CLEANERS & RESTORERS FOR WOOD DECKS

by Joint Coatings/Forest Products Committee

Alan Ross, Wolman Wood Care Products/Kop-Coat Inc.; George Daisey, Rohm and Haas Company; Charles Jourdain, California Redwood Association; Sam Williams, USDA Forest Products Laboratory

As the surface of a wood deck is exposed to sunlight, dirt, mildew, rain, or snow, it will eventually deteriorate in appearance. This phenomenon occurs fairly rapidly to uncoated wood. It can be prolonged from occurring by the use of a protective finish; however, even the best finish will succumb to the ravages of weathering in a few years and will need to be refinished. Proper cleaning and restoration is an essential first step in the refinishing of wood decks.

There are a variety of products and methods to clean and restore wood surfaces. These include chemical as well as mechanical means. This article will review some of the types of deck cleaning and restoring products currently available and will also discuss the pros and cons of mechanical cleaning methods such as power washing.

CAUSES OF DISCOLORATION

There are a number of sources of discoloration of wood decks. These include:

- dirt and other foreign materials such as tree sap, bird droppings, grease, etc.
- fungal discolorations from mildew, mold, decay, and sap stain growth
- algae, moss, and lichen growth
- nail and other iron stains
- tannins and other extractives from the wood
- graying of the wood due to surface decomposition by sunlight and moisture
- fading/decomposition of weathered coatings.

Some of these discolorations are chemical in nature; others are biological. All require some effort on the part of the homeowner or contractor for removal and all should be removed prior to refinishing.

In addition to being unsightly, these discolorations and the agents that cause them can significantly interfere with the performance of subsequently applied coatings. Thus their removal is important from a performance as well as an aesthetic standpoint

DECK CLEANERS AND RESTORERS

Until about ten years ago there were few, if any, products of this type on the market Most coatings manufacturers recommended that decks and other exposed wood surfaces be cleaned before refinishing. The recommended cleaners were usually household products such as detergents for dirt removal and liquid bleach for mildew removal.

Household cleaners and bleaches can be effective to some extent but they have their limitations. Also, since they are not usually designed for deck cleaning applications they can present some handling problems. For example, liquid household bleach should not be mixed or used directly with ammonia or any detergents or cleansers containing ammonia since the resulting chemical reaction can form a potentially dangerous gas.

About ten years ago products began appearing in the market that were specifically designed to clean and restore weathered wood surfaces such as decks and siding. Today there are a variety of such products available. Deck cleaners and restorers generally fall into one of three categories: chlorine bleaches, oxygen bleaches, or oxalic acid-based formulas. Each of these is discussed below.

Chlorine-Based Bleaches

Common types of chlorine bleach used in deck cleaning products are sodium hypochlorite, calcium hypochlorite and dichloroisocyanurate. The first two are typically used in laundry detergents while the last is a swimming pool additive. These chemicals are effective against mildew but do little to remove dirt or other surface deposits (which is why bleach alone does not get clothes clean). When used on wood decks, chlorine-based bleach products can do more harm than good. They can result in the wood's having a whitish unnatural tone due to the bleaching out of natural components or a fuzzing of the wood's surface due to the loosening of small fibers during the cleaning process. Moreover. if not rinsed properly, the chlorine salt residues can result in premature graying of wood from the action of sunlight

Oxygen-Type Bleaches

Products in this category are usually based on disodium peroxydicarbonate, commonly known as sodium percarbonate, an ingredient present in some color safe fabric bleaches. Sodium percarbonate is a powder. When added to water it forms hydrogen peroxide - a common oxygen bleach - and sodium carbonate (soda ash). Hydrogen per-

oxide is commonly used as a disinfectant and a stripper for hair coloring. On wood it is effective in removing mildew stains and the weathered gray residue from UV (sunlight) degradation. The sodium carbonate acts as a built-in detergent, removing dirt and other deposits. Thus, sodium percarbonate-based cleaners are effective in removing dirt, mildew, and weathered gray residues. Once treated the wood returns to its natural original appearance.

Oxalic Acid-Based Products

Certain wood species such as cedar and redwood contain natural resins known as tannins. These are water soluble materials which are reddish brown in color. Water can extract these resins from within the wood and deposit them on the surface, leaving brown or black discolorations. Tannins can also react with iron present in fasteners or nails, resulting in blue-black stains. Neither chlorine bleaches nor oxygen bleaches are effective against tannin stains or iron stains. Oxalic acid, on the other hand, solubilizes tannins and iron stains and renders them colorless.

Thus it is the material of choice for use on redwood or cedar. However, oxalic acid is not as effective against mildew. For this reason some homeowners and contractors will treat redwood and cedar with a sodium percarbonate or chlorine-based cleaner and follow it up with an oxalic acid-based product if tannin staining is apparent Concentrated oxalic acid is toxic and should be handled and used with care.

PAINT STRIPPERS

Sometimes, in order to restore a wood deck and prepare it for refinishing, the previous finish - or what's left of it - will need to be removed. Most deck cleaners and restorers are not effective in removing paints or stains. This can be accomplished by mechanical removal or chemical means.

Chemical paint strippers are usually based on organic solvents, caustic salts such as sodium hydroxide or sodium metasilicate. Most of these strippers are pretty potent and require some care in use and handling. Contact with skin or eyes must be avoided. Proper protective clothing and equip ment must be worn as outlined on the product labels.

Depending on the formula. strippers will remove varnishes, oil-based stains, or latex stains and paints. Most are supplied as ready-to-use liquids.

Residual amounts of the strippers should be thoroughly rinsed from the wood before any product is reapplied, since residual traces of caustic salts can interfere with subsequently applied coatings.

MECHANICAL CLEANING

Mechanical methods for cleaning and restoring the surface of wood decks include planing, sanding, and power washing.

Planing removes the outer surface of the wood face exposing fresh, new wood. Decking boards have to be removed from the structure and passed through a planer to accomplish this. Planing is very effective but limited in usage by the need to physically disassemble part of the deck to carry it out Since planing removes the outer veneer of wood it also results in a change in physical dimensions of each board.

Sanding is effective for removing unwanted coats of previously applied finishes. It can, however, damage the surface of the wood. On redwood and cedar sanding often results in an excessive amount of tannin resin bleeding.

Power washing is the mechanical method for cleaning and restoring decks most favored by contractors. Power washers direct a high pressure jet of water at the wood surface. This pressurized water is effective in removing dirt, mildew, algae, and gray weathered residue from most wood surfaces. It can also be effective in removing previously applied coatings. Some contractors have found that the best cleaning procedure is to treat with a chemical cleaner and follow up with a wash/rinse from a power washer.

First time users of power washers need to be cautioned since excessive pressure can damage wood deck surfaces. If not used properly, power washers can also cause damage to windows, doors, and siding. For this reason many do-it-yourselfers prefer to stick to chemically based means of cleaning and restoring their decks.

REFINISHING

As noted previously, proper surface preparation of weathered decks is an essential first step to the successful refinishing of these substrates. Failure to remove dirt, mildew, and weathered residues is an open invitation for early failure of subsequently applied coatings.

Care should be taken to thoroughly rinse all cleaner/restorer products from the wood In addition, many coatings require dry surfaces prior to application, so contractors and homeowners should allow adequate time for the wood to dry before applying a finish.

Vertical Deck Surfaces And Siding

Most decks contain some vertical components such as rails and spindles, and these require the same degree of cleaning and restoring as do the horizontal planks which make up most of the deck surface. Products designed to

clean horizontal surfaces will generally work on vertical facings as well, The only limitation for some of these products is a tendency to run off of the vertical components before the active ingredients can fully function.

To address this problem, some manufacturers have formulated their cleaners/restorers/strippers with thickening agents to help the liquids cling better to vertical surfaces. This improves performance since it increases the contact time between the active ingredients and the surface being treated. Users should consult product labels to determine whether or not the formula contains thickeners.

Summary

There are now a number of choices for cleaning and restoring weathered wood decks prior to refinishing. Whereas household bleaches and detergents were formerly used for this purpose with minimal success, a variety of products is now specifically designed for this purpose.

Formulas based on chlorine bleaches are effective against mildew but have limited efficacy against other sources of discoloration. Products based on sodium percarbonate are more effective against a wider range of discoloring agents and leave the wood with a more natural appearance than do chlorine bleaches. Oxalic acid-based cleaners are particularly effective against tannin and iron stains and find most use on cedar and redwood.

The mechanical method of choice for cleaning and restoring wood decks is the power washer. This is sometimes used in conjunction with chemical cleaners. Power washers are employed more by contractors than do-it-yourselfers since they are somewhat tricky to use and can damage the wood if not utilized properly.

Paint strippers are heavy duty products designed to chemically remove unwanted coats of paint or stain from wood surfaces. They are effective but need to be used with caution since they may contain hazardous ingredients. Products which are formulated with thickeners will cling better to vertical deck surfaces such as rails and spindles. These may be suitable for wood siding as well.

Proper cleaning and surface preparation is essential to successful refinishing. Without this step early failure of refinishes is likely.

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