



Better Results With Vinyl

A guide to best practices for product selection, installation, and repair

BY JLC STAFF WITH MICHAEL CHOTINER

It's fair to say that most contractors and their customers are hesitant when it comes to choosing vinyl siding. On the plus side, vinyl is affordable, it installs quickly, it never needs painting, and it's supposed to last 30 to 50 years.

However, on the downside, vinyl siding products have a reputation for fragility. Vinyl expands and contracts with temperature changes more than any other popular siding material. Joints can open up, panels can buckle, and nailing flanges can tear. In extreme heat, panels can lose rigidity and can sag. In intense cold, vinyl becomes brittle and can shatter from the impact of an icy snowball. And colors, especially dark ones, can fade over time from UV exposure.

Many believe it impossible to create traditional molding and trim details using vinyl siding systems that install with J-channels and snap-on starter strips. Others think that installing vinyl siding on an older home reduces its charm and value.

But most of the shortcomings of vinyl siding are being addressed by manufacturers and by the practical, creative efforts of expert contractors and remodelers. It's easier than ever to identify better-quality products, to minimize problems by using sound installation and repair techniques, and to preserve traditional aesthetics with the selective application of vinyl and other low-maintenance trim material.



SELECTING RELIABLE PRODUCTS

Whatever you might think about vinyl siding, it's important to know that the industry is changing. The Vinyl Siding Institute (vinylsiding.org)—the top industry association—provides programs that define and continually upgrade standards for material, manufacturing, and installation, which are promoted through a number of evolving ASTM protocols.

The ASTM standards include minimum specs for rigidity, impact-resistance, wind-loading, and color retention. Products that carry the "Certified VSI" label adhere to these minimum standards. But short of immersing yourself in the technical details, you can rely on some rules of thumb that experts use when selecting vinyl siding.

Strength and rigidity

The thicker the product, the better it is for stability, rigidity, and impact-resistance. ASTM D3679 specifies .035 mils as the minimum thickness for certification, but most pros won't use products less than

.042 mils thick. You can find products on the market up to .055 mils thick, but be advised that overlap panel end joints will be more visible with the thicker material. For vinyl siding that has a more substantial look and feel, you can also choose premium insulated vinyl siding with either integrated or drop-in foam backing.

Color quality and retention

Vinyl siding consists of two layers: a substrate and the capstock that holds the color. In cheaper lines, the substrate is "gray back," unpigmented material that can show through scratches in the capstock. In better grades of vinyl siding, the substrate is pigmented to match the capstock.

Look for products with acrylic capstock. In addition to retaining color better than PVC, acrylic formulations have made it possible for manufacturers to offer a broader spectrum of colors—especially the darker hues.

Whenever possible, choose vinyl siding in

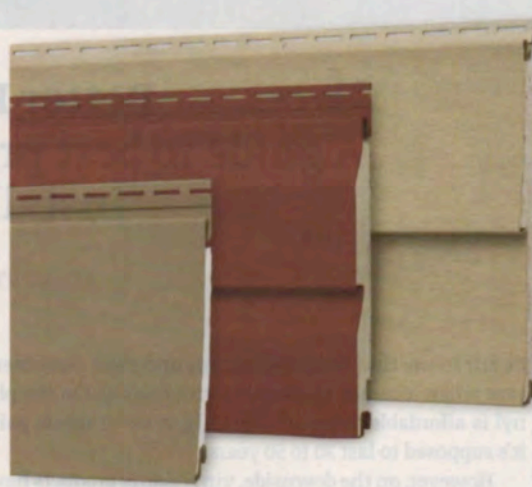
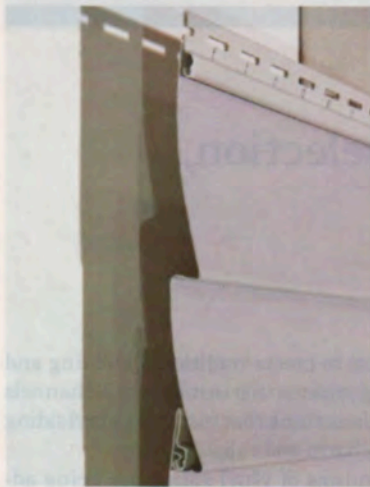
colors certified under VSI's Color-Retention Program. There are currently more than 350, and the list continues to grow.

Opt for lower-luster surface finishes, which have a more natural appearance. Many vinyl manufacturers also offer textured woodgrain patterns that are taken directly from natural wood samples.

Minimize tell-tale lap joints

The joints you see in vinyl siding are actually overlaps, and there is no way to hide them with filler and paint as you do with wood. Using panels longer than the standard 12 footers—most manufacturers offer panels as long as 16 feet 8 inches—can reduce the number of joints by as much as 40%.

Avoid double- and triple-course panels on long walls. The stacked joints are a dead giveaway that the siding is not wood. Single-course vinyl planks are available in 5- and 7-inch profiles and are more easily installed with random butt joints.



Vinyl siding profiles that have broader butt edges tend to be more rigid and to stay straighter than designs that have shallower butts. The siding on the left doubles over the nailing hem completely for more strength, while the siding on the right just folds over the top edge of the hem.

Vinyl siding with integrated foam backing or drop-in foam backing keeps its shape better, offers greater impact-resistance, and adds a layer of insulation for a higher R-value.

Photos: left and center, Roe Osborn; right, Alside

SUBSTRATES FOR VINYL SIDING

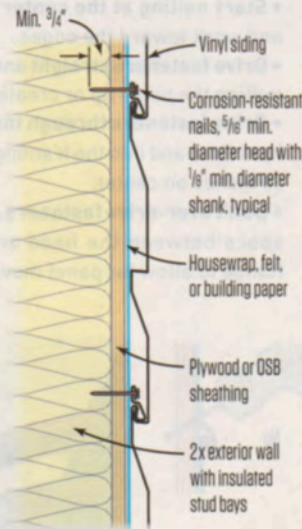
Vinyl siding must be installed over nailable wall sheathing that is perfectly flat and smooth, such as CDX (exterior plywood) or OSB. The sheathing must be protected by a moisture barrier, with seams taped to prevent water intrusion.

The Vinyl Siding Institute considers vinyl siding as part of a "water-resistive barrier system," not a water-resistive barrier by itself. By its nature and design, vinyl siding works well as a supplemental rainscreen in the system, cutting down the amount of water that gets through to the water-resistive material covering the sheathing. Properly installed vinyl siding is attached somewhat loosely to allow it to expand and contract with temperature changes, so it's always subject to some moisture penetration from wind-driven rain and similar sources of water. But because the vinyl panels are hollow and have slotted nail hems, they allow sufficient airflow as well as an escape path for moisture to easily drain off. The spaces and materials behind the vinyl dry out readily—even without strapping spacers, many claim.

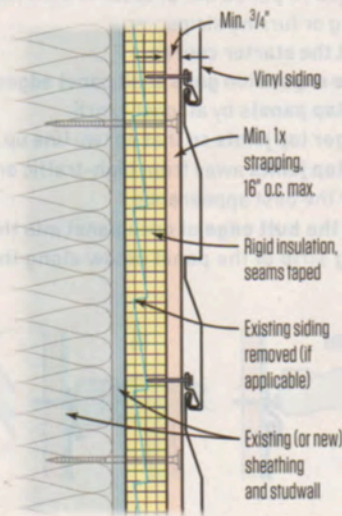
Rigid foam board insulation applied on the outside of the sheathing is becoming increasingly popular these days. With the seams properly taped, this insulation layer can also provide an effective drainage plane behind the vinyl siding. Exterior foam insulation is typically fastened in place with long structural fasteners driven through 1-by strapping and into the wall studs. The strapping then provides a solid structure onto which to nail the siding. But with the siding nailed every 16 inches, heavier, stiffer vinyl panels should be used to prevent sagging between the strapping.

Vinyl siding can also be installed over sound existing wood siding. Typically, fanfold insulation is applied over the existing siding to bridge any butt seams and to create a flat plane for the vinyl panels. In these cases, door and window casings usually need to be built out to project beyond the finished siding.

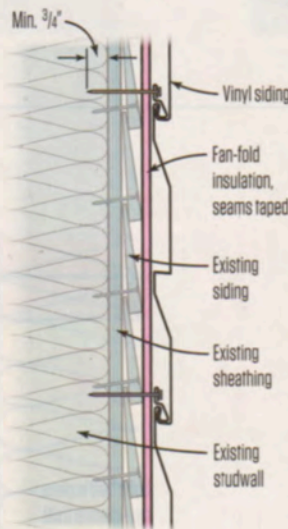
Over Sheathing



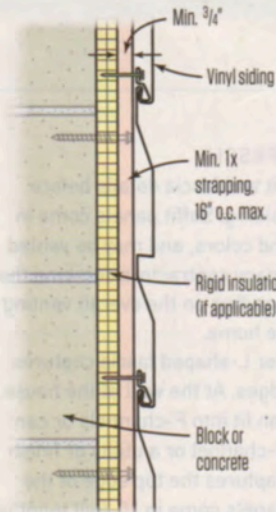
Over Rigid Foam



Over Existing Siding



Over Masonry



TIPS FOR FASTENING VINYL SIDING

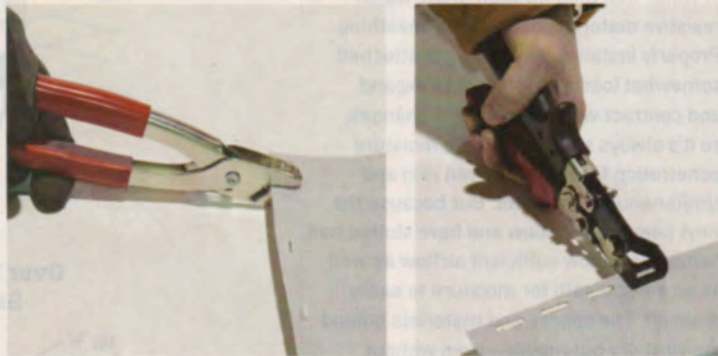
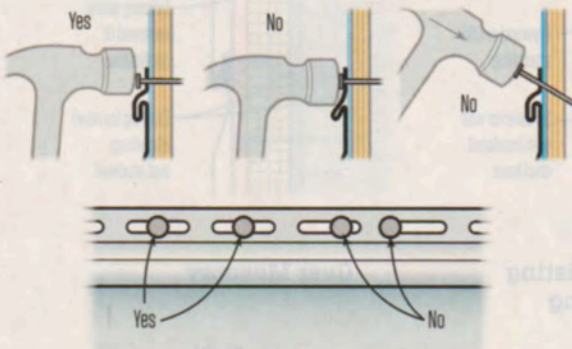
- **Use corrosion-resistant fasteners** that are sized to penetrate at least $\frac{3}{4}$ inch into framing or furring strips.
- **Level the starter course.**
- **Leave expansion gaps** at all panel edges.
- **Overlap panels** by at least 1 inch.
- **Stagger lap joints** so that no two line up.
- **Overlap joints** away from high-traffic areas for the best appearance.
- **Lock the butt edge** of each panel into the locking strip of the panel below along the

entire edge before nailing.

- **Start nailing at the center** of each panel and work toward the edges.
- **Drive fasteners straight and level** without pulling the panel up or creating tension.
- **Drive fasteners through the center** of the hem slots and into the framing no more than 16 inches on center.
- **Don't over-drive fasteners.** Leave a slight space between the head and the nailing flange to allow for panel movement.

USEFUL INSTALLATION TOOLS

There are two specialty tools that every vinyl siding installer should carry. A snap lock punch (photo below, left) creates raised "lugs" in the edge of a vinyl panel once the nail flange has been removed. The lugs lock into utility trim to hold the edge of the panel in place while allowing the piece to move with temperature changes. A slot punch (below, right) makes an elongated hole for a fastener that allows the siding panel to move under the fastener head.



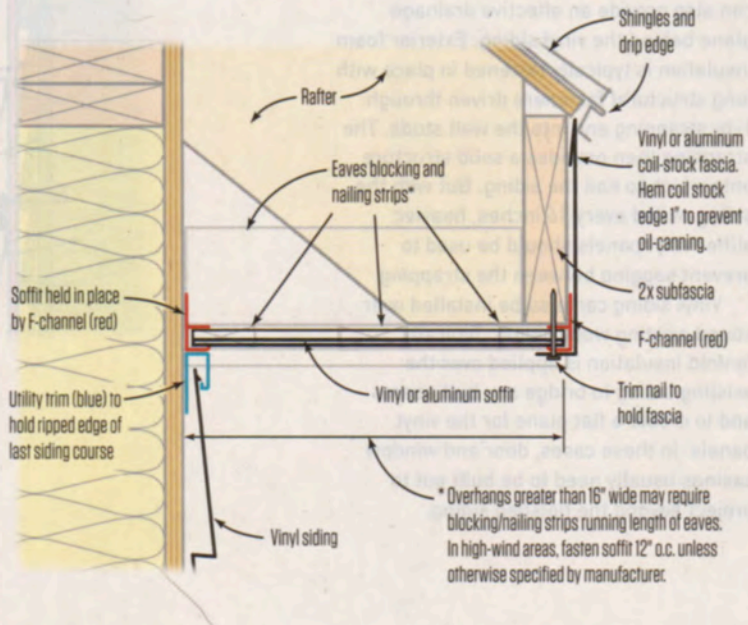
SOFFIT AND FASCIA

Complete soffit and fascia details before installing the siding. Soffit panels come in many styles and colors, and may be vented or unvented; many contractors combine the two types, depending on the overall venting strategy for the home.

F-channel or L-shaped fascia captures outer-panel edges. At the wall of the house, panel edges can fit into F-channels or can be hidden by J-channel or a utility or finish channel that captures the top edge of the siding. Soffit panels come in 10-foot lengths but are usually cut to fit across the soffit, so nailers may be needed depending on the rafter spacing and the overhang depth.

There are many low-maintenance options for fascia, including aluminum coil stock that can be fabricated on site. Vinyl fascia is available as well, and PVC trim boards offer yet another alternative.

Soffit and Fascia Detail



Photos: Roe Osborn

FASTENING VINYL SIDING TRIM

Once the substrate has been properly prepared and the soffits finished, specialty trim pieces called accessories are installed. These pieces either hide the edges of the siding or help to hold the siding in place.

Installation begins by establishing a level horizontal layout line around the perimeter of the house for starter strips (use a laser, a water level, or a chalk line with line level). The starter strip holds the bottom course of siding (1). If more than one length of starter is used on a wall, be sure to leave an expansion gap (see "Starter Strip," at right).

Next, install inside corners (2) and outside corners (3) up to the soffits, leaving a 1/4-inch expansion gap at the top (see "Corner Posts," at right). Snap vertical chalk lines to keep the corner trim straight then fasten the trim from the top down.

Use J-channel (4) to capture and cover the ends and edges of siding panels. Specific details for using J-channel around windows can be found on page 28. J-channel can also be used below the soffit to hide the edges of the panels. Another place for J-channel is along a roof-to-wall connection, which is detailed on page 29.

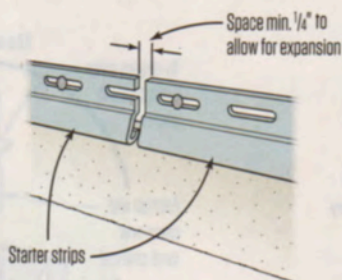
A specialized trim piece called a "utility" or "finish" channel (5) is spring-loaded on one side. It locks the cut edge of a siding panel in place when lugs have been created on the panel edge using a snaplock tool (see facing page). The lugs keep the edge of the siding from popping out as the material expands and contracts.

F-channel (6) is most commonly used as part of soffit detailing, where it captures and supports the edge of the soffit material while leaving a finished edge.

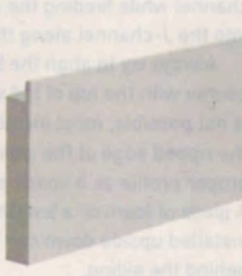
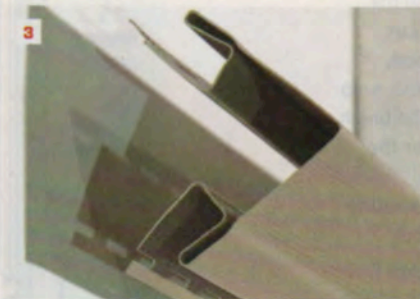
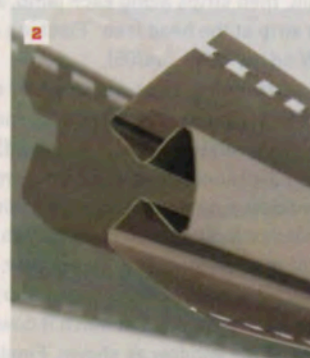
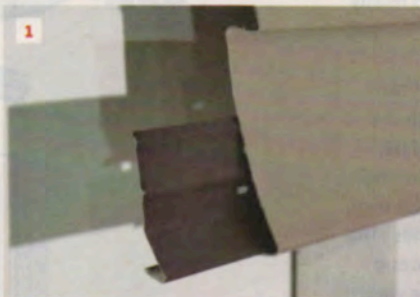
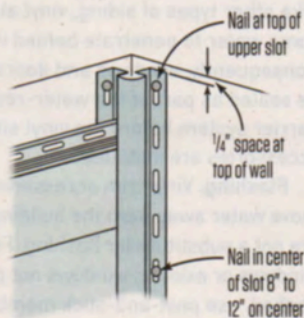
There are many other specialty profiles for installing vinyl siding, from crown and cove profiles to wider window casing, brickmold, and even decorative corner profiles. In addition, many cellular PVC trim manufacturers make profiles that have an integral edge channel that can be used in corners, for casing, and even for a decorative water course (7).

When installing any vinyl trim or siding panels, always remember to leave a 1/4-inch gap at each joint for movement due to temperature changes.

Starter Strip



Corner Posts



FLASHING AND TRIMMING WINDOWS

Like other types of siding, vinyl allows some water to penetrate behind it. Consequently, windows and doors have to be sealed as part of the water-resistive barrier system before the vinyl siding and accessories are installed.

Flashing. Vinyl trim accessories help to move water away from the building, but they are not a substitute for flashing. For new windows or existing windows not properly flashed, use peel-and-stick membrane at the perimeter, starting with a strip at the sill, then strips along each jamb, and finally a strip at the head (see "Flashing a Flanged Window," *JLC*, Jun/05).

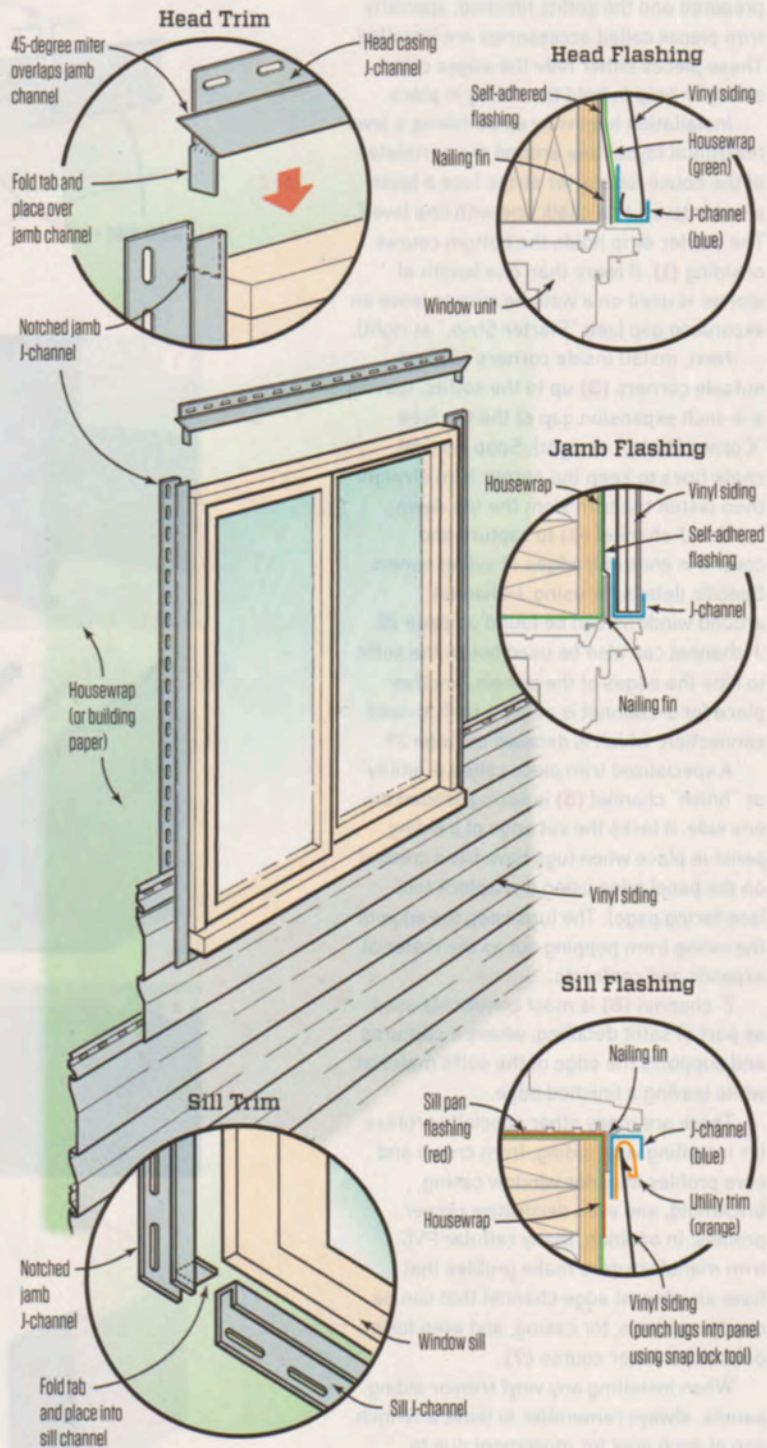
Trimming. First, install utility or finish molding inside J-channel underneath the window sill (see illustration, right). Next, run J-channel down each side jamb of the window, extending it past the undersill trim; notch it as shown and fold the tab under the sill trim. At the top of the window, extend the jamb trim past the head jamb the width of the J-channel, and notch it down to the top of the window as shown. Finally, cut J-channel to run over the window head, extending over the jamb trim. To install, snip back the nail fin and cut a miter on the finish fin. Finally, create a tab that slips over the notch in the sidewall trim as shown.

When installing vinyl siding over existing siding, it may be necessary to build out window and door casings, which makes it possible to align the J-channel on the same plane as the siding.

Siding. Where the siding wraps around the bottom of the window, mark the material that needs to be removed, and cut out an additional 1/4 inch in each direction to allow for movement. Create lugs along the cut edge with a snap lock punch (see page 26), then slip the cut edge into the utility channel while feeding the rest of the panel into the J-channel along the jamb.

Always try to align the bottom of a siding course with the top of the window. When this is not possible, most installers shim behind the ripped edge of the siding to maintain the proper profile as it spans across the window. A piece of foam or a length of utility trim installed upside down can be used as a shim behind the siding.

Windows: Flashing and Trimming



RAKES AND ROOF-WALL INTERSECTIONS

Install J-channel against the rake soffit, or against the rake trim if there is no overhang or if no space has been provided behind the rake trim to tuck the siding. Overlap the pieces if more than one length is needed to make up a run, and for the best appearance, miter the exposed edges of adjoining pieces where they meet at the gable peak. Cut the roof angle on the edges of the siding panels and slip them into the J-channel, leaving ample space at both ends for movement. At the peak, slip the uppermost panel into place and anchor it using a stainless fastener driven through the face.

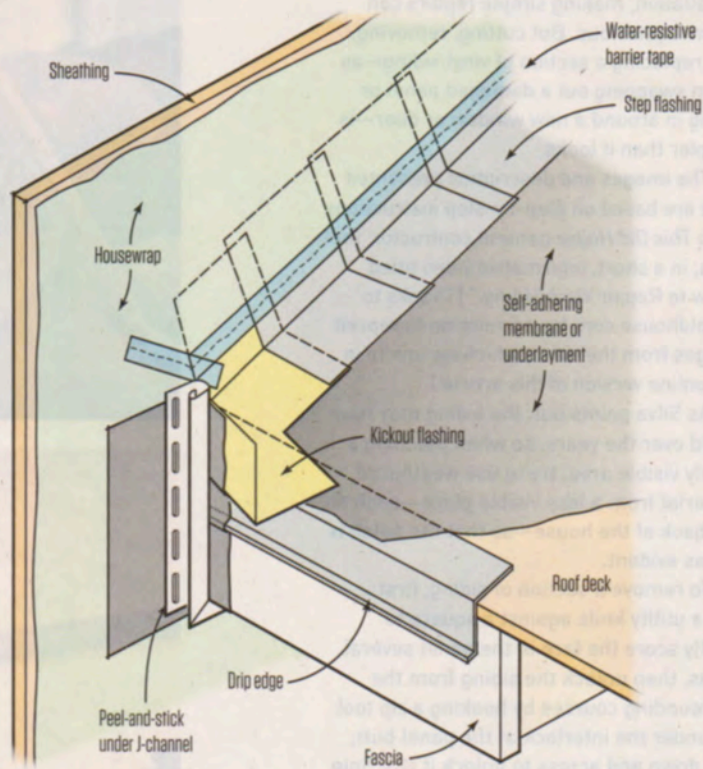
Kickout flashing. Where a roof plane meets a wall, protect the wall with a properly-installed moisture-resistive barrier, integrated with step flashing woven into the courses of roof shingles. At the lowest shingle course, install a kickout flashing in place of the first piece of step flashing [see "Kickout Flashing," right].

Apply peel-and-stick membrane to seal the joint between the moisture-resistive barrier and the vertical leg of the kickout flashing.

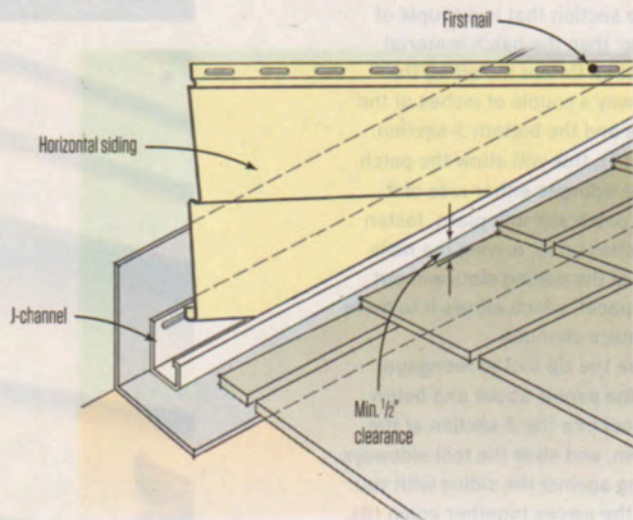
Extend J-channel from the soffit vertically over the fascia to the top of the kickout flashing. When applying the vinyl siding at the kickout, slit the panel so it slips over the vertical leg of the kickout and J-channel, then caulk both sides after the panel is attached.

Siding the roof-to-wall connection. Run a length of J-channel along the roofline, keeping it at least $\frac{1}{2}$ inch above the roofing, and fastening it every 8 to 10 inches. When fastening angle-cut siding panels along the roofline, leave space for movement, and also drive the first fastener at the "downhill" side of the nail hem slot to ensure that as the siding expands, it moves away from the roof and the J-channel.

Kickout Flashing at Roof-To-Wall Connection



Siding Details at Roof-to-Wall Connection



REPAIRING VINYL SIDING

For contractors unfamiliar with vinyl siding installation, making simple repairs can seem mysterious. But cutting, removing, and replacing a section of vinyl siding—as when swapping out a damaged panel or filling in around a new window or door—is simpler than it looks.

The images and description presented here are based on step-by-step instructions from *This Old House* general contractor, Tom Silva, in a short, informative video titled “How to Repair Vinyl Siding.” (Thanks to thisoldhouse.com for permission to reprint images from the video, which we link to in the online version of this article.)

As Silva points out, the siding may have faded over the years, so when patching a highly visible area, try to use weathered material from a less visible place—such as the back of the house—so that the patch is not as evident.

To remove a section of siding, first use a utility knife against a square to lightly score the face of the panel several times, then unlock the siding from the surrounding courses by hooking a zip tool (1) under the interlock at the panel butt; pull down and across to unlock it (2). Snip through the panel butts to complete the cut (3). Lift the butt of the panel above, and pry out the exposed nails.

To insert a patch between existing panels, follow the same procedure to cut and remove a section that is a couple of inches shorter than the patch material you will be using. Before installing the patch, snip away a couple of inches of the nailing flange and the bottom J-section at both ends (4); this will allow the patch to overlap the siding to either side of it (5). With the patch slid into place, fasten it every 10 inches or so, driving the nails in the center of the nailing slots without pinching the panel, which allows it to move with temperature changes.

Finally, use the zip tool to reengage the patch to the panels above and below it. Hook the tool into the J-section at the butt, pull down, and slide the tool sideways while pressing against the siding with your palm to lock the pieces together again (6).



Images courtesy This Old House