TIMBMET
Everything wood should be

TIMBER DECKING AND CLADDING ASSOCIATION

Choosing and using timber decking from Timbmet

To ensure any deck structure provides years of trouble-free life it requires correctly installed quality materials . In the UK, the Timber Decking and Cladding Association (TDCA) is the organisation that sets the standard for decking materials, design and installation good practice. The NHBC for example, requires that all decks built on new homes must comply with TDCA guidelines. Timbmet is a member of the TDCA and in this document we provide a summary of the key principles required in choosing and using timber for decks.

1. Choosing timber for decks

Only timber naturally resistant to decay or which has been pressure treated by an industrial process to give long-term protection from decay should be used for decks and associated landscape structures.

Principal temperate and tropical hardwood species used in the UK

Common Name	Natural Durability Class BS 8605-1:2014	Movement	Strength	Density kg/m^3
Temperate hardwoods				
European Oak	2	medium	High	670 - 760
Sweet Chestnut	2	Small	Medium	540 - 650
Tropical hardwoods				
Angelim	1	Medium (v)	High	700 - 990
Balau	2	Medium	High	700 - 1160
Cumaru	1	Small	High	1060
Iroko	2	Small	High	650
Jarah	1	Medium	High	660 - 990
Massaranduba	1 or 2	Medium	High	1030
Opepe	1	Small	High	740 - 780
Red Grandis	3	Medium	High	480 - 720
Red Louro	2	Small to medium	High	600 - 650
Tatajuba	2	Medium	High	790
Teak	1	Small	High	650 - 750

v = variable

Note 1: The natural durability of some species varies, in which case the timber should be assigned to the lowest durability class within its range. Natural durability classes refer to heartwood only.

Note 2: BS 8417 gives two treatability classes. These align with BS EN 350-2 as follows: permeable = Treatability Class 1 and resistant = Treatability Class 2, 3 and 4. Both systems are based on the treatability of the sapwood.

Hardwoods: Hardwoods fall into two broad categories relating to the climate in which they grow. "Temperate" hardwoods include species like Oak, whereas "Tropical" hardwoods include a wide range of species of different colours and properties.

Species that have a Class 1 "very durable" rating in BSEN350:2 will provide the longest service life. When buying hardwoods for outdoor applications always ensure that all sapwood has been excluded as the sapwood of all species is not durable.

Species classed as small movement are least prone to potential defects caused as wood adjusts to the local weather and humidity conditions of the site.

Because hardwoods are more expensive than softwoods, softwoods are generally used for the under deck support structure with the hardwood being used for the visible elements e.g. deck surface, parapets and other associated structures.

Softwoods: Only use softwood species with sufficient natural durability (e.g. the heartwood of Western Red Cedar) or species which have been treated in accordance with BS8417 (the UK's Preservation of Wood Code of Practice) to the Use Class standard appropriate to where the component will be used. Wood must be treated specifically for its end use and simply buying "green treated" may not give you a product that is fit for purpose. The correct specifications are either to Use Class 3 or Use Class 4 as follows:

Use Class 4 treatment: Ground or freshwater contact (defined in BSEN335:1)
This is the correct level of treatment for posts and other structural components in permanent contact with the ground or freshwater. For these applications species like European Pine, Douglas Fir and the Southern Pine from North America are highly suitable.

Use Class 3 treatment*: External above ground contact *(defined in BSEN335:1)
This is the correct treatment standard for all deck building components out of direct ground contact but which are still subject to frequent wetting such as beams, joists, wall plates, deck boards. Suitable species include, European Pine, Spruce, Larch, Douglas Fir and the American Southern Pine.

Ask your supplier for documentation to support that your timber has been treated to the correct specification.

All crosscuts, notches or large boreholes made to pressure treated softwood should be coated with a suitable end grain preservative according to manufactures' guidance.

2. Timber Grade (Strength Class): C16 minimum

The grade (strength class) of timber used for structural components such as posts, beams and joists shall be sufficient to cope with the loads placed upon it during its service life. Softwood with a strength class rating of C16 is considered the minimum standard for decks above 600mm in height and is a requirement of building regulations for such raised level structures. The higher strength classes, typically C18 and C24 should be specified where smaller component sections, longer spans or commercial deck performance design considerations are required – span tables are available in the Timber Decking Professionals' manual available at www.tda.org.uk/t/publications/.

For decks below 600mm in height the use of C16 timber is recommended.

Posts: Posts can be made from laminated sections, solid timber or round poles and should have a load bearing capability, size and spacing appropriate to the scale and end use of the structure. For extended life surface mounting of posts out of ground contact on pre-cast piers or metal shoes is recommended.

3. Timber moisture content at installation: 16% +/- 3%

Wood is a natural material. It contains moisture and has the ability to increase and decrease its moisture content relative to the humidity and temperature of the surrounding air. Wood will always strive to be in balance (equilibrium) with its surroundings and be no longer gaining or losing moisture. This is known as the equilibrium moisture content or EMC for short. For outdoor wood, EMC varies from 19% in winter to 12% in summer in the UK. Therefore, to minimise the effects of shrinkage and expansion movement e.g. cupping, cracking, warping, lifting etc., it is good practice to check that the moisture content of your timber is not too high or low.– for guidance 16% + or -3% is ideal.

For decks close to or at ground level, always ensure that the potential for a damp micro-climate is avoided as this can lead to differential moisture content in the deck boards and cause defects or surface distortion. Where damp may be an issue, excavate the site to a depth of 150mm, backfill with suitable hardcore/ballast to facilitate drainage and cover with weed suppressant sheeting held in place by a layer of gravel or clips.

4. Deck boards

Deck boards come in a range of finished sizes from around 90mm in width upwards. To minimise the effects of changes in moisture content, improve drainage and underfoot grip, deck boards should not exceed 145 mm in width. Here are some more tips:-

- The maximum span recommended for 22mm thick softwood boards is 400mm and 500mm for hardwood.
- For thicker boards, the maximum span for domestic decks is 600mm.
- Deck board style – plain, ribbed, grooved etc.- is a matter of customer preference.
- Surface drainage is the most important factor in how they are laid and perform.
- All boards shall have radiused or chamfered edges to assist water shedding and to minimise edge splintering objects like furniture legs impacting the edge.
- To further assist drainage and ventilation of the under deck area a gap of 5mm min to 8mm max should be left between each board. A minimum gap of 5mm shall be left where the end of a board abuts a balustrade post.
- Grooves in boards are there to channel water. As such, grooved boards should always be laid on a fall, away from a property, preferably across the short dimension of the deck. It should not be assumed that grooved or ribbed boards improve the slip resistance performance of a surface. To prevent slipperiness developing, keep your decking clean and free from debris. If additional underfoot safety is required for steps, ramps and other areas then boards containing strips of anti-slip material should be used.

For complete piece of mind only buy materials produced by manufacturers certificated under the DeckMark™ quality and performance scheme. All Timbmet deck boards are produced under this scheme.

5. Metal fixings

All metal fixings shall be made from corrosion resistant materials such as stainless steel, hot dipped galvanised or other specialist coating. Before use, verify with the manufacturer that the fixings you have chosen are suitable for use with the type of timber being used. Aluminium fasteners should not be used with treated wood. Prevent galvanic corrosion by using the same type of metal for both fixings and connectors with treated wood.

Screws should be at least 2 times the width of the board being fixed. Ideally choose screws that are self-countersinking. Pre-drilling pilot holes will help prevent splitting. Always drill pilot holes 2mm oversize when fixing hardwoods. At all joist crossing points secure boards with two fixings positioned at the outer ¼ points of the deckboard i.e. 25% in from either edge. On grooved boards fixings should always be at the bottom of grooves. Take care using power drivers/pressure guns as they can damage timber.

For further guidance visit www.tda.org.uk