

Maintenance treatments for external timber

As timber is utilized in a wide range of external applications, there are many products and methods available that may be used for finishing surfaces to help protect against the elements and create an aesthetically pleasing appearance. Different products have different service life expectancies, and require differing levels of maintenance.

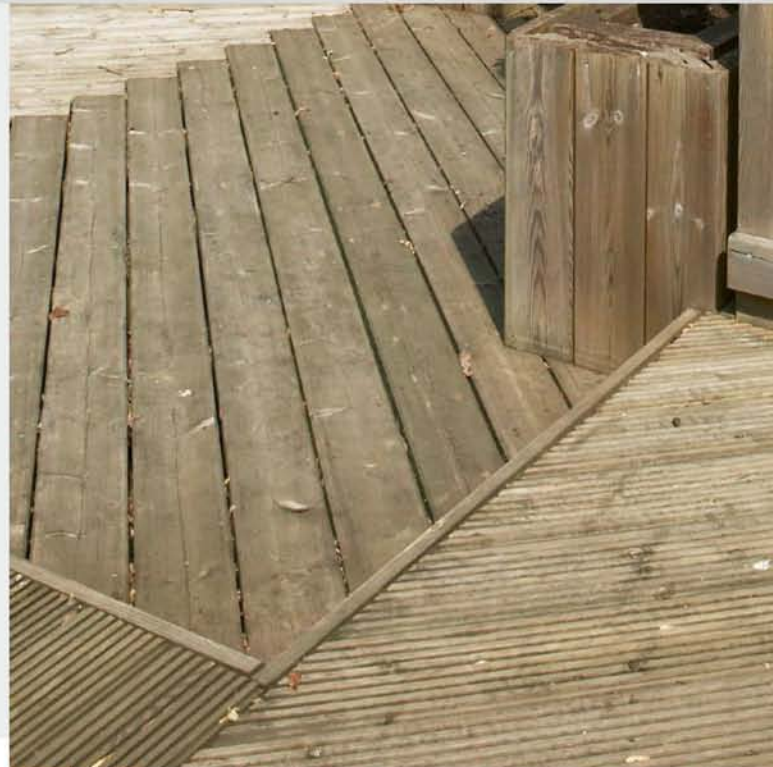
While this sheet provides guidance on the use and maintenance of timber finishes in external environments, it cannot, due to the huge range of products available on the market today, be specific about maintenance regimes. Manufacturers' recommendations for maintenance intervals and application techniques should always be followed.

The maintenance of external timber commonly serves two purposes: continuation of certain performance requirements and/or continuation of a desired visual appearance.

Timber used externally, unless naturally durable, should be treated with preservative. The function of these treatments is to protect timber against insect infestation and fungal decay, rather than to preserve its appearance.

Changes in regulations governing the use of some wood preservatives have affected what can be used and where; and proper disposal of preservative-treated timber must also be considered. Choosing wood that has an FSC (Forest Stewardship Council) logo or a PEFC (Programme for the Endorsement of Forest Certification) logo allows you to tell your customers that it is from sustainably managed forests.

Treated timber may be expected to weather in the same way as naturally durable untreated timber, and depending on the type of treatment, its performance and longevity may well be improved through the application of a finish.



Sustainable timber

Timber is the most sustainable building product available. It is naturally renewable - over 97% of softwood timber used in the UK comes from Europe, where the forest area is increasing by the equivalent of 90 football pitches every hour of the day and night.*

For reassurance for softwoods and hardwoods look for certification labels like FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification).

Always ask your supplier about their responsible purchasing policies.

*IIED & ECCM, Using Wood to Mitigate Climate Change, 2004 and UNECE-FAO, State of the Europe's Forests, 2011.



This information sheet provides general advice only and is not specific to the requirements of a particular building project. It is the builder's responsibility to check compliance with Building Regulations and standards.

Finish types

- paint
- varnish
- stains
- unfinished (timber left to weather naturally)

End use

The service requirements of the external timber in question will have an impact on its maintenance regime. Maintaining the appearance and performance of a garden shed or fence, for example, may be considered less critical than window joinery or decorative cladding on a high-profile building.

Preparation

Film-forming finishes such as paints and varnishes typically require more thorough preparation for re-coating a previously weathered or exposed surface, while non film-forming finishes such as stains can often be applied over an existing coating with minimal preparation.

Timber surface and orientation

The orientation and type of the timber surfaces that are to be coated will have an impact not only on the product selected, but on the life expectancy of the finish. Stains on vertical surfaces will perform better than those on horizontal surfaces (eg sills and table tops) as water repellence is improved. Rough-sawn timber will require greater application of a coating, but the increased loading on these rougher surfaces results in thicker films. Due to their ease of application and low film-thickness, stains are more suited to rough-sawn timber than paints.

Accessibility

Ease of access should be considered when deciding upon a coating and subsequent maintenance regime. Coatings with longer service lives should be used in situations where difficult access will incur significant costs or effort to maintain the system. Elevated window joinery, for example, will prove more costly to re-coat than fencing panels. Similarly, external timber which will be covered with foliage may be challenging to re-coat.

Health and safety issues

The ease and safety of cleaning brushes, or coating equipment may also be a factor in choosing a product. Equipment used to apply water-based paints and stains may be washed with water alone with little potential for skin irritation, and easy disposal of the

wash-down liquid. Solvent-based products will require turpentine or white spirit to remove excess from the application equipment. Care should be taken to avoid skin contact with these substances, and to ensure appropriate disposal. Some of these products could potentially be harmful to people, pets and plants, so take care to follow the manufacturer's instructions.



Photo: Wenvoe Garden Buildings & Paving Centre

Paint

Paints are essentially opaque finishes, and may be either water-borne or solvent-borne. Either system has inherent advantages and disadvantages. Water-borne paints have higher levels of vapour permeability, allowing elevated timber moisture contents to be reduced in service, and are generally acknowledged as providing better durability than solvent systems. Solvent-borne coatings provide better drying times in cool or damp weather, and better brushability in hot weather, often providing a better-quality finish.

Preparation

Fresh timber surfaces will typically need to be primed using the paint manufacturer's propriety priming system. This presents a surface onto which the paint will 'key', or adhere, and will improve the service life.

Thorough preparation of surfaces that have been painted previously is important, and the technique you use will depend on the exposure or the length of time since the last coating or maintenance cycle.

Application

Paints are designed to be used in a coat-on-coat style application, and several top coats are usually required to produce the desired end finish and performance.

Maintenance

Ideally, maintenance should commence while the previous paint film is still sound. Removal of a sound paint layer is unnecessary. A simple wash with mild detergent and light abrasion to provide a suitable key for the new coat will prove sufficient.

Failure

Unfortunately, the failure of a paint film is often the catalyst prompting maintenance. In these instances, the preparation of a suitable surface will require more care. Old, flaking paint needs to be removed. Chemical strippers, blow torches, heat lamps or abrasive blasting may well prove to be more effective than sanding or scraping. In severe instances, the timber surfaces themselves are likely to have suffered the effects of weathering. This produces a grey, fibrous surface that has very poor adhesion properties. This surface layer needs to be removed. Areas of decay or surface softening need to be cut out and replaced, or treated with resin-based hardeners where the extent is not severe.



Varnish

Varnishes for exterior timber are commonly used in the marine/boat industry. These have a niche use, aimed at high-value finishes that require significant preparation and maintenance. The propensity of these coatings to become brittle and flaky in failure often causes water to become trapped under the coating, raising the moisture content of the timber. This makes varnishes unsuitable for exterior joinery, and the cost of preparation and maintenance reduces their desirability for larger exterior surfaces.



Stains

Timber stains are available as either solvent- or water-borne solutions, and come in a variety of different 'build' thicknesses. That is, they have the ability to create different coating thicknesses. Stains work by effectively depositing a layer of pigment on the timber surface. Many products have additional water repellent components and fungicides to aid water shedding and resist mould and fungi respectively. The build thickness is much less than those of paints and varnishes, and can be split into two rough groups: low build and medium build. Both of these are permeable to moisture vapour and tolerant of movement within the timber.

Low-build stains

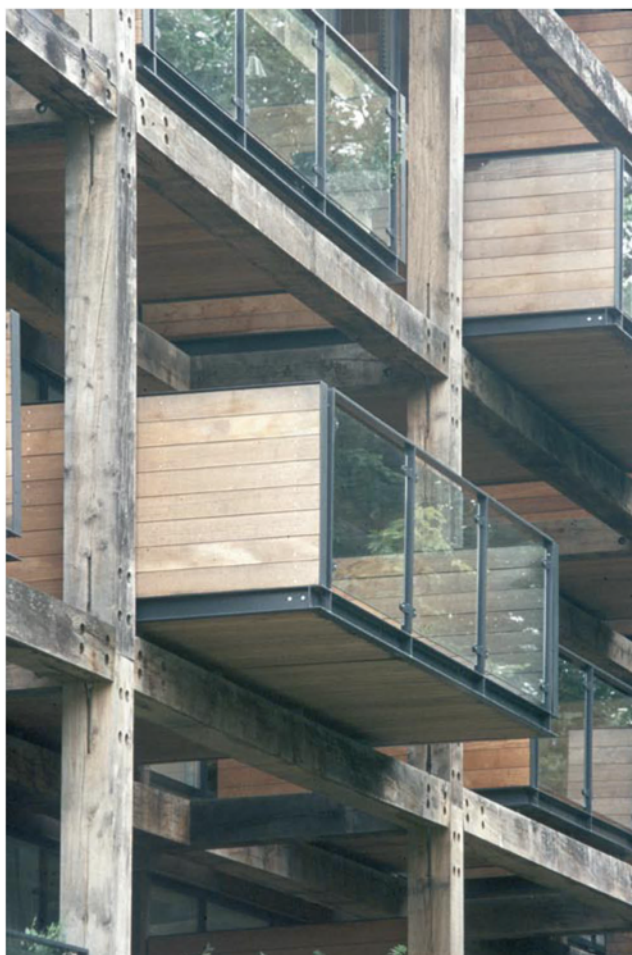
Low-build stains are typically used for timber with less critical protection requirements, such as fencing or garden sheds. These products typically penetrate the surface layers of the timber, and leave little or no film on the surface.

Medium-build stains

Medium-build stains tend to penetrate less and produce a significant but discreet surface layer on the timber. Medium builds are typically more suited to joinery applications, as more protection is given from the increased surface coating.

Maintenance

One of the attractions in using timber stains is the ease of maintenance and re-coating associated with most products. The pigmented portion of the stain erodes under weathering, rather than failing and cracking like paints and varnishes. This means that maintenance usually only involves washing the surfaces of the timber using a light detergent to remove accumulated dirt and any loose pigment, letting it dry and applying the new coat. As stains work by essentially screening the timber surface from UV light and weathering, lighter-coloured pigments tend to need more regular maintenance and re-coating than darker, heavier pigments.



Unfinished external timber

Naturally durable hardwood species such as oak or sweet chestnut are often left to weather without applying a finish. This type of appearance is specified as many people find it attractive, and the lower levels of maintenance required make it suitable for cladding or structures which undergo abrasion from foot traffic, such as bridges, decks and walkways.

Unfinished, naturally durable timber will bleach to a silvery grey colour over time, but the surface will not otherwise be affected other than from a slight roughening of the surface due to weathering. Heavy foot traffic causes surface treatment products to wear away and require frequent reapplication.

Further information and advice

Wood Protection Association

www.wood-protection.org

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Further advice on treated timber products can be obtained from your local supplier or merchant. Ask for manufacturers' sales or technical literature. Check on the manufacturers' websites for further technical information.

Other *Choose and Use* factsheets are available in this series, including 'Mechanical fixings for wood', 'Sourcing sustainable timber', 'Timber decking', 'Treated timber', and 'External timber maintenance'.

Choose and Use is a series of information sheets for builders produced by TRADA, The Timber Research and Development Association.

They offer up-to-date advice on how to select the right timber and timber products for different applications.

You can often save time and money by choosing the correct timber material or timber products as well as ensuring you comply with current Building Regulations and Building Codes. For more information about specific products visit www.trada.co.uk or contact your local supplier.

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