

FINISHING, STAINING & PERFORMANCE ENHANCEMENT

The benefits of applying surface coating to New Zealand pine will vary according to the end use.

Exterior benefits:

- Surface deterioration is greatly decreased, particularly discolouration and loosening of surface fibres from the combined effect of rain, wind, sun and grey or black staining mould fungi.
- The wood will be protected from excessive checking and dimensional change caused by water entry.

Interior benefits:

- The natural grain appearance will be enhanced.
- Chemical, heat and wearing resistance is increased
- The in-service product will be protected from excessive dimensional change caused by swelling/drying resulting from seasonal climate variations.



EXTERIOR SITUATIONS

New Zealand pine is not naturally durable in exterior situations and, therefore, should be preservative treated to the appropriate decay rating as detailed in the 'preservation' chapter. Where the wood is well painted and generally protected from direct wetting, preservation to a low decay hazard rating may be used. Surface coatings can retard the rate of change of moisture content and, therefore, can reduce fluctuations in product dimension. This depends, however, on the type of coating. For example, paints are more impermeable to water vapour than stains



and oil-based paints more impermeable than water-based ones.

Paint systems are either solvent-based (e.g. alkyd) or water-based (e.g. acrylic). Although exterior alkyd paints provide wide variation in gloss and their films may be more impermeable to water, modern adhesion-promoting acrylic paints are superior on pine in exterior uses. Acrylic paint films are permanently flexible, expanding and contracting with dimensional changes in the wood. As a result, acrylic, has better long-term water-proofing ability than alkyd paints that are more liable to becoming brittle and cracked with age.

INTERIOR SITUATIONS

For interior applications, New Zealand pine is very suitable for appearance grade products such as furniture, componentry, joinery and mouldings.

Preparation

Good preparation is essential for the effective and attractive staining and coating of all wood. Desired surface characteristics are:

- finely-sanded (150 grit at least),
- defects smoothed over with fillers,
- sharp edges and corners rounded,
- dust, dirt and water free.

Staining

New Zealand pine is an extremely versatile wood and is tolerant of the many available stains. This allows it to be stained to look like other species, with colour-matching being particularly effective. Water-based stain systems can also be effective on pine, though solvent-based systems avoid grain raising.

Coatings

Four coating types have traditionally been used on New Zealand pine furniture - nitrocellulose, pre-catalysed and acid-catalysed resin systems and two-pack polyurethanes. In New Zealand, pre-catalysed and acid-catalysed coatings are most widely used.

Environmentally friendly coatings

Environmental pressures world-wide are resulting in low volatility organic compound (low VOC) coatings gaining favour. In Europe and North America, the move has been toward low VOC and low formaldehyde coating types. Consequently, in those markets, nitrocellulose, pre-catalysed and acid catalysed coatings use is down, while polyurethane (isocyanate control is possible through automated finishing lines), water based and ultraviolet-cure coatings use has increased.

PERFORMANCE ENHANCEMENT

Wood hardening

New Zealand pine's natural surface hardness is comparable with other medium density softwoods, but after treatment with a process developed at New Zealand Forest Research Institute its overall hardness can be increased to the level of hardwoods such as mahogany & oak. (*see also the 'Furniture & Components' section*).

The product accepts normal stains and clear finishes evenly and has excellent dimensional stability. It is ideal for high wear uses such as furniture, flooring and

The even texture & relatively

small density variations

across the grain in

New Zealand pine provide

excellent finishing properties,

uniform acceptance of

decorative stains &

good paint retention.

