



# Timber species for windows

The **Wood Window** Alliance



**WOOD. AT THE HEART  
OF A GOOD WINDOW**

Wood is a natural material sourced from many different tree species.

Choosing the right timber for windows is important because:

- Each species produces timber with different colour, character, density and performance properties which will influence its suitability for a particular application
- There are an estimated 100,000 different species of tree in the world, some of which are almost extinct and need protection
- Others grow in forests which have a major impact on the earth's climate and have to be carefully managed.

## Softwoods and hardwoods

Tree species are broadly divided into two main groups – softwoods and hardwoods.

- Softwood trees are coniferous, or cone-bearing, mostly evergreen, and with needle-like leaves
- Hardwood trees are deciduous, shedding their leaves at the end of the growing season or during a dry season
- In the UK, over 90% of the wood we use in construction is softwood from European forests
- Most of our hardwood is European too
- The majority of commercially produced wood windows are manufactured from softwood (redwood) grown in Scandinavia. This material is slow growing, high quality, and has relatively small knots.

**BS.EN 942 : 2007** defines the standard for Timber in Joinery and provides details of quality appearance, timber quality grades, permissible defects, knot sizes and moisture contents which help in the selection of the right

## Softwoods for windows

Softwoods are more commonly used because they are generally less expensive than hardwoods, are readily available, easy to work with and less dense than most hardwoods.

Softwoods are not always as durable as hardwoods, although many advances have been made in improving the durability and service life of softwood windows.

- Of the 650 species of softwoods throughout the world, 50 are in commercial use
- The UK is one of the largest importers of wood in the world. Over 90% of this is softwood and comes from five European countries: Sweden, Finland, Latvia, Germany and Russia
- An increasing amount of softwood is called 'home grown' timber and comes from UK forests in Scotland, England, Ireland and Wales. Although poorer in quality than slower grown Scandinavian timber, UK home grown timber is widely used for fencing, pallet-making, general construction, and in panel board manufacture such as OSB and chipboard. It is not regarded as suitable for use in windows and joinery
- In most cases preservative treatment is required to make softwood more durable. Species such as larch, western red cedar and douglas fir are often used in windows without treatment
- Windows made from Scandinavian softwood with a high proportion of heartwood achieve excellent durability without preservative treatment.



## Hardwoods for windows

Hardwoods, used for their strength, durability and decorative appearance, are divided into two groups, tropical and temperate, depending on where they grow.

- Some 20,000 different species are grown commercially
- Although hardwoods are generally more durable and stronger than softwoods, they can still warp, twist or split if used in the wrong environment or not conditioned correctly
- Hardwoods tend to be deeper in colour and are often used for their decorative appeal
- Hardwoods grow at a slower rate than softwoods and are usually denser due to their cellular structure
- Hardwoods are usually supplied in random lengths and widths but in standard thicknesses
- Many hardwoods are used as veneers on softwood panel products



Picture courtesy of AHEC

- **Temperate hardwoods** are found in temperate areas of the world such as Europe, North America, South America, Asia, Australia and New Zealand. Most temperate hardwoods, such as the oak, birch or beech used in the UK, come from Europe or North America
- **Tropical hardwoods** are found in tropical areas such as Central and South America, West and Central Africa and South East Asia. Tropical deforestation is a very significant issue and a major contributor to climate change. It is essential that any tropical timber used is from a managed forest source and has credible certification to prove it. Consult a specialist merchant.



## Typical species suitable for windows

Choosing the wrong species can compromise a window's functionality, safety, strength and durability. The tables on the following pages provide an indication of some of the more common species of softwood and hardwoods suitable for windows.

## 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,<sup>1</sup> where the forest area is increasing by the equivalent of three football pitches every hour of the day and night.<sup>2</sup> For reassurance look for certification labels like FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification).

<sup>1</sup> International Institute for Environment and Development and Edinburgh Centre for Carbon Management, *Using Wood to Mitigate Climate Change*, 2004

<sup>2</sup> UN Food and Agriculture Organization, *State of the World's Forests*, 2007

## Softwoods

The most commonly used softwoods are imported from Scandinavia or Eastern Europe.

Species	Alternative name	Source	Durability Treatability	Comments
European redwood	<i>Pinus sylvestris</i> Scots pine, red deal	Scandinavia Latvia Russia	Moderate  Good	Easily machined. Widely used for windows and doors. Clear laminated timber available which improves stability.
Larch	<i>Larix occidentalis</i>	Europe	Moderate  Not required	Used for windows and doors.
Western red cedar	<i>Thuja plicata</i>	N. America Canada	Durable	Soft for windows and doors, used in conservatories.
Douglas fir	<i>Pseudotsuga menziesii</i> Columbian, Oregon pine	Europe N. America Canada	Slight to Moderate  Fair	Used for windows and doors.



## Temperate hardwoods

Species	Alternative name	Source	Durability Treatability	Comments
Oak	<i>Quercus spp.</i> European oak American white oak	UK Europe North America	Depends on type No treatment required Moderate	Used for windows and doors. Decorative timber but high wastage.
Sweet chestnut	<i>Castania Sativa</i> Spanish or European chestnut	UK, Europe North America	No treatment required	Used for windows. Acidic timber, can corrode ferrous fixings.

## Tropical Hardwoods – check certification

Species	Alternative name / type	Source	Durability	Comments
Idigbo	<i>Terminalia ivorensis</i> Emeri, Framire	Africa	Durable	Used for windows. Finishes well, can corrode fixings.
Iroko	<i>Chlorophora excelsa</i> Odum, mvule, kambala, abang	West Africa	Very durable	Very strong and durable.
Massaranduba	Manilkara Spp - Sapotaceae	Africa	Durable	Structural, joinery, flooring, furniture, external joinery.
Red louro	<i>Ocotea rubra</i>	UK, Europe, North America	Moderate	Joinery, flooring, furniture, external joinery.
Mahogany	<i>Swietenia macrophilia</i> African mahogany / Brazilian mahogany	West Africa Brazil	Moderate to durable	Used for windows and doors.
Meranti	Shorea Light Red (Seraya / White Luan) Dark red (Nemesu)	Asia	Moderately durable to non-durable	Light and dark red often supplied in mixed consignments, can lead to wide colour variation. Often incorrectly described as Philippine mahogany.
Sapele	<i>Entandrophragma cylindricum</i>	West Africa	Durable	Doors and windows.
Utile	<i>Entandrophragma utile</i> Sipo, assie	West Africa	Durable	Used for windows and doors. Similar to sapele but finishes better.
Teak	<i>Tectona grandis</i>	Far East, Africa	Durable	Oily timber, needs care in finishing.

\* Source: WCMC Species Database, data available at <http://wcmc.org/uk>