The finish line

A Forest Products Laboratory finishing factsheet

Solid-Color Stains on Western Redcedar and Redwood Siding

You have decided to put wood siding on your new house. Several questions are probably going through your mind: "What's the best type of wood?" "Should I use paint or stain?" "Should I apply the finish before or after I install the siding?"

These and many other questions about siding have no simple answers. This article focuses on applying solid-color stains to western redcedar and redwood, naturally durable woods that are available in a range of grades and are often sold as resawn bevel siding. Dimension lumber and shiplap siding are also available in these species.

The heartwood of redwood and western redcedar and other highly colored woods contains natural chemicals that inhibit decay fungi and termites. These species have long been chosen for exterior wood siding because of this natural resistance to decay as well as their ability to maintain a good finish.[1]

Choosing the Right Grade of Siding

Several grades of western redcedar and redwood siding are available. The highest grade is clear vertical-grained heartwood. This grade is usually resawn to

[1] Note: In the lower grades of these species, the sapwood does not have natural resistance to decay.

bevel siding; one side is rough-sawn and the other, smooth-sawn. Bevel siding is usually available in nominal 6- and 8-inch widths, 3/4-inch thickness; nominal 1/2-inch-thick siding is sometimes available.[2] The lower grades of redwood or western redcedar include flat-grained lumber that often contains sapwood, loose knots, and other defects.

Vertical-grained lumber has excellent dimensional stability, and it is not as likely as flat-grained lumber to cup. Cup, which is a type of warp, can be decreased by improving the aspect ratio of the lumber; that is, the ratio of thickness to width. For example, 3/4- by 6-inch bevel siding is less likely to cup than 3/4- by 8-inch siding, and it is far superior to 1/2- by 8-inch siding.

Buy the highest grade of siding that your budget will allow. The performance of lower grades can be improved if you take care to

• block extractives bleed from knots,
• use 6-inch-wide siding,
• apply finish to back side of the wood, and
• vent the siding (see the *Finish Line* on installing exterior wood-based siding).

[2] For conversion to SI units, 1 inch = 25.4 mm; Nominal 1/2, 6, and 8 inches = actual 13, 140, and 190 mm.

Choosing the Right Kind of Finish

Finishes for naturally durable wood like western redcedar should be formulated with synthetic resins or modified oils that are not prone to act as food for mildew. Natural oils such as linseed and tung oil should not be used unless the formulation includes a mildewcide. These oils are food sources for mildew and encourage its growth.

Many finishes can be used on western redcedar and similar wood species. This article focuses on solid-color stains (also called opaque or heavy-bodied stains), which are not true stains because they do not penetrate the wood, as do semi-transparent stains.

Solid-color stains are available in a wide variety of properties and colors, and in both water-borne latex-based and solvent-borne oil-based formulations. Latex formulations are more flexible than oil-based formulations and less likely to flake and peel, particularly if used on flat-grained siding. They also have better resistance to ultraviolet light, mildew attack, and fading. Oil-based formulations, on the other hand, work best on rough-sawn surfaces and can be applied at lower temperatures.

Applying the Finish

A primer and two top-coats can provide enough film to last 8 to 10 years. This three-coat system will give acceptable service even on the smooth-sawn side of bevel siding if the surface is sanded before stained. If applied to the rough-sawn surface, solid-color stain may last even longer than 8 to 10 years. The service life of any finish will be extended if the roof has a good overhang and trees protect the structure from sunlight.

Prime the wood

Regardless of the type of finish you use, prime the wood before you apply the top coats. Oils, resins, and water-soluble extractives will bleed through solid-color stains unless the wood is primed with a stain-blocking primer. Use primer specially formulated to block extractives bleed. For knotty grades, you may also need to apply a commercial knot-sealer or shellac to the knots prior to priming, especially if you use a light-colored solid-color stain.

Applying a water-repellent preservative (WRP) to the back of the siding and the end grain before you install the siding also helps to decrease extractives bleed. There may be some benefit to using an WRP on the front of the siding as well.

Stain the rough side

The rough side can absorb two to three times more finish than can the smooth side, and therefore the finish can last that much longer. Finishing the rough side with a solid-color stain brings out the natural texture of the wood. If a smooth surface is preferred, then paint is a better choice.

Stain small areas to avoid lap marks

Lap marks can be avoided by staining only a small area at a time. Apply the finish to a strip of boards about 2 ft wide, keeping the lateral edges of the strip even with the board's edge.[3] For horizontal siding, work across the structure and for vertical siding, up or down the structure. Be sure to back brush the finish if you apply it by roller or spray.

Installing the Siding

Face the siding rough-side out

The most important thing for getting and maintaining a good finish on siding is to install it rough-side out. If it is essential to face the smooth side out, wet the wood to relieve planer stresses, let it dry, and sand it with 50- to 80-grit sandpaper before applying the finish. The roughness caused by sanding will not be noticeable after the two top-coats are applied.

Use corrosion-resistant fasteners

It is very important to use a high-quality fastener on cedar or redwood. Although high-quality hot-dipped galvanized fasteners are adequate for most structures, it is best to use stainless steel. It is much easier to control quality by specifying a grade of stainless steel. For most areas, 304 stainless gives excellent results. For marine environments, specify 316 stainless.

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[3] 1 ft = 0.305 m.

More Information

More information on all aspects of exterior wood finishing can be found in *Finishes for Exterior Wood*, available from the Forest Products Society, 2801 Marshall Ct., Madison, WI 53705–2295. (608) 231–1361. $19.95

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