

Treated timber

Timber won't rot if it's kept dry to a moisture content below 20%. When it's used outside, this may not be possible.

There are two answers: either you can use a naturally durable timber, like oak or western red cedar, or you can use a non-durable softwood that's been treated with a suitable preservative.

Natural durability and treatment considerations

Timber is a variable material; different species have different properties. Some timbers, typically hardwood species, are more naturally durable and more resistant to fungal decay or insect attack than most commonly available softwood species. However, some softwoods do contain natural chemicals that make them more resistant to decay/insect attack.

Because softwoods are inexpensive, readily available and renewable, they are popular for general construction work. Depending on where they are needed in a building, some will require additional protection by using a preservative treatment.

The need for and type of treatment, and how it is applied, will depend on several factors, as follows:

- The end use of the timber
- The natural durability of the species of timber you are using
- The service life required
- Its resistance to penetration by preservatives (its 'treatability')
- The ease of any future maintenance.

Whatever the considerations, by far the most effective method for applying a preservative treatment to timber is by industrial pre-treatment. These treatments can provide a measurable and controlled amount of protection which can be varied to suit the species, its end use and its desired service life.



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.



Where can treated timber be used?

This table illustrates the 'Use Class' for each component. Ask your supplier whether your product has been appropriately treated for its desired end use.

Component (see illustration below)	Use Class
1 Roof timbers (dry)	1
2 Roof timbers (risk of wetting)	2
3 Tiling battens	2
4 Barge boards, fascias, soffits	3.1
5 Timber frame components - except sole plates	2
6 Frame sheathing - plywoods	2
7 External cladding	3
8 Battens for external cladding	2
9 First floor joists	1
10 Ground floor joists	2
11 External joinery	3.1
12 External doors	3.1
13 Sole plates above dpc level	2
14 Sole plates below dpc level	4
15 Decking out of ground contact	3
16 Decking in ground contact	4
17 Fence posts	4
18 Fence panels	3
19 Garden products	3/4
20 Garden products - water contact	4



Use Classes and desired service life

The end use of timber is classified into one of the four main categories shown in the table below. These Use Classes are based on the potential threat to the timber from decay or insect attack in its end-use application. For instance, internal building timbers in Use Classes 1 & 2 will be less vulnerable than timbers used externally in ground contact (Use Class 4). If the Use Class is known an appropriate level of treatment can be specified.

Use Class summary

- 1 Internal, dry (e.g. upper floor joists)
- 2 Internal, risk of wetting (e.g. tile battens)
- 3.1 Outdoors, coated, above ground (e.g. window frames*)
- 3.2 Outdoors, uncoated above ground (e.g. fence panels)
- 4 Direct soil or fresh water contact (e.g. fence posts)

*Exterior woodwork should be protected with an appropriate surface coating after preservative treatment, then regularly maintained.

Use Class 4

Timbers destined for Use Class 4 situations will be permanently exposed to wetting in either ground or fresh water contact. For optimum durability it is important to ensure the correct treatment specification. Make sure you ask for timber treated to Use Class 4.

The Codes and Standards in use in the UK show what service life should be expected for different timber components. Timbers used internally in the structure of a building require a 60 year minimum desired service life. External garden structures, such as pergolas and fences, are more likely to be changed or updated, and consequently a shorter service life may be acceptable.

Treatment processes and preservative chemicals

The chemicals used in wood preservatives contain biocides that are specifically formulated to target wood destroying organisms fluids whilst being less hazardous towards the wider environment. They also comply with current EU regulations. There are two main types of pre-treatment processes, both carried out by timber suppliers, merchants or joinery companies, in enclosed and strictly controlled industrial vessels.

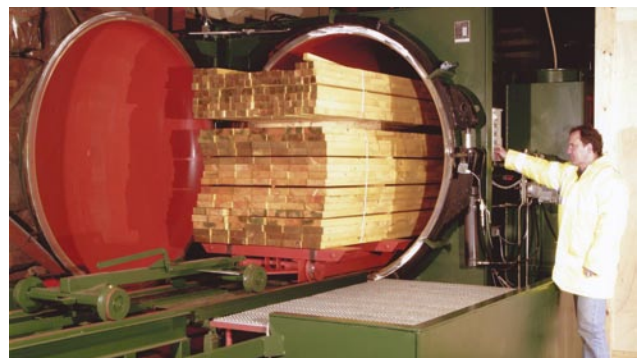
Vacuum, high pressure treatments are used to treat timber for the full range of end uses (ie UC1-UC4). They are particularly relevant for external applications, both in and out of ground

contact – providing a desired service life ranging from 15 to 60 years. The vacuum process forces the preservative deep into the cellular structure of the timber and generally results in a pale green coloration to the finished component. Additives are available that can give either a rich brown coloration, usually for rough sawn fencing and landscaping timbers, or an effective extra water repellency protection for decorative external timbers, such as decking and cladding timbers.



Vacuum high pressure treatment plant.

Double vacuum (vac-vac), low pressure treatments can be used to treat timbers in Use Classes 1, 2 and 3.1 environments, delivering a 30-60 year desired service life. Treatment leaves the colour of the timber virtually unchanged. A colour indicator, as well as water-repellency, can be added to the treatment if required.



Double vacuum low pressure treatment plant.

Machine treated timber

Treating a piece of wood with preservative by both the high and low pressure methods, generally results in an outer envelope of treated timber, which protects the inner core that is not penetrated by the preservative during treatment. Therefore, in order that the untreated portion of a piece of timber is never exposed in service, the timber should be in its final dimensions when treated. However, if a treated piece of timber needs to be subsequently cut to length, the cut end will need to be re-treated with preservative. Most preservative manufacturer produce a specific product that can be brush-applied to cut ends of treated timber. It is essential that this re-treatment is undertaken.

Where to go for further help and advice

The Wood Protection Association

5C Flemming Court

Castleford

West Yorkshire

WF10 5HW

www.wood-protection.org

The Wood Protection Association is the UK industry body that can supply further advice on preservative treatments for timber. The WPA manual – Industrial Wood Preservation Specification and Practice – is a useful reference document.

TRADA

(Timber Research and Development Association)

Chiltern House

Stocking Lane

Hughenden Valley

High Wycombe

HP14 4ND

www.trada.co.uk

Wood for Good

www.woodforgood.com



Further information and advice

Further advice on treated and maintenance 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. Visit www.trada.co.uk for additional advice.

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.

