



Removing Mill Glaze Prior to Sealing

Summary: Mill glaze forms on the surfaces of timber during the milling process. If not properly removed prior to sealing, the sealer will not take and the contractor has wasted time and money.

Mill glaze is a hard surface that forms on timber during the milling process. Manufacturers of sealers and other protective coatings will not honor the warranties of their products if this glaze is not removed. Test to see if mill glaze is present by putting a few drops of water on the wood's surface. If the wood does not readily absorb the water, mill glaze is probably present. Sanding, aging, and chemicals will remove it. After removing the mill glaze, retest to be sure its removal is complete. Sap Strip is required to remove this from the surface..

EXPLANATION OF MILL GLAZE

The condition known as mill glaze (also called planer's glaze) can occur on smooth, flat-grained timber.. There is some debate over the exact cause of this condition, but it seems to be a result of the planer blades in the milling process. Exacerbating the condition is that the flat-grained surface of the lumber is difficult to plane. When the surface of the lumber is planed, two distinct changes occur to the surface – the surface is burnished and some of the wood cells are crushed.

During the milling process, overheating of flat-grained timber may bring more water-soluble extractives to the surface, creating a hard, varnish-like glaze. Additional water-soluble extractives may also form on the surface during kiln drying. As these extractives age, particularly in direct sunlight, they become insoluble and difficult to remove. If this occurs prior to final planing or sanding, this final surface preparation removes them. Test for mill glaze caused by extractives by carefully placing a few drops of water on the surface prior to finishing. If the water beads and resists soaking into the wood, the surface probably has mill glaze. Cleaning will remove it.

The second factor that contributes to mill glaze on flat-grained wood is crushed early wood on the pith-side of timber. Planer blades tend to burnish the surface and crush the less dense early wood bands directly beneath the denser late wood bands at the surface. When these boards are exposed to weather, the crushed early wood absorbs moisture and rebounds, causing the surface late wood bands to rise.

These two surface defects act in concert to cause flaking of the finish parallel to the grain. The pith-side of flat-grained timber finished with a single coat of oil-based solid-color stain is particularly susceptible to this type of finish failure.

Sanding will remove the extractives build-up, but it is not likely to remove all the crushed wood. Subsequent wetting will continue to cause surface deformations. Exposing the wood siding to the weather for a short period may help to condition the surface, and one or more wetting and drying cycles may be necessary to remove the planer-induced stresses from the wood. However, wood should not be exposed to the sunlight for more than two weeks before applying a protective finish, as excessive exposure decreases the adhesion of the coating.

The simplest and best solution to the problem of mill glaze, when using flat-grained bevel timber, is to install the timber rough side out, which is the side of choice for applications of penetrating semi-transparent stains. Solid color stains form a film and provide a longer service life when applied to the rough-sawn side. Besides lacking mill glaze, the rough side has two other advantages: The film buildup on the rough side is greater, and the film has mechanical adhesion or "bite". Brushing delivers the best film buildup.