

# SELECTING & INSTALLING RED-CEDAR SIDING

*Start by  
learning the  
grades, and  
picking the  
right profile  
for the job*

*by Don Wallace  
& Gunnar  
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"I'd like to use wood siding, but I'm afraid it's going to curl up and walk off the wall."

Builders who would like to use wood as a siding material have often heard about cupping, separating, loosening joints, nail popping, splitting, or discoloration—and the dissatisfied property owner.

These "problems," however, are often traced to the improper choice of materials or misapplication of the product. A little knowledge beforehand can ensure professional results and save a lot of worry.

## **Choosing the Right Product**

Western species such as the western cedars, Idaho white pine, western hemlock, ponderosa pine, Douglas fir, Englemann spruce, lodgepole pine, and redwood are available for wood siding.

Aside from species, one must be careful about the quality of the material

selected. Building codes usually consider wood siding a nonstructural material and place few restrictions on its use. Also, because it is not structural, no grade stamps are required. As a result, builders and specifiers are easily frustrated by the myriad of proprietary grades and marketing jargon.

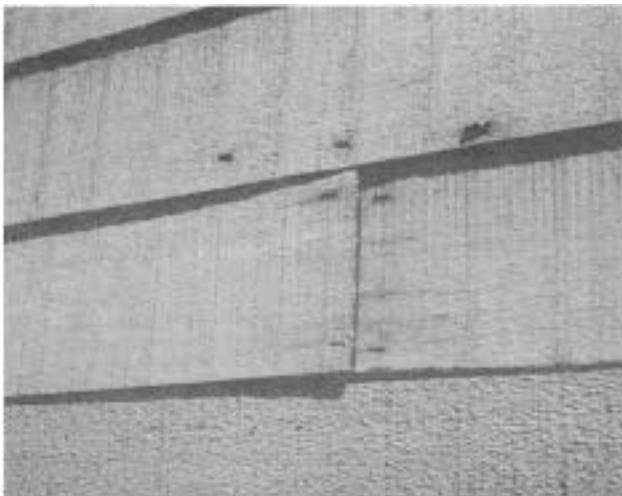
Ambiguous terminology is especially abundant in western-red-cedar products. For example, the term "no prior selection" or NPS generally means that a mill has not sorted out the higher grades of a product in a shipment. The mill and remanufacturer may label their product NPS, yet the amount of the higher grade from each source can vary greatly. As a customer, you might end up with a load of knotty wood when you thought you had ordered a higher grade.

Some remanufacturers also apply proprietary names to their wood siding products, such as "Tight Knot" or "Select Knotty."

It's best to avoid this type of jargon. Instead, become familiar with standard industry grades, how materials are marketed, and what is available locally. The grading rules written by the major rule-writing agencies are similar, but not identical.

Siding grades are generally categorized as either premium or knotty. Premium grades have mostly clear wood and are used where appearance and durability are vital. These grades are often stained or covered with a clear finish that allows the natural wood grain to show. The premium grades in boards are listed as "select" or "finish," which usually command a higher price.

Knotty grades are more abundant than the premium and are often referred to as No.1 to No.5 "commons." The most often used common grades are No.2&Better and No.3 commons.

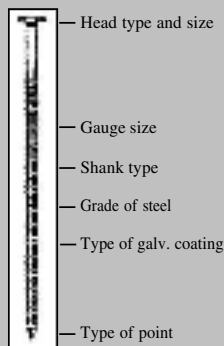


*In general, staples will not provide the corrosion resistance or withdrawal strength needed for wood sidings (left). As for nails, (right) 1½ inches penetration into studs would have prevented these pullouts.*

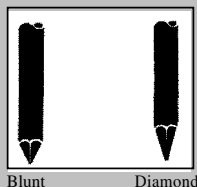
# KNOW YOUR NAILS

by Roelif Loveland

## NAIL FEATURES



## NAIL POINTS



## NAIL COATINGS

**HOT-GALVANIZED NAILS** are coated through a tumbling process. Zinc chips and steel nails rotate in a barrel in a furnace to melt the zinc. Nails may not be evenly coated and threads may fill up.

**MECHANICAL PLATING** involves rotating cold nails in a barrel with zinc dust. Glass BBS in a barrel hammer the zinc dust onto the nails. The nails are then immersed in a chromate rinse which gives them a gold or green color. The process leaves the threads relatively clean but the coating can be thin.

**ELECTRO-PLATING** occurs when the nails are immersed in an electrolytic solution that deposits a thin film zinc on the nails when an electric current is run through the solution. Because the thin plating can oxidize away, there are prone to rust in harsh exposures.

**HOT-DIPPED ZINC-COATED NAILS** have good rust protection. This method coats nails uniformly, because they are submerged in hot molten zinc. Nails can be double-dipped for heavier plating. These are hard to visually distinguish from hot, tumbled nails. To be certain, ask the manufacturer if the nails comply with ASTM-A153, the standard for hot-dipped galvanized hardware.

Homeowners rely on professional contractors to know which products, including nails, will provide them with an attractive, maintenance-free siding job.

Too often there is a great deal of thought given to the type of siding—with little attention to the nails. Often inferior nails end up being used. This mistake has been the source of a great deal of trouble and expense to contractors nationwide.

There are probably as many kinds of nails as there are projects that use them. Modern engineering allows each nail to have the specific features needed for each job. These include such considerations as:

- Type of coating
- Head size and gauge size
- Type of point
- Type of shank (plain or threaded)
- Grade of steel used

Considering the three main groups of siding below—there are well-accepted criteria for successful nails to fasten each. The types of nails discussed are available from several specialty nail manufacturers.

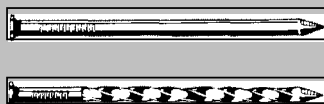
### For Cedar, Redwood and other Fine Wood Sidings



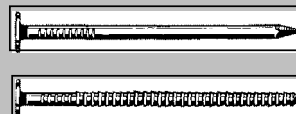
CEDAR & REDWOOD SIDING NAILS

Recommended Features	Advantages
Hot-Dip Galvanized Coating	This type finish is recommended by both the cedar and redwood associations for a long rust-free service life.
Thin Shank	A thin shank greatly reduces the wood splits which can occur with standard thick siding nails. (You also get more nails per pound.)
Blunt Point	A blunt point also helps to reduce wood splits—since the point punches its way through the wood fibers rather than splitting them.
High Grade Steel	Using high-carbon steel minimizes bends even on thin nails.
Threaded Shank	A ring shank gives 50 to 100 percent greater holding power than a smooth-shank nail. Recommended penetration is 1½" into the solid wood stud.
Small, Checkered Head	The small head helps to make the nail unobtrusive on fine wood siding. The checker on the head greatly increases paint adhesion on nails that are painted either before or after application.

### For Hardboard Siding



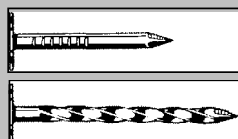
TRADITIONAL SMALL HEAD HARDBOARD SIDING NAILS



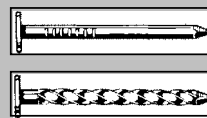
LARGER HEAD HARDBOARD SIDING NAILS

Recommended features	Advantages
Hot-Dip Galvanized Coating	The coating doesn't chip off when hammered—as can happen with cheap galvanized nails.
High Grade Steel	A high carbon steel nail helps prevent bending—when going through two laps of hardboard.
Threaded Shank	Either the ring or spiral shank gives much greater holding power, reducing nail "pop-outs".
Appropriate Head Size	Either a small, slightly countersunk head or a larger flat head is suitable. Some hardboard siding manufacturers now specify minimum ¼" diameter heads.

### Aluminum, Steel & Vinyl Siding



LARGE HEAD VINYL SIDING NAILS



REGULAR HEAD FOR ALUMINUM & STEEL SIDING

Recommended features	Advantages
Hot-Dip Galvanized Coating	A hot-dip coating ensures that rust stains don't bleed from weep holes, and that nail heads don't rust off.
High Grade Steel	Compatible with all three types of sidings. Drives much better than aluminum nails.
Threaded Shank	Spiral shanks available on these nails hold much tighter than smooth.
Appropriate Head Size	The large headed nails, designed for vinyl siding, allow the siding to hang properly—without letting the slot expansion pull siding over the nail head. The smaller head works well with aluminum and steel siding—and allows a greater nail count per pound.

Roelif M. Loveland is Advertising Manager for W.H. Maze Company, in Peru, Illinois, manufacturers of specialty nails.

The higher quality No.2&Better (a mix of No. 1 and No. 2 grades) has smaller and sounder knots and fewer growth characteristics. When using knotty boards for siding, use either tight-knot (No.2&Better) material, or a lower grade with the addition of a tight-knot requirement on the grade. Also, avoid loose knots or bark-encased knots, such as those found in the lower grades.

Western red cedar has special grade rules because it is well-suited to siding applications. Like other species, cedar is divided into premium and knotty grades. But also available are all-heart, which resists decay, and vertical grain, which is more durable, and holds finishes better than flat or mixed grain.

In addition to standard board dimensions, most species are also cut to pattern. The most popular are bevel, channel, board-and-batten, and tongue-and-groove. Surfaces may be rough, smooth, or saw-textured. Saw-textured takes finishes better than rough or smooth.

Appearance may be your primary guide in selecting a pattern, but consider other factors, too. A building's southern and western exposures will weather more quickly, as will unprotected areas such as gables. A narrow pattern, 6 inches wide or less, performs better in such instances because it has better dimensional stability. Since narrow patterns are less prone to shrinkage and swelling, they are also more suitable for severely dry or very humid, areas.

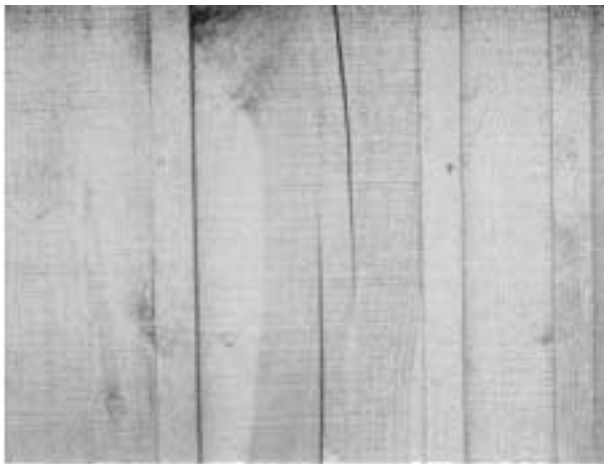
Shrinkage is a critical factor to consider in dry climates. For example, the smooth appearance of tongue-and-groove siding makes it a popular choice among architects. But if shrinkage occurs, it is readily apparent at the resulting gaps.

Channel, bevel, or board-and-batten sidings would be more forgiving in this case. Their profile includes a gap that can accommodate shrinking and swelling.

To further reduce the risk of shrinkage-caused problems, use seasoned materials. Generally, siding that has been seasoned to a 12 to 15 percent moisture content (MC) should be suitably stable. Desert conditions may warrant a 6 to 7 percent MC, which can be achieved by acclimatizing the product before application.

#### Proper Application is Essential

Attractive wood-siding is a sign of both quality materials and professional workmanship. But if you just take the product off the truck and nail it up, there's a good chance the product will



Some carpenters just can't bang in enough nails. Board-and-batten siding (top) is prone to splitting if boards up to 8 inches wide get more than one row of nails. The channel-rustic (center) isn't going anywhere, but should have been nailed only at the studs. Do you think they put enough nails in the T&G butt joint (bottom) to keep it in place?

not work out to your—or your homeowner's—satisfaction.

On the jobsite, moisture content may still be a factor, even with seasoned materials. By acclimatizing the product you can minimize the chance of dimensional change. Do this by storing the product at the jobsite seven to ten days prior to application. During this time, make sure you protect it from moisture by keeping it covered, ventilated, and off the ground.

Priming or pre-finishing all sides—faces, back, ends, and edges—protects the siding from moisture and potential cupping. Pre-finishing also eliminates lines exposed by shrinkage, if it occurs. A brush-on water-repellent preservative works best. Apply this after the material has been acclimatized and before it's installed. As the siding is cut to length, liberally brush the cut ends with repellent. Back-priming is particularly important on siding installed over foam or foil-faced sheathing.

Aside from materials preparation, nail selection and nailing are the most important and most overlooked considerations. Use either stainless steel, high-tensile-strength aluminum, or high-quality hot-dipped galvanized nails. These will not corrode and discolor the wood as do copper or steel nails.

Ring shank and spiral-type nails have a better holding ability. Also, blunt-

**We are unaware of any staples that will not corrode, or that provide adequate support on the surface of the wood.**

point nails will reduce the chance of splitting. Small-headed casing nails are not recommended. Also avoid using staples. We are unaware of any staples that will not corrode, or that provide adequate support on the surface of the wood and adequate withdrawal resistance.

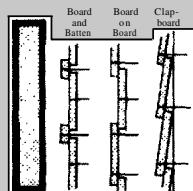
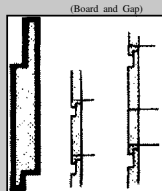
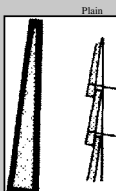
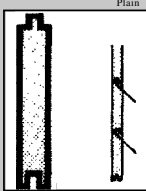
Nails must penetrate 1½ inches, or 1¼ inches with a spiral or ring shank, into a combination of solid wood and wood sheathing. Nails must not be fastened solely to exterior sheathing or rigid foam. To do so invites loose siding.

Nails should be snug, but not too tight. Heavy nailing cups the siding and may cause splitting. Also, nail heads should not create an unsightly pattern on the wall.

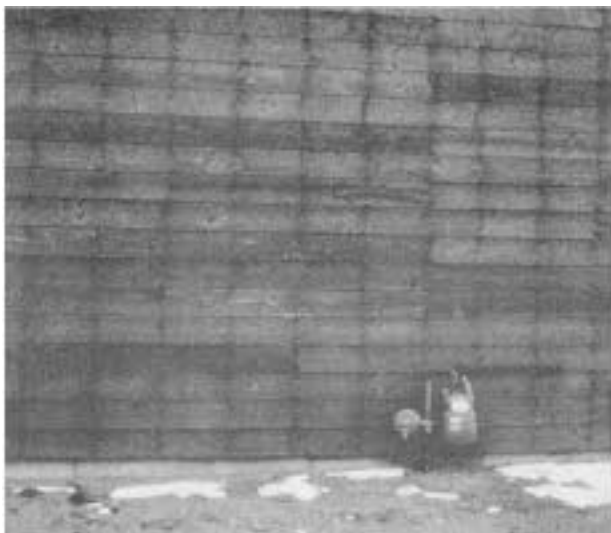
Nail size varies according to pattern: Bevel siding requires 6d, channel 8d, and board-and-batten 10d nails. However, use sufficiently longer nails to reach the minimum penetration into wood if you are nailing through a non-wood sheathing.

The siding pattern also determines nail placement. Nails should be placed to allow the wood to move—shrink and swell—without cupping or splitting. Bevel siding requires one nail per stud at one inch from the butt edge. The upper edge is held in place by the next course. Tongue-and-groove siding, up to a 6-inch nominal width, is blind-nailed through the tongue, with the tongue side up. The lower edge is not nailed. For board-and-batten, one nail is required per bearing at the board's center. Two nails at 4 inches apart should be used for widths over 8 inches. The batten should be nailed in the center, through the gap between the boards.

## Typical Patterns and Nailing

BOARD	CHANNEL RUSTIC	BEVEL	TONGUE & GROOVE
 <p>Available surfaced or saw textured.</p> <p>Recommendation 1" minimum overlap. Use 10d siding nails on outer boards or battens, 8d nails on inner boards as shown.</p>	 <p>Has ½" lap and 1¼" channel when installed.</p> <p>May be applied horizontally or vertically. Use 8d siding nails as shown for 6" widths. Wider widths nail twice per bearing.</p>	 <p>Plain bevel may be used with smooth face exposed or sawn face exposed for textured effect.</p> <p>Recommended 1" minimum overlap on plain bevel siding. Use 6d siding nails as shown.</p>	 <p>Available in smooth surface or rough surface.</p> <p>Use 6d finish nails as shown for 6" widths or less. Wider widths, face nail twice per bearing with 8d siding nails.</p>

Western Red Cedar Lumber Assoc.



*Don't use copper or common-steel nails or they will stain the wood. Instead, use high-quality hot-dipped galvanized, high-strength aluminum, or stainless steel.*

Problems can occur if more nails than recommended are used. The extra nailing may restrict movement of the wood causing it to eventually split. This is especially true for boards over 8 inches wide.

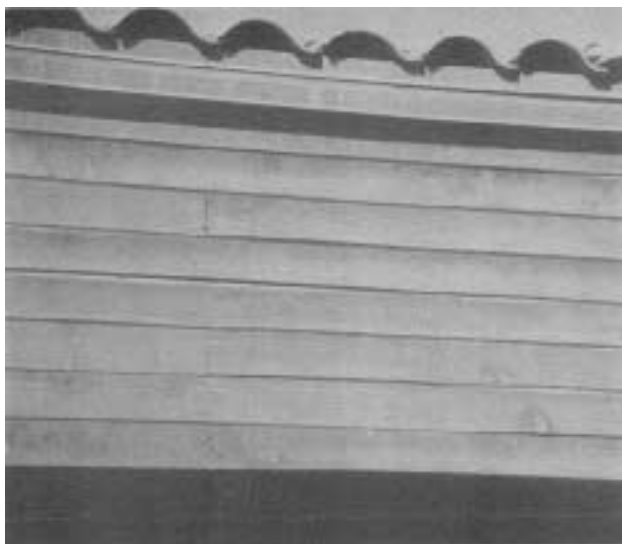
For vertical siding, install horizontal blocking between the studs, or strapping over wood sheathing, at 24-inch intervals for blind nailing and face nailing. If the vertical siding boards are joined to gain the needed height, fit them with a 45-degree scarf joint to drain water. Joints cut square are prone to water penetration.

All wood sidings should have an 8-inch clearance between the ground and first course of siding. Succeeding rows of lap pattern can be adjusted so that courses come out even with the tops of windows and doors. However, spacing adjustments must not exceed the maximum exposure for the size and pattern used. The maximum exposure equals the minimum overlap subtracted from the dressed or actual width of the piece. The minimum overlap is 1 inch for siding up to 6 inches wide and 1½ inches for widths over 6 inches. For example an 8¼-inch actual width pattern would have a 6¾-inch maximum

exposure.

In addition to spacing, important details include tight joints and accurate fitting around doors, windows, and dormers. Proper corner trim such as corner boards or metal corners is needed to protect endgrain, which is vulnerable. Flashing and drip caps are a must for windows and doors to prevent water collection at wood joints. Also, building paper should be used between sheathing and siding, whether you use wood or rigid-foam sheathing.

**Siding without a finish may lose its color quickly. Western red cedar turns from cream-color and red to black before aging to a silvery grey. Some might consider the intermediate stages unsightly.**



*Tongue-and-groove patterns are popular because of their smooth appearance. But if the boards shrink, the unstained gaps are highly visible—unless you've prestained.*

## Not Finished Yet

Wood finishes both protect the siding and add to its visual appeal. Some owners prefer a natural look, letting the wood grain show. Siding without a finish, however, may weather and lose its color quickly. And some might consider the intermediate weathering stages unsightly. Western red cedar, for example, turns from cream-color and red to black before aging to a silvery grey.

Many homeowners want the cedar siding to retain a "natural" look. This is difficult to achieve, however, because cedar contains water-soluble extractives that can stain or streak when they are dissolved and brought to the surface. This is part of red cedar's natural weathering process. You can retard this process by using a penetrating oil or surface wax to keep water out of the wood and lock the extractives in. A transparent penetrating oil (with ultraviolet protection and mildewcide) can yield good results. Water-repellent preservatives can also be used to promote a more uniform weathering process, but these typically need annual recoating.

Avoid film-forming varnishes or lacquers, which become brittle and peel with age. Also steer clear of linseed oil, which is attacked by mold and fungi causing the wood to discolor.

Bleaching oils quicken the color aging process of wood to its natural silver grey. These oils also provide the protection of an oil finish. Once the color change is complete, you can apply a water-repellent preservation or penetrating stain.

Semi-transparent and opaque penetrating stains offer better protection from ultraviolet, light than transparent stains. Paint provides the most protection from sunlight, which can slowly degrade the wood. Lighter colors should be used because darker tones absorb radiant heat, which can contribute to cupping and splitting problems.

Avoid using latex paints or stains on cedar, unless they are applied over a good-quality oil-based primer. Otherwise, the water in the finish can dissolve the cedar extractives and stain the finish.

Maintenance of the finish depends on the type of finish used, severity of the climate, and the desired effect. Water-repellent preservatives, semi-transparent stains, and bleaching oils are easiest to apply, but require more frequent applications. Paint is longer lasting, provides the added protection from sunlight, and covers knots and other minor characteristics.

Smooth-faced siding tends not to absorb finishes as well as rough-sawn siding. Also, some paint and stain manufacturers recommend allowing the siding to weather prior to finishing in order to assure good adhesion and absorption of the finish.

In either case, follow the recommendations of the manufacturer. If the siding is allowed to weather, make sure it's clean and dry before applying the finish.

All in all, proper material selection, care in application, and regular maintenance can easily provide a long, durable service life for a wood siding. ■

*Don Wallace is Director of Technical Services and Gunnar Brinck is Special Projects Manager for Western Wood Products Association. The non-profit organization provides quality control, economic, and marketing services for lumber manufacturers in 12 Western states.*