



## Water Stains

Among the most challenging discolorations on wood are water stains. They can range from light brown to jet black and can appear on both interior and exterior surfaces. How do water stains form? All wood contains components that are grouped under the category of “*water-soluble extractives*.” These extractives can dissolve in water and as the water within the wood evaporates, they can be carried along to the surface.

Generally, if wood is exposed to water for only a brief period the water does not get a chance to penetrate deep into the wood and dissolve these water-soluble components. However, if the wood is exposed to water for days, weeks, or months, the water can pick up a high concentration of these components and deposit them on or near the surface of the wood.

Exterior water stains typically occur around checks, fissures and other openings that collect rainwater. The water soaks into the wood and as it evaporates out of the wood it brings along the colored extractives which can then become visible on the surface. In some cases, water-soluble tannins may react with minute particles of steel on the surface forming dark iron tannate stains. This process may occur on bare wood or under an existing finish. Interior water stains typically develop during construction before the home is sealed or from an ongoing water leak. They can be particularly ugly and may cause much distress.

### Treatment of Water Stains

As previously stated, water stains can be just on the surface, or they can go deep into the wood. The first step in determining a course of action is to find how deep the stain goes into the wood.

Remove about a 1/16” thick sliver of the discolored surface with a sharp knife and if the discoloration comes off with the sliver the discoloration can usually be sanded off or treated with products like **Log Wash™**, **Wood ReNew™** or **Oxcon™**. Since there are many components involved with water stains it's impossible to predict which product will work best. We recommend starting with Log Wash™ and if that does not work move to **Wood ReNew** and finally **Oxcon**. **Wood ReNew** and **Oxcon** should be reserved for exterior use only as they both require large amounts of water for rinsing. Sanding is most likely the best choice on the interior. The problem is that even these products don't always work, and sanding may be the best solution.

If the discoloration goes deep into the wood and is still visible after the sliver of wood is removed it will be very difficult to either sand or chemically remove the water stain. In this case there are only two options, either replace the discolored wood or hide the stains.

### **Hiding Interior Water Stains**

Although Perma-Chink Systems manufactures and sells transparent finishes, some of our colors are heavily pigmented which gives them some hiding power. On interior bare wood surfaces Butternut is a good choice, since it is very close to the color of bare white pine. It may take several coats depending on the darkness of the discolorations. If a colored stain is going to be applied later, it would be a good idea to apply **Lifeline Prelude™** over the entire wall once the water stains are hidden to even out the absorption of the stain and obtain a uniform final color.

For hiding very dark discolorations one or two coats of **Kilz®** primer will hide virtually anything. **Kilz®** is available in both water and solvent-based formulations but only comes in white. However, it can then be coated with our colored stains and although it may not result in an exact match with the rest of the wall it will look better than the dark visible water discolorations.

### **Hiding Exterior Water Stains**

The best way to hide exterior water stains is to use a dark-colored finish like *Walnut*, one of our gray colored finishes, or our wheat-colored finish. If this is not to your liking, you can try using the same hiding procedures as stated for interior stains but on exterior walls the opaque finished areas tend to be more pronounced than on interior surfaces.



*Exterior water stains  
under the finish.*



*Interior water stains on  
bare wood.*



*Interior Water Stains Under a Finish*