

Handrails

Porch and deck handrails present a unique challenge to finish, especially if they are constructed of newly cut wood. Round handrails are typically fabricated using green wood. Once in place they begin to shrink, crack and fissure. As the handrails dry, cracks and fissures will develop on the surface to relieve the stress due to shrinkage. There is no way to prevent this from occurring. If a finish is applied before these fissures open, when they do develop it provides a path for water to soak into the rail behind the finish. Therefore, when the sun comes out and the rail heats up, this water turns into water vapor which may exert enough pressure to reduce the adhesion of the finish resulting in delamination of the coating. Furthermore, during winter months the water in the wood will freeze and expand and that too can have similar effects as well as cracking the film.



Finish film on wood surface but not in fissure.

Another problem with green handrails is that all finishes have difficulty adhering to damp surfaces. Green logs normally do not present the same difficulties as handrails since it usually takes several months for logs to go from the debarking process to construction, time enough for the surfaces to dry. In the case of handrails, it may only be a week or two from the time they are debarked to when they are installed, not enough time for even the surfaces to dry.

A third problem with new handrails is that they are frequently quite smooth. They are typically hand peeled with a drawknife and may still have cambium residue remaining on the surface. Finishes have a difficult time adhering to cambium and even if they do eventually the cambium will dry up and peel off taking the finish along with it. Trying to sand this cambium off while the wood is still damp is almost impossible, since the cambium and damp wood fibers quickly bind sandpaper or sanding pads making them ineffective.

So, what do we suggest assuring adhesion of a finish to new handrails? The first thing is to wait until the handrails have reached a moisture content of less than 20% before doing anything. This may take two to six months depending on how green they are and the diameter of the rails. By then most of the cracks and fissures will have opened and any remaining cambium will have dried and peeled off.

The problem with this is that some people moving into a new home are not willing to wait to finish their handrails. If that is the case, the best course of action is to sand the handrails with 60 to 80 grit sandpaper as best you can, wash them down with **Log Wash™**, let them dry and then apply **Deck Defense™** or **Log and Timber Defense™** depending on your color preference. We do not recommend applying **Lifeline Advance** topcoat to areas coated with **Deck Defense** or **Log and Timber Defense**. It will be best to apply the stain only to posts, spindles, balusters, and other vertical components of the deck for color consistency, protection, and future maintenance.

Once the handrails have dried, a second coat will help protect any cracks and splits in the wood that may have formed providing additional protection.

If you have elected to allow the handrails time to dry before staining, there is a good chance that some surface graying will have occurred. If so, a light sanding with 60 to 80 grit sandpaper, nothing finer, as well as a wash-down with **Log Wash** is recommended before the application of one or two coats of **Deck Defense** or **Log and Timber Defense**. Be sure to get the stain into all cracks and fissures and again, no topcoat should be applied to horizontal handrails or over **Deck Defense** or **Log and Timber Defense**.

Discolorations



Like logs, handrails are subject to the same types of discolorations due to mold, tannins and water stains. The bottom sockets are especially susceptible to water infiltration and the resulting water stains. There are two ways to prevent this, drill a hole through the bottom of the socket before installation to allow water to drain out of the socket or seal around the tenon with **Energy Seal™** after installation. Just make sure the socket is dry before sealing it.

Discolorations on handrails due to mold, grayed wood and tannins can be handled exactly the same as on logs. Always start off with a pressure washing using a **Log Wash** solution (2 cups per gallon of clean water) and then continue with **Wood Renew™** or **Oxcon™** as needed. If you decide to sand the rails, just be sure to use 60 to 80 grit sandpaper and wash the sanded surfaces with a **Log Wash** solution before applying the first coat of finish.



Finish film on wood surface and in fissures.



Maintenance

Since the top rails are subjected to direct exposure from the sun, wind and rain they will probably need some maintenance every year or two. One thing to look for is any large checks that may have formed. If the width of a split or check exceeds 1/4 inch, it should be sealed with **Check Mate 2®**. That will help prevent large amounts of water from getting into the rail.

There is not much you can do about small checks and fissures other than making sure to get some finish into them whenever applying a coat of **Deck Defense** or **Log and Timber Defense**.