

# Timber decking

**It is the property owner's responsibility to check whether planning or building consent is required before work starts. It is advisable to contact the local Planning Department if:**

- the deck platform is more than 300mm (1') from the ground
- the deck is visible within 20 metres of a highway
- the deck is likely to exceed more than 50% of the property's garden
- the deck is in a conservation area, national park or attached to a listed building.

It is becoming increasingly popular for people to extend their living areas outdoors, into the garden. The commercial use of decking and walkways is also growing, with restaurants extending their dining areas and pubs providing smoking areas etc. One of the best ways to create 'a room in the garden' is by building a timber deck. Simple and quick to build, it requires less groundwork than masonry construction, particularly on sloping or rough sites, and can blend in well with existing landscape features. It is also relatively easy to provide for simple changes of level with ramps or steps, and to allow for future extensions.

Timber decks can be attached to a property or freestanding. The complexity of build depends on the site and height from the ground. There are four basic decks: Ground level - built directly onto the ground; Floating - raised less than 60cms (24"); High level - raised more than 60cms (24"); Roof top - an area on an existing flat roof.

For new properties, the National House-Building Council (NHBC) requires all decks to conform to Timber Decking Association (TDA) guidelines. The information given here is based on those guidelines.



Ground level decking: John Brash & Co Ltd.

## 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.



Floating decking: Timber Decking Association

## Timber

Only use timber capable of giving a service life of at least 15 years. This means using wood that is naturally durable, like some hardwoods, or a softwood that has been treated to the right level for the job. Check the table to make sure the treated timber you are buying really is fit for the purpose – there are four different construction ‘Use Classes’, and if you get the wrong one you could be putting your reputation at risk. Boards will be available plain, or ribbed/grooved for better slip resistance in the wet.

### IMPORTANT NOTE:

**Only wood treated to Use Class 4 levels of preservative protection should be used for posts embedded in the ground or concrete**



Walkways: Timber Decking Association.

## Timber strength class

All decks should be built with strength-graded timber. Strength class C16 is considered the minimum standard, with C24 recommended for heavy domestic or commercial structures. For hardwoods, D30 is the minimum strength class.

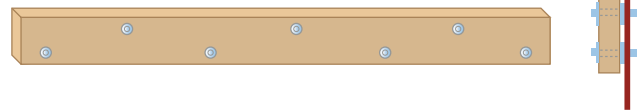
## Metal fixings

Corrosion is the biggest threat to fixings used out of doors. Stainless steel, hot dipped galvanised, or high quality coated carbon steel fixings are best. Electroplated, brass, or uncoated steel fixings should not be used. Do not use aluminium either.

Always use the same type of metal for fixings and connectors.

Wall plate: install with bolts positioned offset, 25% in from top and bottom and 600mm max

Leave a 10mm gap between wall plate and property



High level decking: Peter Brook Design Ltd.

## Treated wood - fitness for purpose

Based on BS EN 335:1 which defines the treatment ‘Use Class’ for different applications

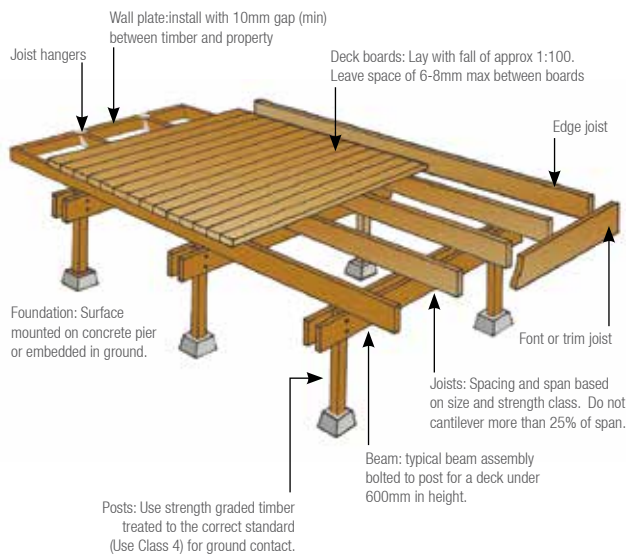
Treatment level	Construction application	Risk of failure	Component examples
Use Class 1	Internal	Low	First floor joists, rafters
Use Class 2	Internal	Low / Medium	All roofing timbers, rafters and ground floor joists
Use Class 3	External: out of ground	Medium / High	Cladding, fence rails, deck beams, joists and deck boards
Use Class 4	External: in permanent ground or water contact	High	Posts and ground level deck joists

### Site preparation

Clear all vegetation from under low level decks. If the under deck area is visible, lay weed-suppressing sheeting, held in place with clips or a layer of gravel.

### Construction principles

The diagram below shows the basic principles of deck construction:



- Deck boards are fixed to joists which are supported by beams attached to posts to create a raised deck.
- Wall plates (sometimes called ledger boards) are used to attach decks to a property, leaving a gap of at least 10mm to allow rainwater to drain away freely. Take care not to damage the property's DPC.
- Post, beam and joist spacing varies depending on a number of factors. These include the size of the deck board being used, and the size and strength class of the framing materials. Some typical joist centres and spans are shown in the table below for softwood strength class C16.

**IMPORTANT NOTE:**

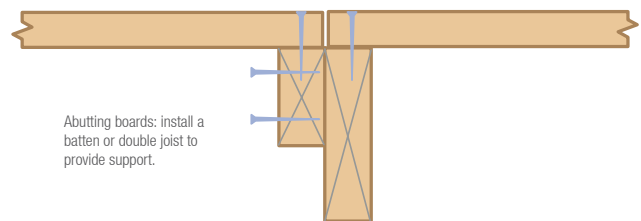
**Important note: When cross cutting or notching treated wood on site always brush the cut ends with an end grain preserver available from your timber supplier. This will ensure the wood continues to be fit for purpose and avoids invalidating the manufacturer's guarantee.**

Maximum softwood joist spans (Metres) - Strength Class C16						
Nominal joist size (mm)	Dead load $\leq 0.25\text{KN/m}^2$ Domestic decks Joist centres (mm)			$\leq 1.25\text{KN/m}^2$ Commercial decks Joist centres (mm)		
	400	500	600	400	500	600
50 x 150	3.06	2.94	2.67	2.52	2.42	2.15
50 x 100	1.95	1.84	1.60	1.57	1.49	1.31

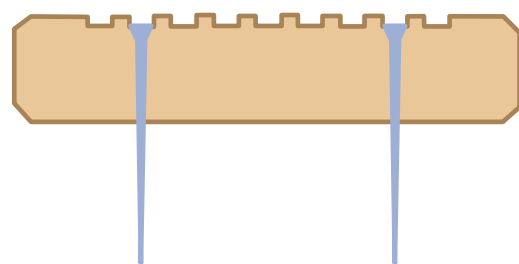
Source: Eurocode 5 span tables, TRADA Technology 2009

### Laying deck boards

- Always build a slight fall into a decked surface. Lay grooved boards in the direction of fall. Plain deck boards may be laid in any direction.
- The space between boards should ideally be between 6mm and 8mm wide to allow the water to drain away quickly and stop dirt accumulating. If the boards are installed at a moisture content higher than they are likely to reach in use, the gap can be 5mm on the assumption that it will increase as the wood dries.
- Always locate abutting boards over a joist to which a 47mm batten has been attached for support. Fixing points need to be no closer than 15mm from board ends. Pre-drill fixing points to prevent splitting.
- Every time the board crosses a joist it should be attached with two fixing points positioned at the quarter points of the board.



- Always fix grooved boards at the bottom of a groove, ensuring all fixings are flush with the surface, not depressed below it, to avoid water retention.





- When installing hardwood boards always use screws or other proprietary based fixing methods. In the case of screws pre-drill every fixing point 2mm oversize. This allows for any seasonal movement in the wood that could cause screws to break under tension. Nail fixings are generally not recommended.
- To improve grip, align boards, whether plain or grooved, at a right angle to the primary direction of travel.
- Consider using deck boards with enhanced grip strips for stairs, ramps and commercial decks.
- Occasional stiff brushing should be recommended to the client to reduce slipperiness.

### Deck parapets or balustrades

For decks raised less than 600mm from the ground, Building Regulations require parapets or balustrades to be at least 900mm high. For decks raised more than 600mm, balustrades must be 1100mm high. Spaces between individual components, like a baluster or rail, should never exceed 100mm wide.

All newel posts should be capped to avoid water being absorbed into the grain.



Richard Burbridge Ltd.



Prodeck Solutions

### Further information and advice

The following publications make useful additional reading:

#### Published by TRADA:

- Timber Decking, by Patrick Hislop

#### Published by the Timber Decking Association

- Technical Bulletin 02 Statutory Regulations
- Technical Bulletin 04 Deck Parapet Design and Installation
- Technical Bulletin 08 Metal Fixings
- Code of Practice 08/01 Raised Timber Decks

#### For copies of the above and for further information visit

- [www.tda.org.uk](http://www.tda.org.uk)
- [www.TRADA.co.uk](http://www.TRADA.co.uk)
- [www.woodforgood.com](http://www.woodforgood.com)

**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](http://www.trada.co.uk) or contact your local supplier.