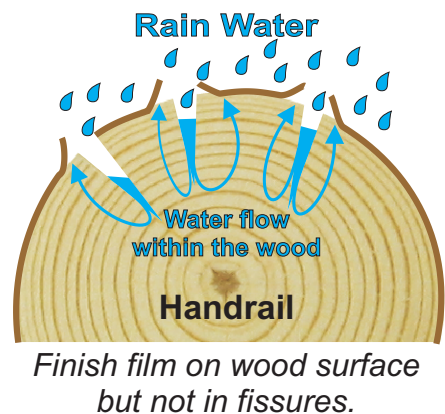


## Technical Tip

# Handrails

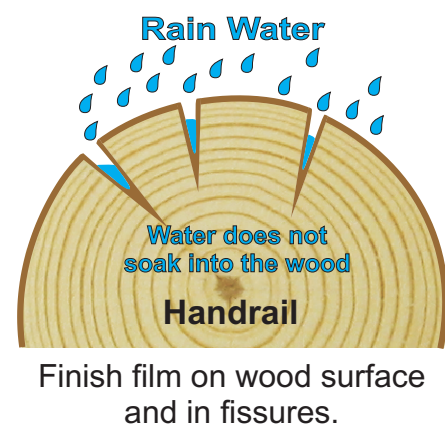
Porch and deck handrails present a real challenge to film forming finishes, especially if they are new. Here's why. Round handrails are typically fabricated using green wood. Once in place they begin to shrink, crack and fissure. As the handrails dry, cracks and fissures will develop on the surface. There is no way to prevent this from occurring. If a finish is applied before these fissures open up, once they do open they provide a path for water to soak into the rail behind the finish. When the sun comes out and the rail heats up, the water turns into water vapor which may exert enough pressure to actually push the finish right off the wood. In winter months the water in the wood will freeze and expand and that too can pop the finish off the surface.



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 blind sandpaper or sanding pads making them ineffective.

So, what do we suggest to assure 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 months or 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 up and any remaining cambium will have dried up 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's 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 only one coat of any LIFELINE stain. **DO NOT APPLY ADVANCE TOPCOAT TO HANDRAILS.** You can apply both a stain and topcoat to posts, spindles, balusters and other vertical components but not to the horizontal handrails. Once the handrails have had a chance to dry, the application of a second coat of stain will seal any cracks and fissures that may have opened up preventing water penetration into the wood.



If you have elected to allow the handrails time to dry before staining, during the waiting period there's a good chance that some surface graying will have occurred 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 stain. Be sure to get some stain into all cracks and fissures and again, no topcoat should ever be applied to horizontal handrails.

## 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 with a two-cups per gallon Log Wash solution and then continue on 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.

## Maintenance

The main thing when dealing with handrails is to avoid building up multiple coats of finish. The more coats you apply the more susceptible it becomes to problems like peeling. Since the top rail takes the most beating from the sun, wind and rain it will probably need some maintenance every year or two. One thing to look for is any large checks that open up. If the width of a split or check exceeds  $\frac{1}{4}$  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 you are applying a coat of stain.