bottom of the wall allow any water that manages to get behind the siding a chance to get back out, and the air gap eliminates pressure differentials—which can cause water to be sucked inward—while also promoting air circulation for fast drying. The home shown here has prefinished fiber-cement siding from James Hardie, but the installation methods are virtually the same for every type of lap siding.

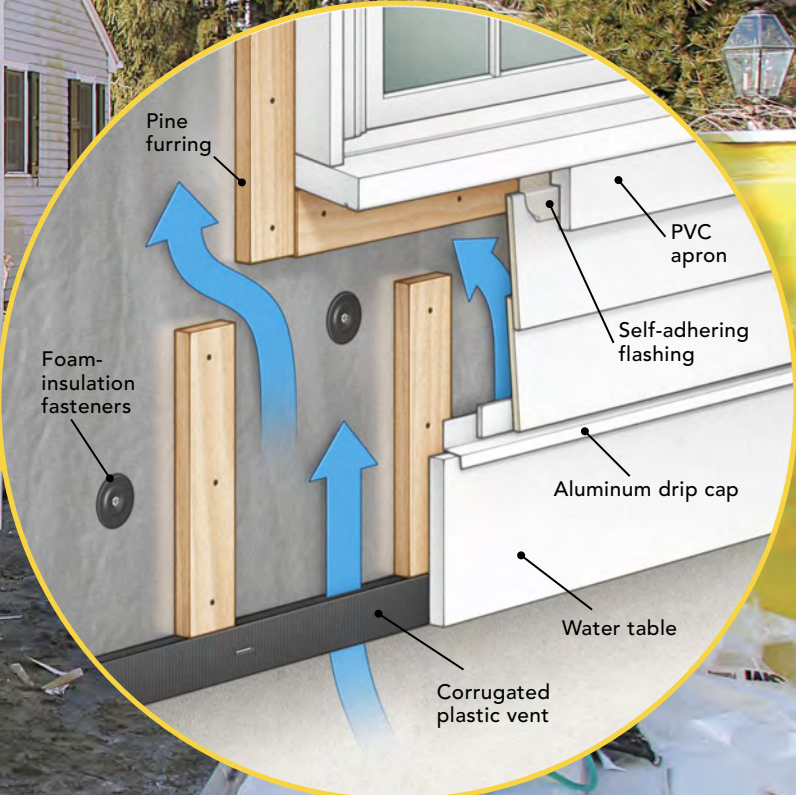
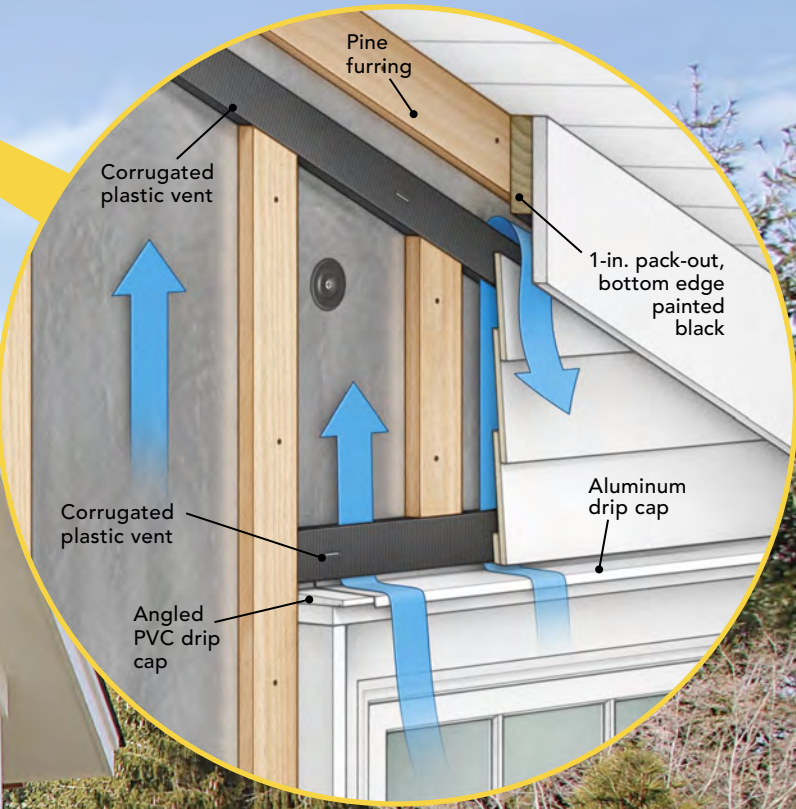
Where to start?

Before we can install the siding, we have to install the trim. On this project, and on most others, we used PVC trim fastened with a combination of stainless-steel screws and 15-ga. stainless-steel finish nails. We use the finish nails on small and relatively short

IT'S ALL ABOUT THE AIRFLOW

This relatively inexpensive prefinished fiber cement gives a traditional lap-siding look, but the 3/4-in. pine furring with vents at the top and bottom of the walls and windows is what ensures the siding will stay looking good for decades.





TRIM AND LAYOUT

Meticulously installed trim doesn't just look better, it also makes it easier to install the siding. Aim for level, plumb, and square and the payoff is less time spent laying out and fitting siding.



Ease the back. Chamfer the hidden edge of the inside-corner stock with a block plane before installation to ensure the 1-in.-square stock will sit tight to the underlying furring strips.

Start straight. Inside corners—rips of PVC trim—must be shimmed and plumbed before final fastening with 15-ga. stainless-steel finish nails. Making the corners straight ensures uniform 1/8-in. gaps at the ends of siding planks.

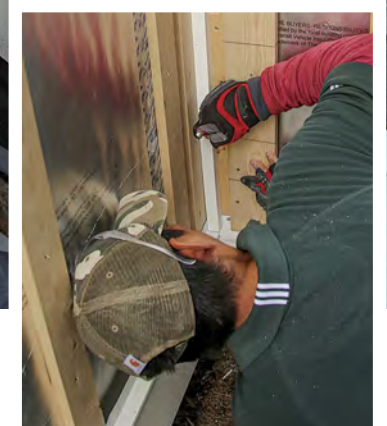
pieces of trim, and the screws on larger, longer elements like frieze boards and water tables. The screws are a must for those pieces in order to minimize the problems associated with the expansion and contraction of PVC. We prefer Cortex screws and their premade plugs, and we leave the plugs out until the siding is installed so we can remove the trim if it's necessary.

Even though this house is all on one level, the siding follows several grade changes and the windows and doors are different sizes and at different elevations. In traditional New England carpentry, the mark of a good siding job was full courses at both the tops and bottoms of doors and windows. Carpenters would adjust the siding's exposure to ensure things lined up. This is easy with consistently-sized windows and simple architectural forms like capes, center-hall colonials, and saltboxes, but it's impossible when you have a house like this one.

We decided that having the courses line up at corners was more important than having full courses above and below windows, so we kept the 4-in. exposure consistent on all the elevations.



Mark both ends. Place the story pole, marked with a 4-in. siding exposure, on top of a 1/4-in. shim that creates the manufacturer-required gap above the water table. Once in place, transfer the siding courses from the story pole to the furring strips at both ends of each run. Snap chalklines between the marks so the siding can be easily aligned for its entire length.



THE FIRST COURSE

The first piece of siding sets the stage for everything that is fastened above it, so be sure the water table is level, the starter strip is in place, and the first course is fit and fastened according to manufacturer instructions.



Begin with a starter strip. A 1¼-in.-wide starter strip—ripped from ¼-in.-thick PVC sheet stock—angles the first course of siding so it matches the subsequent courses. Set the starter strip atop ¼-in.-thick shims and fasten it to the furring strips with 1¼-in. stainless-steel ring-shank siding nails.

Hang the first plank. Set the first course of siding atop the same ¼-in.-thick shims to create a drainage space between it and the water table below, eliminating the chance of the siding wicking water. Once it's in place, nail the plank into the furring—following the stamped nailing line and ensuring the nails are driven snug with minimal, if any, countersinking—before removing the shims.

The west side of the house that's shown in these photographs is near the driveway—and it's the first side you see when arriving. It also has several corners close together, so it made sense to start the siding there. This is also one of the elevations with a step in the foundation. We adjusted the location of the water table by varying the amount it overhangs the foundation so there would be full courses at as many of the stepped elevation changes as possible. To ensure the courses of siding lined up from one side of the house to the next, we made story poles that referenced off the top of the water table.

An airtight, durable assembly

On this project, the clients are aiming for net-zero performance, so to minimize thermal bridging, the exterior is skinned with 1½ in. of foil-faced polyiso insulation. A layer of ½-in. Zip System sheathing with taped seams is behind the polyiso. The sheathing is nailed to the framing with 2½-in. nails and the foam is secured to the sheathing with 2½-in. screws set in Thermal-Grip washers. I like these screws



Flash butt joints. Cut siding planks so that any butt joints land in the center of a furring strip where they can be backed up with flashing (bearclip.com) before being nailed about ½ in. from the end of the plank. Offset seams at least 2 ft. and arrange them so they don't create a repeating pattern.

WATERTIGHT DETAILS UNDER WINDOWS

Water intrusion under windows is commonplace in areas subject to high winds, but even in less risky regions it only takes one nasty storm to lead to damage. A second layer of flashing is cheap insurance.

Extra protection. To prevent wind-driven rain from getting under windows, lap the bottom of the windowsill and the nearest full course of siding below with a 6-in. layer of self-adhered flashing.

Seal first. Apply a liberal bead of solvent-based, all-weather sealant to the apron's top edge, which will be in contact with the underside of the window's sill nosing, before nailing the apron to the wall.



Windows wear an apron. Cut the 5/4 PVC window aprons with a bevel at the top that matches the slope of the sill and a notch on the back that matches the angle of the lap siding. The size of the notch varies with the layout of the courses, so each is custom-cut.

for fastening rigid insulation because their slightly conical washer flattens as the screw is driven. When you use metal roof tins or cheaper washers, the edges tend to curl up, so any furring strips that land on a screw are more difficult to get tight to the sheathing.

We also splurged on the 3/4-in. by 3-in. pine furring because it better resists cupping and twisting than less-expensive and more commonly used spruce strapping. The result is flatter siding that's easier to install. The furring strips are fastened to the studs with 4 1/2-in. structural screws. To locate the studs through the polyiso insulation, we station one carpenter inside the house to shout distances from windows, doors, or corners to another carpenter outside the house who marks the stud locations on the foam with a felt-tip marker.

To accommodate the walls' extra thickness on this house, the window casing has 3/4-in.-thick stock applied to the outside perimeter with 2-in. screws. At the tops of windows and doors is a PVC drip cap that's covered with a secondary aluminum drip cap with hemmed ends. We make the aluminum cap on site with a metal brake.

Details to promote drying

To enable drainage and drying, we install the water table on Cor-A-Vent SV-3 vent strips, which match the thickness of the furring strips. This corrugated plastic vent is sturdy enough to resist crushing when we screw trim over it and it does a good job keeping out pests. We also install Cor-A-Vent at the top of the wall, behind a frieze, which is packed out 1 in. at eaves and rakes (see drawing p. 35). We do this so the siding can be slipped behind the frieze for better water shedding and to conceal the gap left for air circulation. We paint the bottom of the packout material with black spray paint so the gap is as unobtrusive as possible.

Although some builders don't bother ventilating above and below windows, we install the Cor-A-Vent at the tops of windows, too. The siding manufacturer requires a gap between the window's or door's drip cap and the siding to promote drainage and drying. We exploit that gap to introduce airflow as well. Underneath windows and doors, we use a sill pan that drains on top of the insulation layer. An

FIT AND FASTEN

Although it's tempting to install siding tight to the trim, manufacturers require a gap, which is caulked after the installation. These cut ends, and any others, must always be primed before the boards are nailed into place.



Shim for an even gap. When measuring and fitting each plank, use an 1/8-in.-thick shim at either end to ensure a consistent gap where the ends of siding planks butt into trim boards.



Work around windows and doors. The tops and bottoms of windows and the tops of doors often require a U-shaped cut. We prefer to make these cuts using a circular saw equipped with a fiber-cement blade.



Clean up corners. Instead of overcutting the corners, stop the vertical cuts of a U-shaped cutout at the layout marks on the panel's front side. Then break off the waste piece and square up the corners with a utility knife.

Prime cuts. Cut ends, even in fiber-cement siding, will wick moisture and lead to degradation and peeling paint. We prefer to apply primer with a foam-tipped squeeze bottle, much like a liquid shoe polish.

WATERTIGHT DETAILS ABOVE WINDOWS

The flat casing surrounding each window and door is topped with a PVC drip cap and an aluminum drip cap. Both pieces are meant to direct water away from the opening.



Mind the gap. Install the planks over openings with the same 1/4-in. gap used below the first course. These gaps are not caulked, allowing water to get out from behind the siding and air to circulate for fast drying.

FINISHING UP

By padding out the frieze board 1 in., we're able to fit the siding behind the frieze for better water shedding. The gap also creates the rainscreen's top vent, so the furred cavities can dry when wind-driven rain is forced behind.



Frieze overlaps siding. The final course of siding at eaves and gable ends is pretty forgiving to install thanks to the packed-out frieze, which allows pieces to be slipped into place.



additional layer of 6-in.-wide 3M All Weather Flashing Tape attached to the sill nosing and lapped over the top edge of the siding prevents wind-driven rain from finding a way in. On top of the flashing we install a PVC apron with a notched back cut so that it follows the siding contours.

Is all of this really necessary?

Builders in other areas of the country may ask, is all this extra work really worth it? In our climate, with our clients, it absolutely is. They expect the best exterior details and are willing to pay for them. When

Favorite fasteners

Thermal-Grip washer

Because of its slightly conical shape, this 2-in.-diameter plastic washer sits tight to the rigid-foam insulation rather than cupping and interfering with the installation of the furring strips. A pair of prongs on the back of each washer prevents spinning while the screw is tightened.



Cortex screw

Available in 2-in. and 2³/₄-in. sizes, Cortex trim screws are self-drilling. A special driver bit ensures the counterbored head is set to the correct depth for the matching PVC plug that conceals the hole.



HeadLok screw

These flat-head structural screws are code-approved for installing wood furring strips to structural framing through foam insulations. Spacing requirements are specified in the Technical Evaluation Report, which is available at fastenmaster.com.



we started our business, we committed to doing the best possible job for our customers, and we won't work for clients who are unwilling to let us do that.

In recent years, we've had the opportunity to work for repeat clients. When we've opened up walls that we've worked on previously, they're dry and in good shape, which only reinforces our belief that we're doing things the right way. □

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