

## PROTECTION AND ENHANCEMENT

Timber's natural colour, fragrance and texture are all part of the appeal of wood and woodworking but timber left in its natural state needs both protection from the elements and protection from the wear and tear that is inevitable with use.

An appropriate finish will not only prevent deterioration and discolouration but can also serve to enhance the material, highlighting the grain, the tones and the texture of wood.

## CHOOSING THE FINISH

A vast range of finishes is available, but the choice is narrowed by the intended function of the item. The decision is influenced by the following primary considerations:

- Exterior or Interior?
- Moisture Resistance?
- The timber left in its natural colour or stained?
- Ease of Application?
- Durability of Finish?

## EXTERIOR FINISHES (Cladding and Outdoor Furniture)

- Timber has been used as a building material ever since we started to erect shelters for ourselves, and began the never-ending challenge to try and make timber a permanent material. Its main enemies are organisms influenced by the presence of moisture, such as mildew and various forms of fungi.
- Also, whenever timber is exposed to sunlight, rain and changing climatic weather conditions, naturally dark tones become paler through leaching and bleaching, while paler colours darken because of oxidation. Irrespective of colours, all outside timber surfaces exposed to rain eventually become grey. This colour change may be dirty and blotchy in conditions favouring fungal organisms.
- Investigations into the protection of timber have led to two main areas of development: The use of painted-on water repellent preservatives, or an impregnation protection treatment (such as C.C.A. treated Radiata Pine). Brushed on types of protection fall into essentially three categories:
  - Solid colour paints, oil or acrylic based.
  - Oil-based stains, alkyd resin stains and acrylic resin stain finishes.
  - Clear finishes, such as marine varnishes or the newly developed acrylic resin systems.

- The solid colour paints are available in a spectrum of colours from different suppliers and vary considerably in quality. Generally, a "premium" paint will be better than a cheap "house brand" and you will pay for the difference in quality.

- The stain finishes also vary in price and quality, starting with the cheap "fence stains" and going to the recently developed acrylic resin finishes that are designed to absorb and reflect the sun's ultra-violet rays.

One of the main criteria that may assist you in selecting a stain finish is the extent you wish the natural grain features and colour variations within the wood to show through.

Some stains have considerable hiding power and only display the surface texture of the grain. Other stains are reasonably transparent and do not significantly obscure the timber grain detail.

- Clear finishes for external use have long posed a problem for the paint industry. The late 1970's saw the introduction of clear varnishes

# Finishing Guide

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with ultra-violet light stabilisers and these were a significant advance on the marine varnishes developed in the 1940's and 1950's. The recent introduction of acrylic polymers that positively react to UV, (such as Cabot's "Clearcoat"), promises a further advance in this area.

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## INTERIOR FINISHES (Furniture, bench tops flooring, etc.)

- Inside your house, the need for preservation is not so critical. However, the timber may need protection from wear. It also may need protection from spillage of liquids and heat or steam in some environments. Where your timber work is under close scrutiny, a finish which not only protects, but also enhances the appearance of your project, is obviously advantageous.
- Prior to the application of the finish, the surface of your material needs proper preparation. This surface preparation usually begins before you cut your first piece of timber for your project. When you purchase your timber "dressed-all round" from your local supplier, it may exhibit a degree of "scalloping" – trough shaped cuts creating a washboard effect. If your stock is not too wide, you can clean up these scallops with a sharp saw blade and a properly set-up saw, by using the planing technique described in your Operating Manual. Alternatively, you can use a router and a straight cut router bit in the shaper-table mode. For wide stock, use a hand plane finely set and freshly sharpened, or a belt sander. If your stock is not surfaced and square, not only will your joints not close perfectly but you will find it difficult to obtain a satisfactory finish at the completion of your project.
- The final surface preparation is critical to the finished appearance – surface defects in the timber which are only just visible on the bare wood will be glaringly obvious once the finish coats are applied. A smoothing plane and a hand scraper are still an excellent way of obtaining a first-class finish. A belt sander, followed by an orbital sander, will also provide a smooth finish. In either case, finishing by hand sanding is usually necessary for a perfect finish. Begin with 120 grit sandpaper and proceed to 180 grit. If the surface is to be varnished or lacquered, professionals suggest finishing with 220 grit paper. We suggest you purchase aluminium oxide abrasive paper; this abrasive material is best for woodwork because of its cutting properties and long life.
- If the wood has open knots, fissures or other defects, it is advisable to fill these with wood putty. If you intend to stain, ensure your choice of putty is compatible with your stain colour. It is possible to make up your own wood putty by mixing fine sawdust from your project with PVA or a similar wood glue. However, this "putty" is only suitable for very small cracks and holes. If you desire a high-gloss finish, you may also want to fill the grain of your wood. A number of proprietary brands are available and they can be colour matched to your timber. Wood grain filler should be applied after staining.
- Before any finishing coats are applied to your wood, it is essential that the surface is as dust free as possible. Usually dust particles visible in a poor finish coat were there when the coating was applied – that is, they were not air-borne. Use a stiff-bristled paint brush to remove most of the dust initially. A vacuum cleaner with a brush head attachment also works well.

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For the final clean-up, buy yourself a tack rag, available from better paint supply shops. A tack rag is a piece of specially treated cheese-cloth that attracts dust.

Wiping a clean tack rag over the wood surface should remove residual particles.

Try and work in a relatively dust-free atmosphere when applying your finish. Windy days are to be avoided.

- Australia is fortunate in having a variety of cabinet timbers which offer an array of distinctive colours. For example:

Straw: Radiata Pine, Huon Pine, Celery Top.

Yellow-Brown: Mountain Ash, Queensland Maple.

Pine: Myrtle Beech.

Chocolate Brown: Blackwood, Black Bean.

Unfortunately, some of these timbers are limited in availability and are expensive. Staining is a way of approaching the appearance of scarce or exotic woods using cheaper materials.

Stains generally fall into three categories:

- Pigment stains.
- Dye stains (can be water or oil based).
- Chemical stains.

Because the final result of a stain finish depends upon the porosity and natural colour of the timber species you have used, it is difficult to make hard and fast rules about which is best.

The major paint and stain suppliers in Australia have customer service advisory centres and they are happy to assist with technical advice about all aspects of wood stains and their uses.

- Applying the final finishing coats can be very rewarding; suddenly the wood begins to glow with colour, grain and figure.

The selection of the finish is a blend of personal preference and the need to protect the timber from use and abuse.

The following options are available:

- Shellac
- Penetrating oil finishes
- Varnishes.
- Two-pack finishes.
- Lacquer.

- Shellac is a very old finish, still in use today. Shellac is the basis of "French Polishing", thought to be by many the ultimate in a surface finish.

The material itself is a resinous substance, in fact manufactured from the secretions of the lac bug found in India. Excessive use of DDT insecticides for agriculture have killed large numbers of lac bugs and the material may be harder to obtain in the future.

It is sold as dry flakes which are dissolved in methylated spirits. The amount of Shellac dissolved per litre of spirits is called the "cut". Usually, many coats of a dilute or thin cut provide the best finish. Because Shellac dries quickly, the coat must be applied and brushed out in one operation. Rub back between coats with 320 grit paper.

There are a number of drawbacks with a Shellac finish: The surface is not waterproof, or heat resistant, and any alcohol spilt on the surface will dissolve the finish.

- Penetrating Oil Finishes are sold under various brand names, such as "Danish Oil" or "Scandinavian Teak Oil". The basis for most is tung oil with various additives. Penetrating oil finishes are quick and easy to apply and can provide a reasonable degree of protection to your wood.
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