

HOW-TO & INFORMATION GUIDE

ARMSTRONG-CLARK

OIL BASED WOOD STAINS

TIPS & ADVICE

- Read all instructions before proceeding with a project.
- Replace bad wood in advance to allow the new wood to weather and improve stain absorption. See the *New Wood* page for timing.
- Test stain for color and absorbency before proceeding with application. Test after preparation is completed as the prep method used can affect the color. Wait 72 hours for final color.
- Take pictures before you start, after wood preparation, right after application, and 1 day after application as they can help answer questions that may arise.
- Consider Amber as an alternative to Cedar Tone - Amber provides superior UV protection to Cedar Tone.
- The day you stain wood is the best the wood will look. Get on a spring time staining schedule so the wood looks its best during the months you will be using it most.
- Use Natural Tone as a color reducer (reduce opacity) for other Armstrong-Clark colors.
- Double check stain on horizontal surfaces above eye level (ex. a trellis) has dried. Excess oil that does not dry will float on rain and then drip onto surfaces below.
- Pre-Construction Consideration: Build decks with wood parallel to a house so that rain water running off a roof will only wear stain on a couple of rows of boards instead of all rows. This makes touch up easier.
- Eliminate potential stress and do not stain a deck just before hosting an event.

DECK VENTILATION

Decks with less than 18" ground clearance between support beams and the ground or that have poor air ventilation due to size, shape, or skirting may have high wood moisture content that inhibits absorption and/or reduces stain longevity. Consider pre-staining before installation. Remove skirting or replace with lattice to improve air circulation.

PRE-STAINING & BACK PRIMING

Back priming is staining the back side of wood siding prior to installation to create a moisture barrier to prevent/reduce tannin bleed. "Pre-staining" is the staining all sides of wood prior to installation. This is done to provide an additional ground moisture barrier when installing decking that is close to the ground or otherwise has poor air circulation, or installing a second story deck where color is desired on the underside. These processes present the dilemma of staining wood that is not ready to accept stain. Follow any wood manufacturer's instructions requiring pre-staining. Stain on the top surface of wood that is exposed to sun, rain, and traffic may only last a few months. **DO NO** pre-stain with semi-solid colors. Consider a light sanding with 60 or 80 grit on smooth cut wood to remove mill glaze.
INDOOR ADVISORY: Dry times can be greatly extended as there is inadequate airflow. Use fans to provide airflow and improve dry time.

NEW WOOD

Contributing factors that limit the color, absorption, and durability of an applied stain on new wood include:

- High moisture content (in wood that is not kiln dried)
- High concentrations of natural oil.
- Closed pores.
- Mill glaze on smooth cut wood.
- Chemical treatment in pressure treated wood.

TECHNIQUES to PREP NEW WOOD for IMPROVED ABSORPTION:

- Lightly sand with 60 grit sandpaper.
- Apply oxalic acid or a cleaner brightener.
- Clean with a liquid bleach solution.
- Apply a stripper and then a brightener.

NEW WOOD TIPS:

- Always prep new wood before applying a stain.
- Only apply one coat & NO semi-solids.
- Brushes and stain pads are recommend; rollers are not.
- For softwoods expect to reapply in 12 to 18 months.

ABSORPTION TESTING (the Sprinkle Test):
Dip your fingers into a glass of water. Bring your fingers close to the surface of the wood and shake off a few droplets. The goal is for the droplets to only fall a short distance so that they do not splatter when they hit the surface. Wood will accept oil just as it absorbs water. The wood is ready to accept stain when the droplets start spreading out and soaking into the wood within two minutes. This test does not work well on exotic hardwoods as their tight grain naturally inhibits absorption.

OTHER RECOMMENDATIONS for NEW WOOD:

- Protect yourself and follow any instructions from a wood supplier for the timing of staining new wood.
- Read *Pre-Staining & Back Priming* in this brochure if pre-staining new wood.
- If no specific instructions are provided by a supplier consider waiting until the following spring before staining wood that is installed in the late summer or fall to allow the new wood to weather.

WHEN TO STAIN NEW WOOD

PRESSURE TREATED WOOD & HARDWOODS:
Generally need about six months after installation before staining.

CEDAR: Generally needs 2 to 3 months after installation before staining.

REDWOOD: New redwood is often stained prematurely to preserve the two tone of the wood. Consider waiting a minimum of six weeks, or until the wood just starts fading, to allow the wood to open up. New redwood can appear blotchy due to tannins in the wood. A brightener prior to appication may help reduce blotchiness after application. Additionally note that the wood will eventually turn gray. Once this happens the two tone look can only be restored with sanding.

PREPARATION TIPS

- Cleaning chemicals can get pushed onto surfaces in the rinsing process. Consider covering plants & bushes, and masking off painted surfaces before cleaning.
- Consider prep in the morning when it is cooler so that covered vegetation do not over heat or die. If not covering plants, rinse them with water prior to working to help prevent chemicals from sticking to them.
- Do not fill cracks with wood putty or filler.

SURFACE PREPARATION

All wood, including new wood, must be cleaned. Select the prep method for your circumstances and goals. Rinse thoroughly or lightly pressure wash. Wear proper glasses and clothing to protect eyes and skin; use a mask/respirator if sanding to protect from dust. NEVER mix chemicals unless directed. Do not use excessive scrubbing or scrub pressure, pressure when pressure washing, chemical strength, or chemical dwell time as you can damage the wood resulting in furring, fuzzing, or raised grain.

BLACK STAINS: Mildew, tannin, and dirt accumulation due to over application present themselves as a variety of black stains. Tannin and dirt are often mistaken for mildew. If entire surface is black there is a high chance of over application. Test if black spots are on the surface by wiping. If so use a cloth to lightly dab on a 50/50 solution of bleach and water. If black disappears you have mildew, if not you have dirt. If black does not wipe off surface use sandpaper to gently scratch surface away to access the black stain. Apply solution. If black does not disappear black is most likely tannin. Stain must be removed to treat black under a stain.

CLEANING WITH LIQUID BLEACH: Mix 1qt bleach + 3qts water + 1 squirt liquid dish detergent. Do not let the bleach solution sit on the wood for more than 20 minutes. Long term exposure will breakdown wood lignin. Do not let the solution dry on the wood. Use a misting nozzle to keep wet in hot weather. Clean in smaller areas if it is hot outside or if an area is too large to coat, lightly scrub, and then rinse within 20 minutes. Typically letting solution sit for 3-5 minutes, lightly scrubbing, and rinsing within 10 minutes will suffice. For damp environments conducive to excessive mildew growth consider mixing with a mildew killer (Jomax).

PRE-MIXED CLEANERS: Some cleaners are bleach based cleaners designed to treat mildew; some are oxalic acid based cleaners designed to treat tannin and rust stains while they turn gray wood a blonde color. Some systems are multi step that include both.

PREVIOUSLY STAINED WOOD: Wood previously coated with a stain other than Armstrong-Clark must have the previous stain removed via sanding, or with a stripper (and then brightened to balance out the surface pH of the wood). If the previous stain is known we recommend using the stripper and brightener provided by the same brand.

WOOD PREPARATION METHODS

The majority of the success of a project is the result of proper preparation! Multi step processes address all needs of exterior wood whereas a single step may not. Prep and application methods may vary depending on the type of wood, your environment, your needs, and your goals.

Use this chart to help determine your method for prep	Easiest 1 step		Wood Restoration Multi step	
	Home Made: 1 part bleach: 3 parts water + squirt liquid dish detergent	Ready Made: Oxalic acid based cleaner/ brightener	Sodium percarbonate followed by brightener	Stripper followed by brightener
Mold/ mildew treatment	mild to heavy	NO	light to mild	heavy
Tannin or rust stain removal	NO	YES	YES	YES
New Wood	YES	YES	YES	YES
Color effect on aged & grayed wood	Wood Whitening. Recommended for Mahogany color on Ipe wood or Driftwood color	Turns wood a blonde, "natural" color. May shift reds slightly orange. Not recommended for Driftwood applications or Mahogany color on pine wood.		
For wood previously stained with:	A-C	A-C	A-C	**Required** to remove other stains. Can be used after multiple coats of Armstrong-Clark have darkened.
Softwood sanding	Optional light sanding w/ 60-80 grit to remove loose fibers. DO NOT use finer than 80 grit. Using finer than 80 grit starts sealing the pores of the wood inhibiting stain absorption		Light sanding w/ 60-80 grit to remove loose fibers. DO NOT use finer than 80 grit.	Lightly sand w/ 60 grit to remove loose fibers. If stripping is not used to remove a previously applied film forming stain start with 36 grit and finish with 60 grit . Use a max. of 80 grit.

Sodium Percarbonate (oxygenated bleach): Can be used as a standalone cleaner without brightening. It is an eco-friendly alternative to liquid bleach. Although it treats mildew it may be less effective for heavy mildew growth than liquid bleach or liquid bleach + Jomax.

TSP: A degreaser we typically advise against in a homemade cleaning solution as it can be very slippery and dangerous.

Jomax: A mildew killer and cleaner that mixes with bleach. Recommended for environments that are conducive to mildew growth.

PRESSURE WASHING

Pressure washing needs to be thought more as an efficient way to rinse than a means to clean. Let chemicals do the cleaning - excessive pressure will damage wood. In general use a 40° tip and keep the nozzle 10+" from the wood. For higher psi machines use more distance and/or use a 65° tip. DO NOT adjust pressure at the unloader as the machine has factory settings and adjustments can damage equipment. Avoid hard edges & lap marks by holding the wand off to the side, pull the trigger, sweep down, use a continual motion cleaning in the direction of the grain of the wood (walk along the boards), and then sweeping upward at the end of a board. ALWAYS be careful where the wand is pointing when activating. Continuously check wood for damage. Damage will be evident as tiny hair like wood fragments or "raised grain" where the soft part of the wood is removed leaving a valley between the harder grain.

FOR PROFESSIONALS: The best way to reduce pressure is to manage nozzle orifice size. The larger the orifice the lower the pressure. See your local pressure washing dealer to determine the best nozzle for your machine.

FUZZING AND FURRING

Fuzz or fur will look like little fuzzy or furry hair like fragments on the surface of wood after prep and must be removed before staining. These fragile fragments will take stain with them as they fall off the wood or create a surface haze after an applied stain dries. 60 grit works well for removal on softwoods. Typically 80 grit is used on hardwoods like Ipe. On hardwoods use the sandpaper to knock the fibers off the surface of the wood - do not sand down into the wood. Do not use finer than 80 grit.

PREVENT OVER APPLICATION

The most common symptoms of over application include:

- Puddles or wet spots 24 hours after application.
- Rub-off onto shoes once dry.
- Oil (a rainbow) is visible on the surface of sitting water.
- After a few months the surface will start looking dark or black from dust, dirt and pollen sticking, and there may be spots where stain has disappeared.

The most common causes of over application include:

- High moisture content in the wood.
- High oil content in the wood.
- Sanding with finer (higher) than 80 grit sandpaper.
- Applying two coats to new wood or exotic hardwood.
- A "more is better" approach to application.
- Applying too much stain with a roller.
- Applying two coats of semi-solid stain to a deck.
- Pressure treatment in new wood.
- Mill glaze on the surface of new wood.

TESTING for OVER APPLICATION: Pour a glass of water on applied stain one week after application. If oil is visible on surface of water treat for over application.

STAIN APPLICATION

For exterior application only. Wood must be dry at 20% moisture or less as determined by a moisture meter; 15% or less for cedar shingles to help prevent tannin bleed. Test for moisture in the end cuts of the wood (surfaces dry sooner). Wait two days after cleaning if a meter is not available. If the end cuts look or feel damp at that time wait another day and reassess. Test for color in an inconspicuous spot on the surface of your project. Do not prepare wood and apply stain when pollen (mold food) is blanketing surfaces. Let morning dew dry before application. Use a stir stick to ensure all pigment has been scraped off the bottom of the can. Drill mixers do not always mix all pigment. "Box" multiple cans of stain to ensure equal mixing of pigment between cans. Stir every 20 minutes. Do not thin. See *Number of Coats* chart below. Apply stain in the direction of the wood's grain. **MORE IS NOT BETTER**! Do not stop application in the middle of a board; complete applying stain to the end of a board that has been started. On decks it is recommended staining 3-4 rows at a time end to end - do not stain across boards. DO NOT apply with a rag or wipe stain after application. No garden sprayers. Brush out any puddles before clean-up. After 24 hours remove any wet spots with a rag. After application wait 8 hours for light traffic and 72 hours for heavy traffic and furniture. Cool or damp weather will lengthen dry times. Can be applied in 110°F direct sunlight. Do not apply if heavy rain is predicted or under 50°F. In cooler weather keep stain inside at night at room temperature. Apply stain in the warmest part of the day over 50°F. Freezing after absorption into the wood will not harm the stain. Avoid dripping, running, and overspray as this might cause damage to garden plants and can stain painted surfaces. Wear protective eye glasses; use a respirator with a R95 or higher rating if spraying.

SOFTWOOD APPLICATION: A natural bristle brush or stain pad are recommended. Rollers risk over application. Spraying requires back brushing or rolling. Can be exposed to normal rain conditions 60 minutes after absorption into wood (not 60 minutes after application).

HARDWOOD APPLICATION: Hardwoods have a limited ability to absorb stain. Apply a single sparingly thin coat of *Hardwood & Softwood* colors. A stain pad, kitchen floor sponge mop, or light brushing followed by stain pad provide best results. Neither rollers nor spraying are recommended. Recommend 24 hours to allow for absorption before exposing to rain. Do not apply to bamboo.

NUMBER of COATS & SPECIAL INSTRUCTIONS

Application	Transparent	Semi-Trans.	Hardwood	Semi-Solid
New Softwood (less than 1 yr from install)	ONLY 1			NEVER
Decks & Docks	1-2* *A 2nd light coat can be applied only if the first coat soaks into the wood within 60 minutes.			ONLY 1
Fences, Siding, Log Homes, Shingles				1-2*
Playground Equipment				NEVER
Furniture & Sitting Surfaces	ONLY 1	ONLY 1 (wipe after 1 hour)		NEVER
Fire Retardant Shingles	NEVER	2 - 2nd coat to be applied after 48 hours		
Exotic Hardwoods (min.6 mos. from install)	NOT RECOMMENDED		ONLY 1	NEVER
Doors	ONLY 1			NEVER

TRANSPARENCY & EXPOSURE

Pigment is the sacrificial raw ingredient that absorbs the UV radiation that degrades wood and turns it gray. More pigment = more UV protection = less wood grain that is visible. The amount of pigment in transparent colors minimally slows the graying of wood. Transparent colors are not recommended for elevations over 2000ft or surfaces with high sun exposure.

COVERAGE & LIFE EXPECTANCY

	Horizontal	Vertical
Softwoods	175-250 sqft/gal; target 200sqft/gal reapply 1 to 3 year intervals	250-300 sqft/gal reapply 2 to 4+ year intervals
Hardwoods (>1 yr. old)	300-400 sqft/gal Life expectancy is 9-12 months	300-400 sqft/gal Life expectancy is 9-18+ months

CLEAN-UP

AVOID SPONTANEOUS COMBUSTION!

Immediately after use clean tools and dispose of used rags and other waste in a sealed water filled container for one week to AVOID SPONTANEOUS COMBUSTION. If you do not have a container use an empty stain can. Saturate any large textiles like drop cloths or paper products used for drop sheets or spray guards with water. Wash clothes with stain on them - do not leave them lying around. Clean tools with mineral spirits or paint thinner.

MAINTENANCE

Blow off, sweep off, or hose off wood surfaces once a month to remove dirt, pollen, and debris that will build up and create a breeding ground for mildew and mold to grow on the surface of your wood. Do not scrub - scrubbing can remove stain. If your environment struggles with surface mildew consider applying a scrub free mildew remover (Wet & Forget) once growth first appears.

ADVISORIES

- Covered wood (porches) weathers slower than wood exposed to the elements. Exposed and covered wood will absorb stain differently and therefore look different.
- Will rub off onto socks or will scrub off with rags or scrub brushes.
- Will not penetrate through film forming stains.
- Bleach based cleaners/house washes will remove stain.
- A successful sample can absorption test over another brand of stain does not guarantee the prior coating will not fail and take Armstrong-Clark stain with it.
- Pools present an environment with accelerated wear due to repeated wet/dry cycles & chlorine may degrade stain.
- Read Product Data Sheets for sanding Prop 65 warning.

QUESTIONS:

Call us at 800-916-8211
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Visit www.armclark.com for more information