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**BUILD YOUR  
OWN DECK**



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## Planning your project

Building a timber deck is a very popular project among DIY'ers - so here's a deck to inspire and challenge you!

This project is divided into 4 main sections. The first part covers how to plan and design your deck and the second part discusses the materials required. Then we go on to the construction of the base followed by the deck floor.

### PHASE 1: Function and design of a deck

Decks are designed to add living space to the home and, as a result, may be subjected to a considerable amount of wear and tear. In actually designing the deck, here are the important points to consider:

- How far off the ground will the deck be?
- What is going to happen to the crawl space underneath? Will it be concealed with latticing or bushes, or will lawn be grown underneath?
- What happens to objects falling through gaps in the deck flooring?

It is essential to ensure efficient water run off. Where possible, use narrow boards as they are less susceptible to cupping. Narrow boards are easier and cheaper to replace in the event of damage. It is also true that narrower boards of shorter lengths are easier to obtain.

When it comes to the bedding of support posts, make sure that the bottom of the posts are not encased in concrete (See Fig 3). This will ensure that water running down the posts is drained off easily and is not entrapped at the bottom, which may increase the risk of wood decay.

When designing bearers, make sure that boards are joined over double bearers (See Fig 1). The centre to centre distance between adjoining bearers should be no more than 20 times the thickness of a deck plank. For example, if a 35mm deck board is to be used, the spacing between bearers should be about 700mm.

When the terrain is rocky, it may be difficult to install the number of poles required by a conventional design. In this case, it may be better to use thicker poles. This approach could allow for a spacing between support poles of 3m. In such an application, thicker bearers, 50mm x 228mm would be bolted to the support poles. Beams would then be placed on top of these bearers at a spacing dictated by floor board thickness.

This design, because it requires stronger materials, could be more expensive. Also while designing, take account of the spacing between boards. Depending on deck function and the material used, spaces of between 3 - 5mm should be allowed.

## PHASE 2: Suitable materials

(For a 4m x 6m deck)

<b>Dynabolts:</b> 160mm by M10	5
<b>Bolts and nuts:</b> 185mm by M10	35
<b>Bolts and nuts</b> for double bearers: 210mm by M10	35
<b>Washers M10</b>	2 per bolt
<b>Cement</b> <b>Sand</b> <b>Stone (19mm)</b> (this assumes a cement, sand, stone mix of 1:3:6)	2 Bags 0.5m <sup>3</sup> 1m <sup>3</sup>
<b>75mm x 3.8mm Galvanised ringshank nails for boards</b>	As required
<b>120 x 139mm Tanalised™ H4 treated poles</b> (treated in compliance with SANS 457)	40
<b>36mm x 152mm Tanalised™ H3 treated bearers in 4.25m lengths</b>	10
<b>38mm x 76mm Tanalised™ H3 treated deck boards</b> (assuming a gap between boards of 5mm)	110
Water repellent (see manufacturer's specifications for quality required)	

Very few timbers are naturally durable and hardwoods that are durable can be very expensive. These timbers, although more durable, can crack and split and will require some form of protection. The more readily available locally grown timbers that can be used are pine or saligna. Fortunately, with proper impregnation of a suitable wood preservation, these timbers can offer long term durability.

**Tanalised™ C** (CCA) or **Tanalised™ E** (Copper Azole) treated decking board, bearers and **Tanalised™ Weatherwood™** treated poles would be ideal. Remember the use of treated timber ensures that a deck is protected against attack by termites, borer and fungal decay. Should it be necessary to paint the timber, **Tanalised™** treated timber can be painted directly. As a general rule, preservative treated timber in its natural form is the easiest and cheapest solution. If possible, order the support poles to the lengths required.

Should the ends of boards, beams, bearers or posts be cut, then reseal them with a supplementary wood preservative such as easy

to use **Tanalised™ Enseal Green** before assembly. It is essential that all ground contact poles are treated in accordance with the SANS 457 H4 hazard class specification. Beams, bearers and boards must be treated to SANS 10005 H3 requirements.

When choosing boards, it may be possible in some areas, to obtain boards with grooves on the underside. These grooves arrest curvature (cupping) to a degree, ensuring that the boards remain flat. Remember to round off the arrasses of the boards and be sure to install them so that the timber's growth rings will be situated in a concave position (See Fig 3). This will avoid any splintering and surface degradation.

### **PHASE 3: Construction of the base**

The simple deck we will be building will abut a wall on one side. This means a bearer will have to be bolted to the wall (See Fig 2). The spacing between bolts on this bearer will depend on the nature of the wall and the deck to be built, but as a general rule of thumb, an interval of 1m should be suitable.

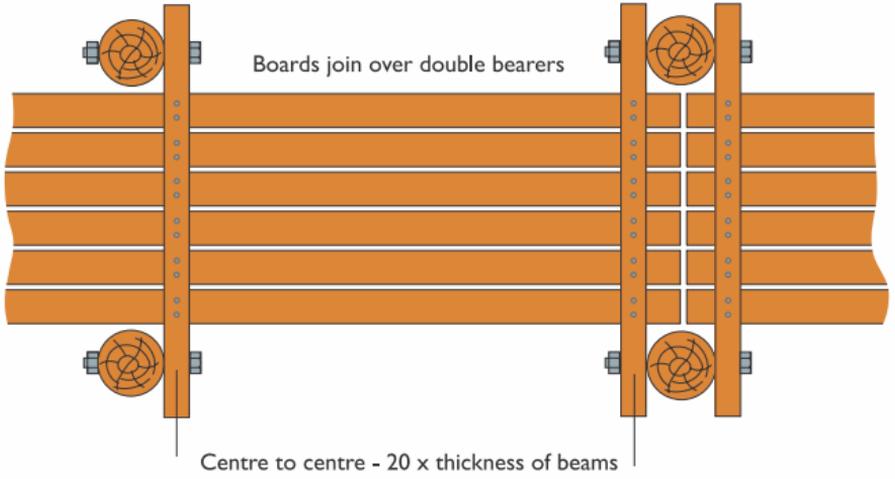
Assuming you are looking at a simple deck - 4m wide and 6m long - you would start off by deciding on the deck plank size. Select either 70mm x 38mm, if rough sawn, or 70mm x 35mm, if planed. This would dictate a space between the bearers of 700mm. Support poles will then be planted accordingly. The bearers should be 36mm x 152mm Grade S5 timber.

Poles should not be encased in concrete. When installing the pole, plant the two end poles of each row first and align the faces, where the bearers are to be bolted to the intermediate poles, with a piece of string.

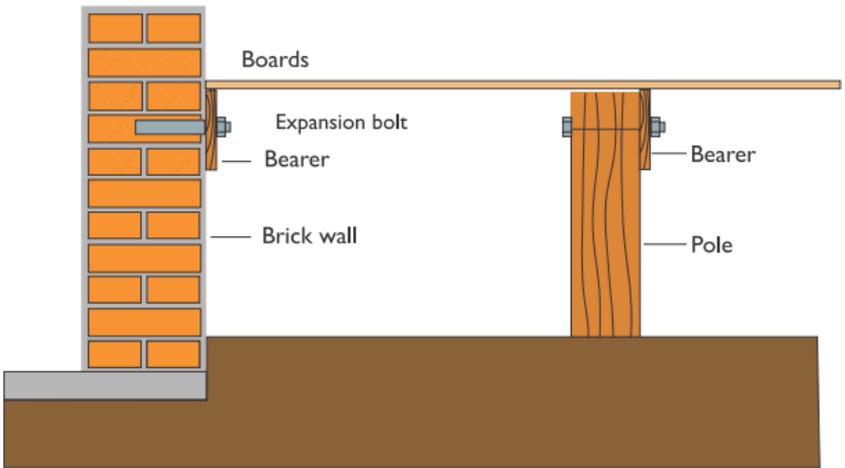
The top ends of the poles need not be absolutely level. The bearers will provide a level plane for the deck. If the deck is less than 1m above ground, a planting depth of 500mm is adequate, which increases with greater ground clearance. Bearer ends should be cut as shown in figure 3 to reduce the amount of end grain exposed to the elements. Double rail bearers should be installed where boards are to be joined. It is important to keep in mind that the overhang of unsupported board ends should not exceed 300mm. The layout of the proposed timber deck is seen in figure 4.

This design has taken particular account of the need to use commonly available timber lengths. Thus, with a 6m long deck, two 3m long boards can be employed. While the choice of 38mm x 76mm boards dictates that the distance between bearers should be 700mm some latitude can be allowed. The spacing could, in fact, be as wide as about 750mm. In addition to the items already mentioned, it will necessary to obtain bolts, nuts and washers to tie the bearers to the poles and cement, sand stone and ringshank nails for fixing the boards to the bearers.

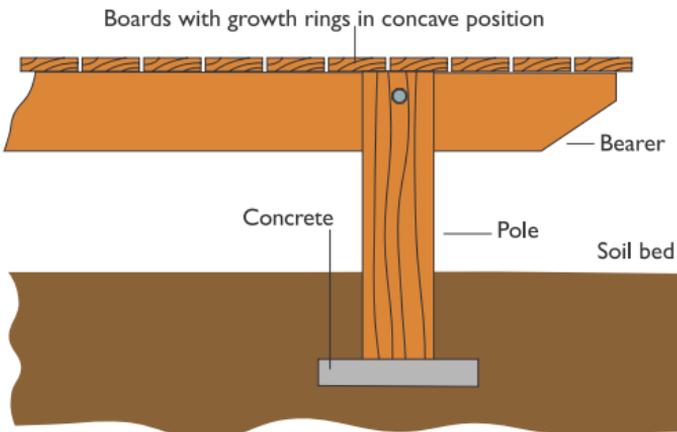
**Figure 1 - Double Bearers must be used where there are joins**



**Figure 2 - Detail of Bearer bolted to the wall**



**Figure 3 - Correct footing for post and angle for bearers ends**



### **PHASE 3: Construction of the base**

- An extremely important aspect of constructing any deck is to obtain a level deck of the desired height.
- As a starting point, remember if the deck is to line up with an existing patio or stoep, the bearer bolted to the wall should be dropped below the level of the stoep by the depth of the board.
- To obtain a level running away from the stoep, many people make use of a string in conjunction with a spirit level.
- To obtain the horizontal level, line up the end poles and check levels of other poles in the same row against this level. In order to double check on levels, merely nail bearers to the poles. Only once levels have been achieved, should the bearers be finally bolted into place.
- There should also be ongoing checks for squareness by lining up poles using string. With double bearer poles it is important to select poles of a even diameter.

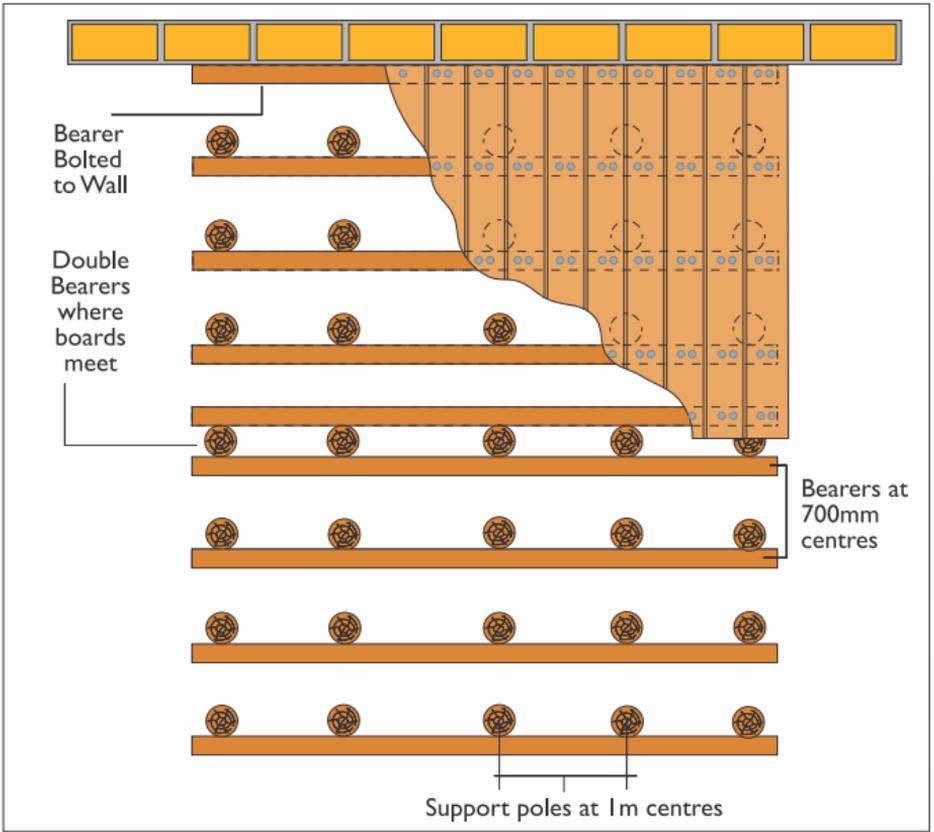
### **PHASE 4: Construction of the deck floor**

Install the boards from the patio side so they extend over the gap between double bearers. Chalk a line over the ends and cut off to obtain a straight line. Then install the remaining 3m boards.

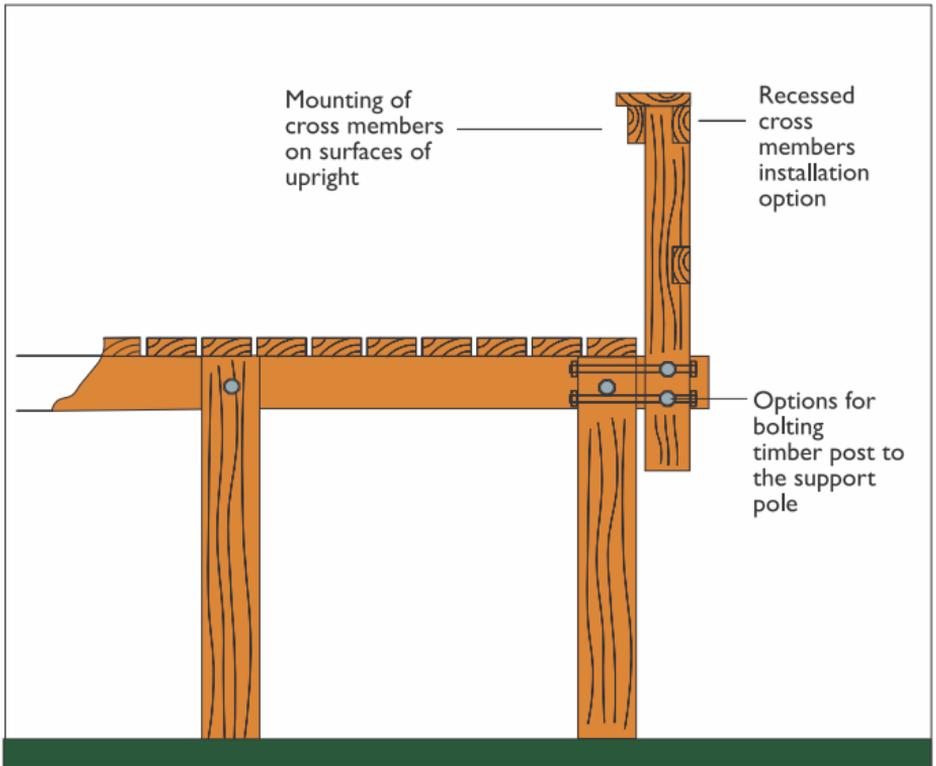
It is important to verify that the line in which the first board is laid is straight and at right angles to the wall. Make a spacer to ensure even spacing. In screwing or nailing the boards down, use only one nail in the centre of the board and, where possible, drive it through the centre of the bearer. Use a string to align all the screws or nails.

Nail the boards into place proceeding from one side of the deck to the other, bearer by bearer. Remember to place deck boards with growth rings in a concave position.

**Figure 4: Plan of a Deck Layout**



**Figure 5: Erecting a Railing**



This project is used with kind permission from the South African Wood Preservers Association. All treated wood should be treated according to SANS 10005:2006 Preservative Treatment of Timber.

## Making provisions for railings

There are many options available when it comes to railings. Perhaps the easiest is to buy poles longer than required to support the deck, so that these poles can act as railing supports. With these supports, putting the cross members in place, is a simple process.

Alternatively, sawn timber posts can be bolted into the support poles to provide uprights for a railing system. (Fig 5). If desired, they can be recessed to allow for overhang.

There are obviously many cross-member configuration options. However, one that should not be implemented is the X-formation because when timber is cut in the centre in order to accommodate this formation, it will be exposed to moisture and other possible causes of future problems.



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