

# Outdoor Wood Finishes

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Timberlife Technical Note: 002

## **A guide to its selection, suitability and performance**

### **1. What is the purpose of an outdoor wood finish?**

Outdoor wood finishes have basically three main functions, namely:

**(i) To protect outdoor timbers against natural weathering by:**

- Controlling moisture fluctuations in wood that are caused by moisture uptake during exposure to rain or other forms of free water and moisture loss during subsequent drying out. Swelling during moisture uptake and shrinkage during subsequent moisture loss may result in stresses that cause checking, cracking and splitting of the wood.
- Reducing UV (ultra-violet) degradation of the wood surface caused by exposure to sunlight. UV degradation results in a relatively slow breakdown of the wood surface.

**(ii) To improve the appearance and natural beauty of outdoor timbers by:**

- Enhancing the wood grain and colour.
- Providing a decorative finish that may either have a mat, sheen/semi-gloss or gloss appearance.

**(iii) To protect untreated timbers against biological attack by:**

- Providing insecticidal protection against wood boring insects and termites.
- Providing fungicidal protection against wood discolouring fungi and mould growth.

### **2. What are the criteria for selecting an outdoor wood finish?**

Criteria that are of importance when selecting an outdoor wood finish are one or more of the following:

**(i) Type of timber that needs to be finished:**

- Is it a hardwood or softwood species?
- Is it a porous or non-porous timber?

**(ii) Outdoor conditions to which the timber will be exposed:**

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- Is the timber exposed to dry or humid climatic conditions?
- Is the timber north facing that increases the amount of sunlight exposure when compared to south facing conditions?
- Is it a horizontal installation that is more directly exposed to sunlight and rain water such as on wooden decks when compared with vertical installations such as cladding?
- Is the timber fully exposed to sun and rain or is it protected or partially protected by a roof or veranda?

## **(iii) Type of protection, performance and durability that are required:**

- Is it mainly against outdoor weathering, e.g. exposed wooden doors and window frames?
- Is it mainly against mechanical wear, e.g. wooden decks protected from the sun and rain water?
- Is it a combination of both outdoor weathering and mechanical wear, e.g. wooden decks fully exposed and not protected from the sun and rain water?
- Is additional protection against biological degradation such as attack by wood borers, termites, wood discolouring fungi and mould growth required?

## **(iv) Type of finish that is required:**

- Is a mat, sheen/semi-gloss or gloss finish preferred?

## **(v) Ease of application:**

- Is application of the wood finish done by simple and easy brush, roller brush, spray-on or even wipe-on methods or does it require more specialized and complicated techniques?

## **(vi) Ease of maintenance:**

- Does maintenance merely require simple and easy cleaning of the wood surface before application of a maintenance coat or is labour intensive sanding and complete stripping of the old coating required before recoating?

## **(vii) Drying time:**

- Is drying time an issue? Remember, quick drying wood finishes are not always better.

## **(viii) Cost:**

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- Is cost an issue, bearing in mind the required properties and expected performance of the wood finish?

## 3. What types of outdoor wood finishes are available?

Broadly speaking, three types of outdoor wood finishes are available, namely:

### (i) Film forming wood finishes (i.e. paints and varnishes):

- High build with poor penetration into wood.
- Gloss finish.
- Relatively long life span.

### (ii) Penetrating wood finishes (i.e. water repellent sealers)

- Low build with good to very good penetration into wood.
- Mat finish.
- Relatively short life span.

### (iii) Hybrid wood finishes (i.e. penetrating, high build sealers)

- Medium to high build with good penetration into wood.
- Sheen to semi-gloss finish.
- Medium life span.

## 4. What is the suitability and performance of the different outdoor wood finishes?

The three types of outdoor finishes mentioned above behave and perform quite differently in terms of their suitability for different applications, their effective life span, their deterioration on outdoor exposure and their ease of maintenance, for example:

### (i) Film forming wood finishes:

- Mainly used for vertical applications such as wooden doors and window frames.
- Can last up to 3 years (varnishes) and up to 5 years (paints).
- Tend to flake and peel once reaching the end of its life span.

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- Require labour intensive maintenance, i.e. complete removal of the old coating before application of a maintenance coat.

## **(ii) Penetrating wood finishes:**

- Can be used for vertical and horizontal applications such as wooden cladding, doors and window frames as well as wooden decks, respectively.
- Last between 6 months (e.g. on decking) and 12 to 18 months (e.g. on cladding), depending on whether it is exposed to north facing or south facing conditions, respectively.
- Weather through erosion. No flaking or peeling.
- Require quick and easy maintenance, i.e. simply wiping the wood surface clean before application of a maintenance coat.

## **(iii) Hybrid wood finishes:**

- Can also be used for vertical and horizontal applications such as wooden cladding, doors and window frames as well as wooden decks, respectively.
- Last between 12 to 36 months depending on exposure, e. g. horizontal vs. vertical exposure, north facing vs. south facing, fully exposed vs. partially or fully protected.
- Do not flake or peel but also weather through slow erosion.
- Require simple and easy maintenance, i.e. only light brushing or sanding and cleaning of the wood surface before application of a maintenance coat.

## **5. How can performance and durability of outdoor wood finishes be improved?**

The performance and durability of outdoor wood finishes and the protection provided against natural weathering can be improved by the addition of the following additives:

### **(i) Transparent iron oxide pigments:**

- When added to outdoor wood finishes, transparent iron oxide pigments provide additional protection against UV degradation of the wood surface by absorbing the harmful rays of sunlight.

### **(ii) UV absorbers and light stabilizers:**

- UV absorbing and light stabilizing additives are designed and formulated to provide excellent protection, not only to the wood surface, but also to the wood finish itself against UV degradation caused by sunlight exposure.

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