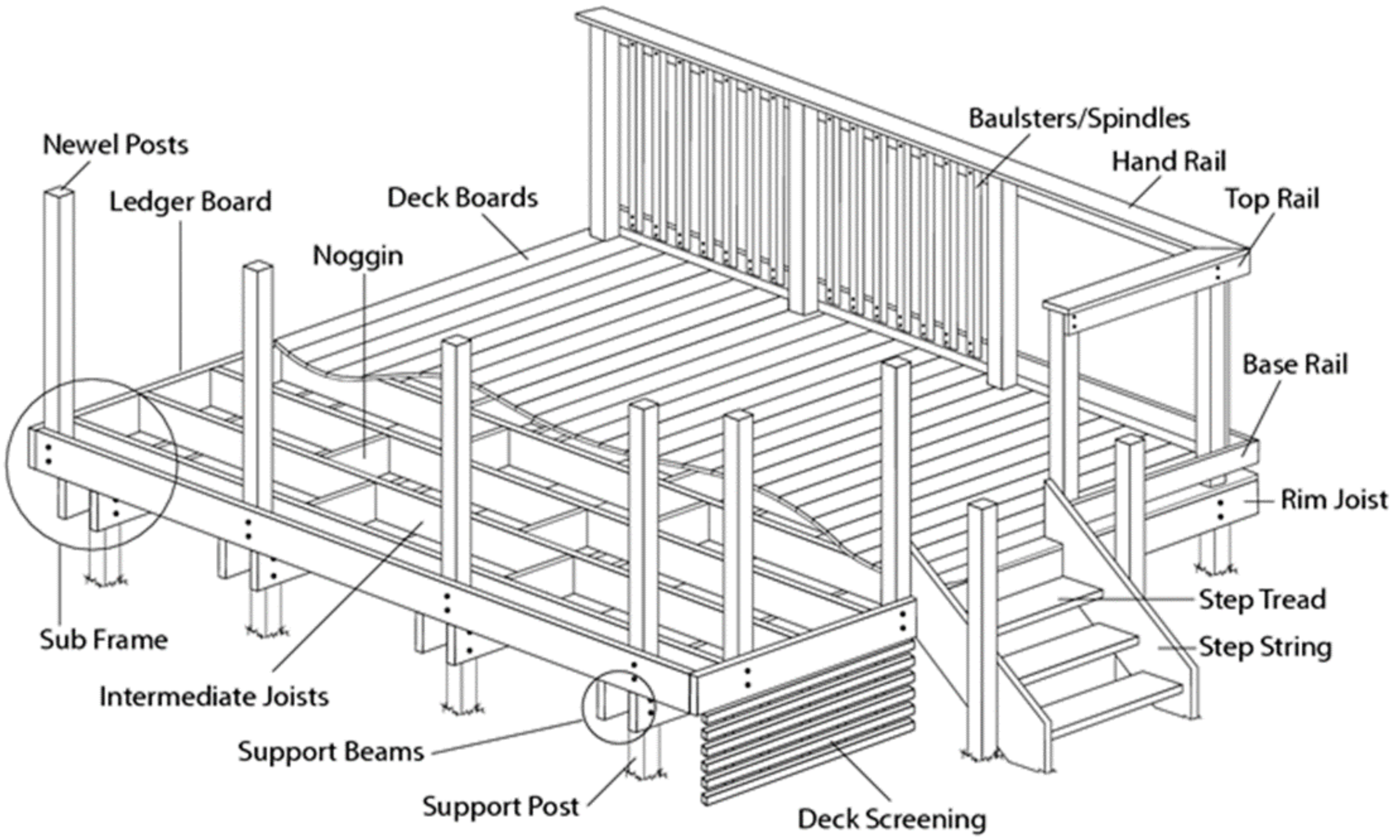
Stamco Hoppings
QUALITY TIMBER PRODUCTS

Planning a Deck

Tanalised™ TIMBER



Contents:

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Pre-Planning Advice

Visualise Your Deck

Although planning a deck is a fairly simple exercise, it's sometimes difficult to visualise what it will actually look like at the back of your house. Therefore, before you begin, take a good walk around your property and identify where you think you want the decking to go.

For ground level and partially evaluated decks, the joist of the subframe should be laid on a free draining area of compacted hardcore (or similar) not straight onto earth or areas of lawn. Subframes that are laid in direct contact with earth are at increased risk of fungal decay and subsistence.

Work out who will use the deck and for what purpose. This will help you decide upon decking designs including the size and shape of the deck, and what furniture will be needed. If space is restricted you might think about building-in benches and storage planters.

To help you visualise what your deck will look like it's sometimes helpful to create a full size outline of the deck where you want to build it. Use whatever you may have to hand and map it out in the garden, leaving it in place to see if you're happy with it and see whether it's right for the garden taking into account factors such as the position of the afternoon sun, normal wind direction and level of privacy. Later, when you're happy, draw a plan of the deck layout, measure out the size and shape of the deck, and map its location to the house.

Consider Existing Features in Your Decking Plan

If you have trees or other established features, which you want to retain, these can become the focal point and the deck can be designed around them. Make sure that you allow access to the decking from existing doors and steps, and tie in the deck to any existing walkways that you may wish to retain.

If your deck design means your deck will cover a manhole or other services to your home, ensure that you design a removeable panel into the deck surface to give easy access in the future.

- Select the location of your deck carefully, having regard for privacy and sun, shade or wind. Decks built in highly shaded positions will require more regular maintenance, particularly when situated under well established trees ie. leaf litter and possible sap/resin emission.
- Consider the nature of exit and entry to the home.
- Keep the size of the deck in proportion to your home and garden. In England, new planning rules now apply to the size of decks in relation to the existing property or garden. For example, surfaces including decking are not permitted to cover more than 50% of a property's garden. Note: Q-Deck components are preservative pre-treated to different levels of protection to the meet the requirements of industry standards. These standards are defined as 'use classes'.

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Pre-Planning Advice

Consider the end use of your deck when planning the sub-frame design. You may need commercial specifications for large groups of people.

Consider Decking Planning Permission

Timber decks differ from conventional patios and terraces most significantly in their elevation and general height of construction. For all but the simplest, patio style/ground level garden deck, property owners should satisfy themselves that planning regulations do not apply to their proposed structure. In addition to contacting the Local Authority, we strongly recommend that you talk to all your neighbours about your plans. Neighbour objections are the most usual reason for planning refusal or enforcement notices after completion.

Local Authorities can insist that structures are dismantled and removed where consent should have been obtained, but was not. Deck structures are often considered to be exempt from planning regulations, but this is not always the case. There are a number of specific instances where consent is required prior to building a patio, terrace or deck as shown below.

Situations Requiring Planning Permission

- Where the deck is situated within 20 metres of a highway.
- Where the deck platform is more than 300mm (1 ft) from the ground (effective 1 October 2008).
- If any part of the deck construction exceeds 3m in height.
- If the structure would affect the amenity value or privacy of neighbouring properties.
- If the deck is attached to a listed building or situated in a conservation area or National Park.

Consider Decking Building Regulations

Building Regulations (ie the involvement of building control) should be assumed to apply to every deck structure requiring planning permission.

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Pre-Planning Advice

Consider the Need for Balustrades

Balustrades (or parapets) on decks can serve several functions, ranging from simple decorative boundaries to full safety barriers. Even a small change of level can be a hazard, particularly for elderly or infirm users. Unless the deck surface is flush with the surrounding ground level, a parapet or edge protection detail should be incorporated. For very low-level structures, this may take the form of a simple decorative rail, a lattice panel or a raised planter.

The height of the parapet depends on how far the deck surface is off the ground:
For 'low-level' decks up to 600mm from ground level - parapet height should be 900mm.

For 'high-level' decks over 600mm high – parapet height should be 1100mm.

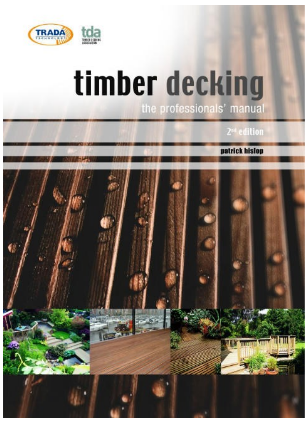
Where parapets act as safety barriers, they should be designed and constructed to meet the UK building regulations (the Building Regulations for England and Wales and the Technical Standards for Scotland).

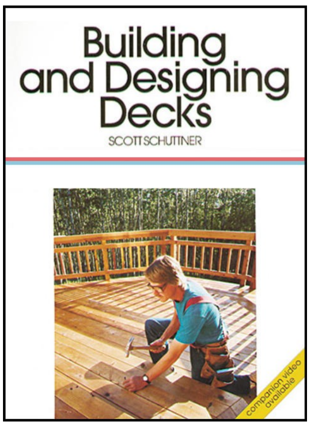
The Q-Deck® Plus glass balustrade system is suitable for outdoor use in situations where the fall on the outside of an enclosed area is not more than 600mm high (according to BS 6399 Building Regulation requirements).

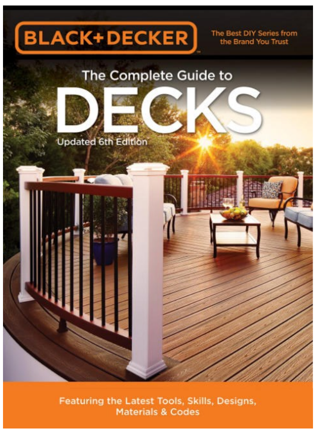
Quality Decking Installation Guides

The Q-Deck 'How to Build a Deck' video is now available online, you can view it on [YouTube, here.]

We also strongly recommend the specific deck building publications shown below. These publications are available to buy at good book shops or via the internet.







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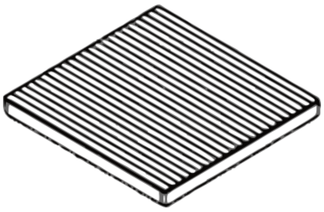
Types of Decks

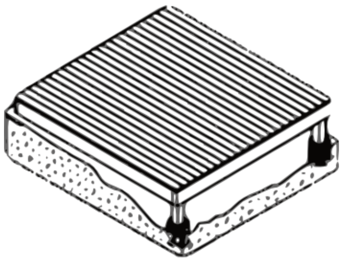
Although planning a deck is a fairly simple exercise, it's sometimes difficult to visualise what it will actually look like at the back of your house.

Therefore, before you begin, take a good walk around your property and identify where you think you want the decking to go. It is a good idea to start by looking at the ground the deck will occupy.

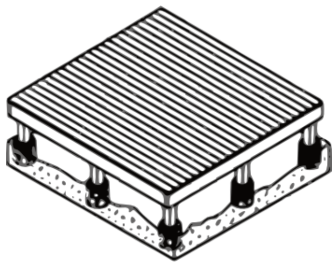
Shown here are some typical deck constructions.



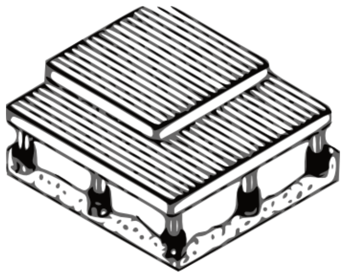
Ground level



Partially elevated



Elevated



Multi level

For ground level and partially evaluated decks the joist of the subframe should be laid on a free draining area of compacted hardcore (or similar) not straight onto earth or areas of lawn. Subframes that are laid in direct contact with earth are at increased risk of fungal decay and subsistence. Work out who will use the deck and for what purpose. This will help you decide the size, shape and what furniture will be needed. If space is restricted you might think about building-in benches and storage planters.

To help you think up what your deck will look like it's sometimes helpful to create a full size outline of the deck where you want to build it. Use whatever you may have to hand and map it out in the garden, leaving it in place to see if you're happy with it and see whether it's right for the garden taking into account factors such as the position of the afternoon sun, normal wind direction and level of privacy.
Later, when you're happy draw a plan of the layout, measure out the size and shape of the deck, and map its location to the house. If you have trees or other established features, which you want to retain, these can become the focal point and the deck can be designed around them.
Make sure you allow access to the decking from existing doors and steps, and tie in the deck to any existing walkways that you may wish to retain.

If your deck design means your deck will cover a manhole or other services to your home, ensure you design a removeable panel into the deck surface to give easy access in the future.

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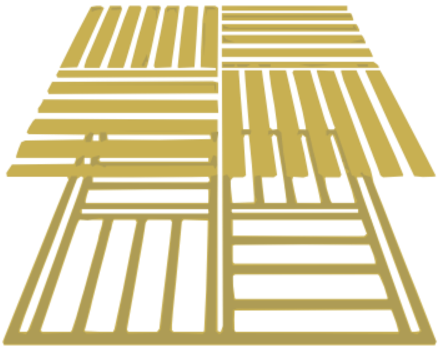
Patterns for Deckboards

Choose the direction you wish to lay the deck boards - this will establish joist direction
Deck boards with smaller cross sections need more joists and greater support.

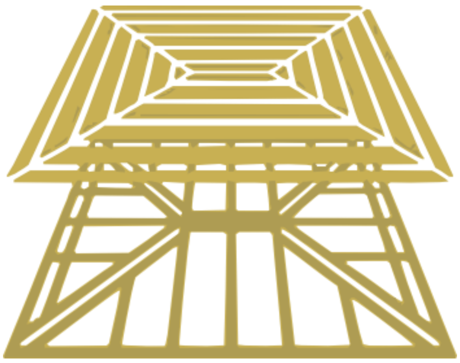
Parallel Style, 90° or 45°

Chevron Style



Checkaboard Style

Herringbone Style



Diamond Style

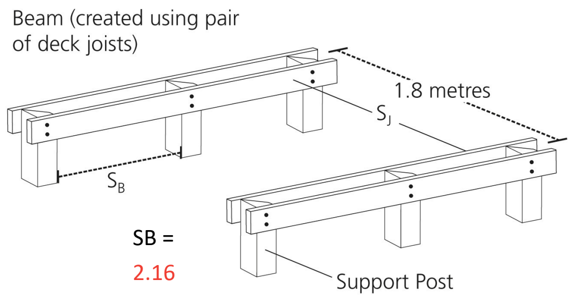
Please note:

Laying deck boards in Checkaboard and Quadrant Style can hinder the drainage and will require more regular maintenance.

Decking Subframe Design Guidance

Decking Beam Span Guidance

We recommend beams are constructed from two 44 x 145mm Q-Deck deck joists and are placed at maximum centres of 1.8m.
In this instance the maximum span between deck post centres is 2.16m (C16) or 2.51m (C24).



Allowance for construction self weight of up to 0.25kN/m2 has been included.

Diagram above shows figures for domestic applications (uniformly distributed load 1.5kN/m2).

Joist and Deck Board Spacing Guidance

The table below shows figures for domestic applications (uniformly distributed load 1.5kN/ m2) and commercial applications (uniformly distributed load 4.0kN/ m2). Dimensions stated represent the maximum length of unsupported joists (ie. between beams or slab etc).

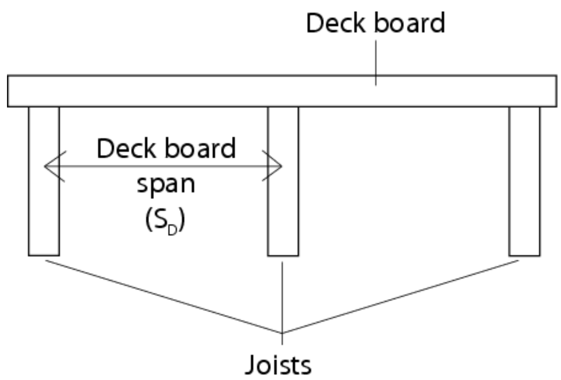
Please note: Decking laid at a 45° angle will require a reduction of joist spacing centres of 30%.

JOIST SPACING (CENTRES)

Maximum joist support centres for decking by Hoppings

Deck board size (mm)	Joist centres (mm) for C24 grade joists		Description
	1.5kN/m² - Domestic	4.0kN/m² - Commercial	
20.5 x 95	300	NA	Cambridge
20 x 138	400	TBC	SmartBoard
27 x 144	500	400	Winchester, Canterbury, Q-Grip Canterbury
33 x 120	600	500	Multi-Purpose, York, Q-Grip York

NA = Not Applicable
TBC = To Be Confirmed



PLEASE NOTE: This information has been prepared to assist in the preliminary design of timber decks, eg for species selection and initial member sizing. The detailed structural design for an individual deck will need to be confirmed by an appropriately qualified engineer.
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Joist and Beam Span Tables

JOIST AND BEAM SPAN TABLES

C16

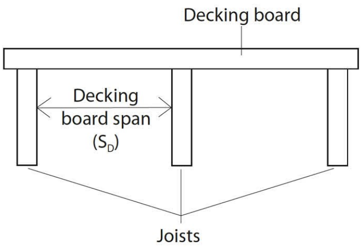
Table A: Maximum joist spans - Strength Class C16

	Imposed load 1.5kN/m² Joist centres (mm)			Imposed load 4.0 kN/m² Joist centres (mm)		
Joist section (mm)	400	500	600	400	500	600
width x depth	Maximum clear joist span S_J (metres)					
45/47 x 97	1.79	1.77	1.71	1.29	1.28	1.22
45/47 x 122	2.47	2.29	2.15	1.82	1.64	1.50
45/47 x 147	2.97	2.76	2.59	2.17	1.94	1.77
45/47 x 170	3.44	3.19	2.99	2.51	2.24	2.05
45/47 x 195	3.95	3.66	3.43	2.88	2.57	2.35
45/47 x 220	4.20	4.12	3.87	3.24	2.90	2.65

Table B: Double member beam spans - Strength Class C16

	Imposed load 1.5kN/m² Beam centres (m)				Imposed load 4.0 kN/m² Beam centres (m)			
Beam size (m)	1.2	1.8	2.4	3.0	1.2	1.8	2.4	3.0
width x depth	Maximum clear beam span S_B (metres)							
2x 45/47 x 122	2.15	1.83	1.58	1.42	1.43	1.17	1.01	-
2x 45/47 x 147	2.59	2.16	1.87	1.67	1.69	1.38	1.20	1.04
2x 45/47 x 170	2.99	2.49	2.16	1.93	1.95	1.59	1.38	1.20
2x 45/47 x 195	3.43	2.86	2.48	2.22	2.24	1.83	1.58	1.38
2x 45/47 x 220	3.87	3.23	2.80	2.50	2.53	2.06	1.79	1.55

Imposed loads
1.5kN/m² - domestic applications (single occupancy)
4.0kN/m² - commercial applications (dining areas, cafes, restaurants, balconies)



Allowance for construction self weight of up to 0.25kN/m2 has been included.

Strength Grading

For decks 600mm or more above ground level, support posts should be of strength graded material.
If you need strength graded components please consult your **Q-Deck®** retailer who will pass the enquiry onto Hoppings Softwood Products for consideration.

Treatment

Hoppings recommend that all deck joists, beams or posts providing exterior structural support should be preservative pressure treated to Use Class 4 - regardless of whether they are in ground contact or not.

Joist and Beam Span Tables Design

JOIST AND BEAM SPAN TABLES

C24

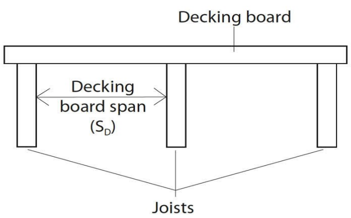
Table A: Maximum joist spans - Strength Class C24

	Imposed load 1.5kN/m² Joist centres (mm)			Imposed load 4.0 kN/m² Joist centres (mm)		
Joist section (mm)	400	500	600	400	500	600
width x depth	Maximum clear joist span S_J (metres)					
45/47 x 97	2.10	2.03	1.91	1.61	1.49	1.40
45/47 x 147	3.32	3.07	2.89	2.45	2.26	2.13
45/47 x 195	4.20	4.08	3.83	3.25	3.00	2.82

Table B: Double member beam spans - Strength Class C24

	Imposed load 1.5kN/m² Beam centres (m)				Imposed load 4.0 kN/m² Beam centres (m)			
Beam size (m)	1.2	1.8	2.4	3.0	1.2	1.8	2.4	3.0
width x depth	Maximum clear beam span S_B (metres)							
2x 45/47 x 147	2.89	2.51	2.27	2.05	2.07	1.69	1.46	1.30
2x 45/47 x 195	3.83	3.33	3.02	2.71	2.74	2.24	1.94	1.72

Imposed loads
1.5kN/m² - domestic applications (single occupancy)
4.0kN/m² - commercial applications (dining areas, cafes, restaurants, balconies)



Allowance for construction self weight of up to 0.25kN/m2 has been included.

Strength Grading

For decks 600mm or more above ground level, support posts should be of strength graded material.
If you need strength graded components please consult your **Q-Deck®** retailer who will pass the enquiry onto Hoppings Softwood Products for consideration.

Treatment

Hoppings recommend that all deck joists, beams or posts providing exterior structural support should be preservative pressure treated to Use Class 4 - regardless of whether they are in ground contact or not.

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Design Considerations and Tips

- Select the location of your deck carefully, having regard for privacy and sun, shade or wind.
- Decks built in highly shaded positions will require more regular maintenance, particularly when situated under well established trees ie. leaf litter and possible sap/resin emission.
- Consider the nature of exit and entry to the home.
- Keep the size of the deck in proportion to your home and garden.
In England new planning rules now apply to the size of decks in relation to the existing property or garden. For example, surfaces including decking are not permitted to cover more than 50% of a property's garden.
Note: Q-Deck® components are preservative pre-treated to different levels of protection to the meet the requirements of industry standards.
- These standards are defined as 'use classes', which the table below details in full.

USE CLASSES EXPLAINED

USE CLASS	TYPICAL SITUATION
1	Internal building timbers with no risk of wetting or condensation.
2	Internal building timbers with a risk of wetting or condensation.
3	External building, fencing and landscaping timbers used out of ground contact.
4	External building, fencing and landscaping timbers used in ground contact.

make sure it's BS8417 TREATED Use Class 4™ GROUND CONTACT TIMBER

- Consider the end use of your deck when planning the sub-frame design. You may need commercial specifications for large groups of people.
- Like all timber decking every type of pre-treated Q-Deck® timber decking has a knotty appearance. Being manmade SmartBoard doesn't have knots and is designed to provide a very different look and feel to its wooden alternatives.

Design Considerations and Tips

- Like all timber decking every type of Q-Deck® timber decking weathers to grey over a period of time. This is mainly due to the greying effects of ultra-violet light.
  The speed of greying is dependent on a number of factors including the aspect of the deck and in general can be slowed with the application of a protective coating such as Seasonite or protected more fully with the application of a pigmented protective coating such as Textrol, Aquadecks or Protext, all by Owatrol - on-going maintenance applies with all these systems as with any coating system available on the market.
- SmartBoard is the only decking in the Q-Deck® range that retains its colour over a long period of time. This is because it is a man-made decking that uses pigments bound into the plastic element of the material.

  Note: The original Smartboard colours always fade a small extent before settling as does the striped effect on the grooved face of new Smartboard boards, which disappears quickly on exposure to U.V. light.
- Choosing grooved or smooth deckboards - By far the majority of timber decks, boardwalks and piers built around the world are surfaced with plain timber boards.
  Whilst grooved deck boards are often marketed as "anti-slip" there is no evidence to suggest that they perform any better or worse than plain decking. Choice of deck board style is therefore a matter of personal preference.
- Where there is a higher than normal requirement to prevent the risk of slipperiness, for example on ramps, stairs, bridges or on public/commercial installations, then you need to consider Q-Grip® decking products that have enhanced grip characteristics or SmartBoard composite decking that is easier to keep clean.

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Design Considerations and Tips

- When designing a deck to incorporate Q-Grip® slip resistant decking or Q-Grip® Strips™ it is important to consider the direction people will walk when using the deck.
- Q-Grip® deck boards are most effective in providing slip resistance when they are placed at an angle perpendicular (at right angles to) to the direction of pedestrian traffic (like that of a boardwalk).

See figure (i). When placed parallel to the direction of pedestrian traffic the chance of slipping increases i.e. a slip could occur between the slip resistant aggregate strips within a board or within adjacent boards. See figure (ii).

Fig (i) Boards placed at right angles to pedestrian traffic.

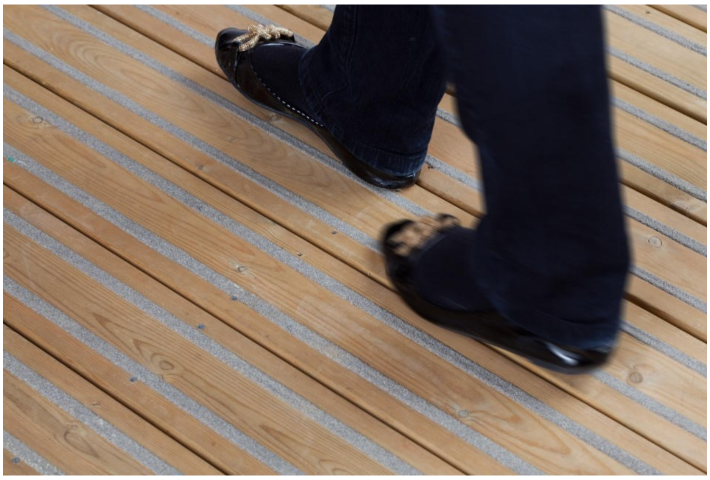
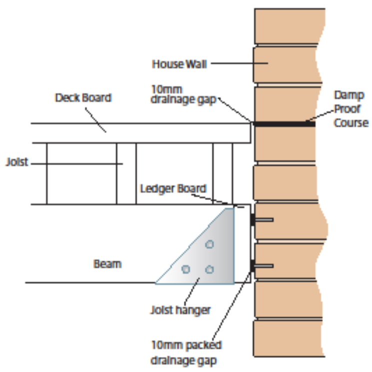


Fig (ii) Boards

DECKS ATTACHED TO DWELLING WALLS



If the deck is attached to a dwelling wall the finished deck height should not compromise the damp proof course (DPC). With 'old' houses, where the wall is susceptible to penetrating damp, it is advisable to keep the deck height at least two brick courses below DPC.

- When designing and building decks, always plan to achieve a free draining structure.
- For adequate water 'run off' decks should be laid on a slight gradient (at least 1 in 80).

  Note: lay grooved decking down the fall to enable water 'run off' and ensure the groove ends can drain freely, ie. pack out fascia if required.
- If the deck is attached to a dwelling wall the finished deck height should not compromise the damp proof course (DPC). With 'old' houses it is advisable to keep the deck height at least two brick courses below DPC.

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Design Considerations and Tips

When should decks have a balustrade?

Balustrades (or parapets) on decks can serve several functions, ranging from simple decorative boundaries to full safety barriers.

Even a small change of level can be a hazard, particularly for elderly or infirm users.

Unless the deck surface is flush with the surrounding ground level, a parapet or edge protection detail should be incorporated.

For very low-level structures, this may take the form of a simple decorative rail, a lattice panel or a raised planter.

The height of the parapet depends on how far the deck surface is off the ground:

For 'low-level' decks up to 600mm from groundlevel - parapet height should be 900mm.

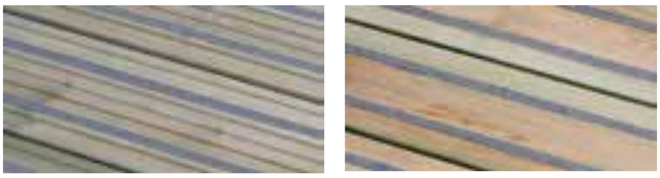
For 'high-level' decks over 600mm high - parapet height should be 1100mm.

Where parapets act as safety barriers, they should be designed and constructed to meet the UK building regulations (the Building Regulations for England and Wales and the Technical Standards for Scotland).

For commercial pub and restaurant type decks it is wise to consider the use of fire retardant treated subframe and deckboard components and/or the use of deckboards with enhance grip characteristics. Q-Deck® can offer Non-Com® fire retardant treated components as special order products so please consult your Q-Deck® retailer who will pass the enquiry on to Hoppings Softwood Products for consideration.

Building Regulations

Building Regulations (ie the involvement of building control) should be assumed to apply to every deck structure requiring planning permission.



Two Q-Deck® slip resistant deckboards are available from stock and can be used over the entire deck surface for greater reassurance or strategically on areas such as steps or walkways.

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How Many Deckboards?

HOW MANY DECKBOARDS WILL I NEED?

m2	Cambridge/ Multipurpose 100mm cover	York/ Multipurpose 125mm cover	Canterbury/ Winchester 150mm cover	SmartBoard 143mm cover
1	10.0m	8.0m	6.7m	7.0m
2	20.0m	16.0m	13.4m	14.0m
3	30.0m	24.0m	20.1m	21.0m
4	40.0m	32.0m	26.8m	28.0m
5	50.0m	40.0m	33.5m	35.0m
10	100.0m	80.0m	67.0m	70.0m
15	150.0m	120m	100.5m	105.0m
20	200.0m	160.0m	134.0m	140.0m

Fixings per m² - Domestic	67	27	27	39
Fixings per m² - Commercial	NA*	32	34	TBC

Please note: The table above is the minimum quantity requirement. It is suggested that you add at least 10% to these figures to allow for waste associated with excluding naturally occurring defects and for trimming boards to length especially when creating patterned layouts.
Fixings relate to the approximate number of screws required per m².

TBC = To Be Confirmed

Deck Fixings Advice

What screws do I need?

All Q-Deck products should be fixed or secured using recognised quality products. We recommend the use of screws to fix deck boards and bolts or structural screws to secure newel posts or structural elements of the deck. The raw material and the type of coating used to protect these from corrosion is vital.

This is why we recommend stainless steel fixings for the best results.

If galvanised fixings are used they should be of the hot dipped variety to help avoid corrosion.
We do not recommend the use of pneumatic nail guns to secure decking boards.

Please Note:
Always follow the manufacturer's instructions when working with deck fixings.
We do not recommend the use of pneumatic nail guns to secure decking.
All Q-Deck® products should be fixed or secured using recognised quality products.
We recommend the use of screws to fix deck boards and bolts or structural screws to secure newel posts or structural elements of the deck.

Design Considerations & Recommendations to Simplify a Warranty Claim.

Note: Q-Deck® components are preservative pre-treated to different levels of protection to the meet the requirements of industry standards.

These standards are defined as ‘Use Classes’ (see below for full details).

USE CLASSES

Use Classes are defined by British and European Standards, providing a guide to the risk of decay or insect attack to timber components, depending upon their end use.

The higher the Use Class, the higher the level of preservative protection is required.

USE CLASS TYPICAL SITUATION

1 Internal building timbers with no risk of wetting or condensation.

2 Internal building timbers with a risk of wetting or condensation.

3U External building, fencing and landscaping timbers used out of ground contact. Uncoated

4 External building, fencing and landscaping timbers used in ground contact.

Only select Q-Deck® components that are suitable (level of preservative treatment protection) for the situation or Use Class they are to be used in.

Where possible Use Class 4 components should not be cut, notched or bored if they are then to be used in ground contact.
If Use Class 4 deck support posts are cut then the cut end should not be placed in the ground.
If Use Class 4 deck joists for ground level or partially elevated decks are cut then they should be laid on a free draining area of compacted hardcore (or similar) not straight onto earth or areas of lawn.
Subframes that are laid in direct contact with earth are at increased risk of fungal decay and poor subsistence.

In working with Q-Deck® products, if you decide to combine a decking subframe component into your scheme from an alternative supplier or manufacturer then the Q-Deck® warranty cannot be honoured as Hoppings Softwood products have no control over the specification or quality of the non-Q-Deck® components.
If you still decide to use non-Q-Deck® products then it is advisable to ensure that they are treated to Use Class 4 requirements as a minimum for structural components or when being used in ground contact.

To meet Q-DECK® warranty conditions any timber exposed by cross-cutting, notching or boring after treatment must be liberally swabbed with two coats of brush-on end grain preservative grain preserver Preservatives such as Cuprinol's Wood Preserver by Akzol Nobel Ltd and Rustin’s End grain Protector in accordance with the manufacturers instructions.