

Peeling on Logs and Siding

While we call our LIFELINE™ pigmented finishes “stains,” they are film-forming coatings, in contrast to traditional penetrating oil-based stains. Initially, the word stain meant that the wood fibers become impregnated with the pigments and carrier contained in the product. With the advent of water-based finishes, the term stain now includes film-forming semi-transparent coatings. The film covers the wood fibers without impregnating the fibers. If water gets behind the film there is a chance for the finish to blister, lose adhesion, and start peeling. Most people seem to understand the consequences of water getting behind paint, but they have a difficult time accepting that a “stain” can behave in the same manner. Adhesion issues can also occur with oil-based finishes if the surface is not properly prepared or not applied correctly.

Most peeling issues are associated with finishes on new logs or new log siding. When the finish is first applied, the surface of the logs or siding is intact [Figure 1]. Later fissures and checks may develop, allowing rainwater to get into the wood and behind the finish [Figure 2]. When the sun heats the wall, liquid water converts to vapor and pushes the finish off the surface [Figure 3].



Figure 1

New logs or siding. Finish has been applied to the surface but checks and fissures have not yet developed.



Figure 2

Checks and fissures have opened exposing bare wood to water penetration.

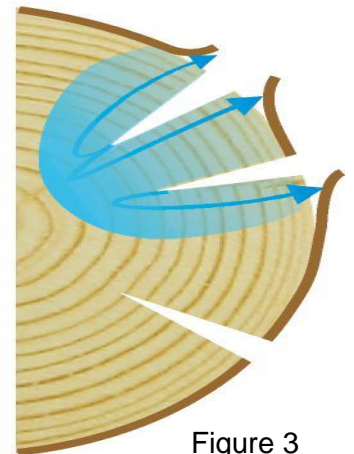


Figure 3

Sunlight heats up the water turning it to water vapor which pushes the finish off the surface on its way out of the wood.



Peeling issue around fissures that formed on surface after application of the finish.

Two additional factors play a role in the susceptibility of a finish to peeling. The first is vapor permeability. The more permeable a finish, the less likely it will peel. However even vapor permeable finishes like Lifeline can peel when applied too thick, too many coats applied or the amount of vapor overwhelms the permeability. That is why we recommend thin coats initially and for maintenance coats. It is much more important to keep the surface clean than it is to apply an additional coat of topcoat every two to three years. Every coat that is applied will reduce the vapor permeability, eventually to the point where water vapor can no longer permeate through the film. As the vapor transmission decreases, the risk of vapor causing delamination increases.

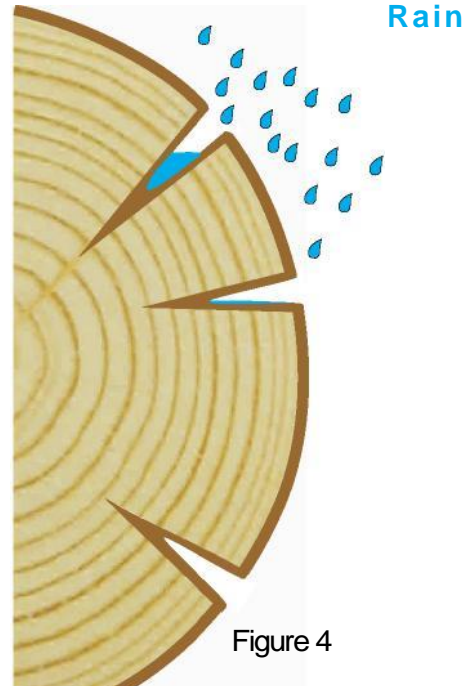
The second factor is inadequate surface preparation. If cleaner residue remains on the surface of the wood after cleaning and rinsing or the surface was sanded too smooth before application, adhesion issues are possible. The presence of mill glaze, dirt, sanding dust or other contaminants may also prevent adequate adhesion of the finish to the wood. Finally, proper adhesion of the first coat of finish will not be attained if applied to wet or damp wood.

When checks and fissures have opened and a new coat of finish is applied, peeling rarely becomes an issue. That is because during the application process, the finish has an opportunity to get into them forming a water-resistant barrier between the surface of the cracks and the bare wood [Figure 4]. One of the reasons for back-brushing is to work the finish into the cracks and fissures thus preventing water penetration into the wood. If the wall has been recently washed, make sure that there is no water remaining in the checks and fissures and the wood is dry before you apply the first coat of finish.

Some factors that can contribute to peeling include:

1. Surface improperly prepared
 - a. Contaminates like oil or wax.
 - b. Mill glaze.
 - c. Sanding dust.
 - d. Sanded too smooth.
2. Inappropriate products used
 - a. Household Bleach solutions.
 - b. Caustic strippers.
 - c. High pH cleaners.
3. Inadequate rinsing.
4. Application errors
 - a. Spraying without back-brushing.
 - b. Product applied too thick.
 - c. Application at too high or too low a temperature.
 - d. Product applied to wet or damp wood.
5. Freshly opened fissures/checks
 - a. Exposed to rain and direct sunlight.

For information about repairs, see "Repairing Peeled Spots."



Finish applied after the checks and fissures have formed prevents water from penetrating into the wood.