



Selecting Exterior Primers

In every case, what's below the surface can make all the difference.

Choosing the proper primer is important; it could make the difference between excellent product performance that lasts for years, or early coating failure that results in added expense and possible structure damage. The longevity of any coating application depends on the quality of the total stain or paint system. The system is comprised of the prime coat and the finish coat(s). This technical bulletin will assist you in selecting the proper primer for exterior siding applications.

Primer selection is primarily dependent on the substrate, whether it be new or old wood, plaster walls, stucco, galvanized metal or bleeding knots. Primers have two primary functions: 1) to produce a good bond between the wood and the topcoat, and 2) to limit the absorption of the topcoat into the surface. Additionally, primers are needed for filling in minor surface imperfections, helping to seal porous surfaces, and creating better substrate uniformity which improves the appearance of the paint/stain topcoat. Primers will also help hide surfaces and assist in achieving drastic color changes. (Cabot's Problem-Solver® Primers may be tinted with up to four ounces of colorant per gallon, making it easier to change colors.) A high-quality primer can also extend the life of the topcoat 30-50% and will provide additional mildew resistance. Primers are classified as either oil based or latex based, and for each type of primer, there are varied opinions on which is superior.

Primer Characteristics

Alkyd oil-based primers help retard tannin or extractive bleeding in red species of wood, such as western red cedar, redwood and Douglas fir. They penetrate deeper into wood and bond better to surfaces which have a minor chalky condition.* Cabot's alkyd oil-based Problem-Solver Primer is highly effective in promoting adhesion on new, smooth, "mill-glazed" lumber. In addition, when one coat is properly applied, this primer has proven to be extremely effective in retarding extractive bleeding.

Acrylic latex primers, like Cabot's Problem-Solver Acrylic Primer, are generally easier to use and remain flexible over a longer period. They resist cracking, peeling and blistering, and are easily cleaned up with soap and water. New technologies have improved the ability of the acrylic primer to retard tannin bleed; however, in severe cases, Cabot's alkyd oil-based Problem-Solver Primer, which forms a non-permeable coating, has the advantage. Two coats of acrylic primer may be necessary for woods with high tannic acid levels.

Product Recommendations - Oil vs. Latex

To highlight the diversity of opinions, the American Plywood Association states, "The only paint [stain] system the APA recommends for plywood used outdoors is acrylic latex. We don't preclude the use of oil-based primers ... but we promote the acrylic over the alkyd primer on exterior surfaces and applying a topcoat of acrylic." In the May/June 1992 issue of *Painting & Wallcovering Contractor*, a poll among painting contractors indicated that they prefer an oil-based primer. However, recent surveys indicate that some painters are switching to latex systems. Primer technology is improving all the time, and with government regulations controlling solvent emissions (Volatile Organic Compounds-V.O.C.) and waste disposal, water-based primers are becoming more attractive.

Cabot's best recommendation for new, smooth wood ties in perfectly with a recent study by the Forest Products Laboratory (USDA - Madison, WI) on the effects of weathering new wood prior to painting. Cabot's Problem-Solver Primers can be applied directly to new, smooth wood without weathering. Many coatings manufacturers recommend

(Continued on back)

Primer Selection *(Continued from front)*

weathering new, smooth wood prior to painting or machine sanding to break the "mill glaze" which promotes proper adhesion. Some also recommend applying two coats of primer to retard tannin or extractive bleeding. With Cabot's Problem-Solver Primers, there is no need to take special precautions like sanding or weathering new, smooth wood.

The Forest Products Laboratory's study also demonstrated that weathering wood longer than two weeks will affect the adhesion of a coating, and at sixteen weeks of weathering, the adhesion will suffer as much as a 50% loss. Their study involved both oil and latex primers. According to their report, the all-acrylic system performed the best overall, but weathering for excessive periods (four weeks or more) has a harmful effect on adhesion regardless of the primer system.

The total primer/stain or paint system is only as good as its weakest link, so before considering the selection of a primer, spend a moment planning surface preparation. Then remove all contaminants, mildew stains, and chalkiness which will interfere with the adhesion of even the best primer.

SELECTION GUIDE FOR EXTERIOR SIDING PRIMERS

EXTERIOR SIDING

PROBLEM-SOLVER® PRIMER

OIL

ACRYLIC

| | | |
|-------------------------------------|-----------------|-----------------|
| New, Smooth Wood | HR | HR |
| New, Rough Wood | HR | R |
| New Shingles & Shakes | HR | HR |
| New Plywood | HR | HR |
| New Plywood, Abraded | R | HR |
| Hardboard (MDO) | • | HR |
| Weathered Wood | HR | R |
| New Fascia, Soffits, Trim | HR | HR |
| Incense Cedar | • | HR |
| Wood Adjacent to Stucco | • | HR |
| Wood Knots ¹ | • | • |
| Previously ST-Stained Wood | HR | R |
| Previously SS-Stained Wood | HR | R |
| Previously OVT Oil-Stained Wood | HR | HR |
| Previously OVT Acrylic-Stained Wood | • | HR |
| Painted Surfaces - Oil | HR | HR |
| Painted Surfaces - Latex | • | HR |
| Masonry, Stucco, Brick | • | HR ² |
| Cement Board | • | R ² |
| Galvanized Metal | • | HR ³ |
| Roof Shingles & Shakes | • | • |
| Sandblasted Wood | HR ⁴ | • |
| Severely Weathered Wood | HR ⁴ | • |

HR = Highly Recommended R = Recommended • = Not Recommended

1. Use a high-quality knot sealer.
2. Must be cured, vertical and above-ground surfaces.
3. Remove oil deposits with paint thinner.
4. Two coats may be necessary.

* Cabot recommends that all chalkiness be removed prior to painting or staining. A properly prepared surface is very important.



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