

ALL DECKED OUT IN WOOD



Building a wooden deck is a very popular project among DIYers, so here's a deck to inspire and challenge you

You will need:

Dynabolts: 5 x 160mm by M10

Bolts and nuts: 35 x 180mm by M10

Bolts and nuts (for double bearers): 5 x 210mm by M10

Washers M10: 2 per bolt

Cement: 2 bags

Sand: 0,5m³

Stone (19mm): 1m³ (This assumes a cement, sand, stone mix of 1:3:6).

Galvanised ringshank nails for boards (75mm by 3.8mm): as required

120 to 139mm top diameter poles (in compliance with SABS 457- H4): 40

36mm by 152mm bearers in 4.25 lengths (in compliance with SABS 563 Grade 6 treated to H3 requirements of SABS 1288): 10

36 by 73mm deck boards (treated to H3 requirements of SABS 1288) assuming gap between boards of 5mm: 110

Water repellent (see manufacturer's specifications for quantity required).

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

PHASE ONE

Functions 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's flooring?

It is essential to ensure efficient water run off. In this area use narrow boards in preference to wide 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 'How to Plant a Pole'](#)). This will ensure that water running down through 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.

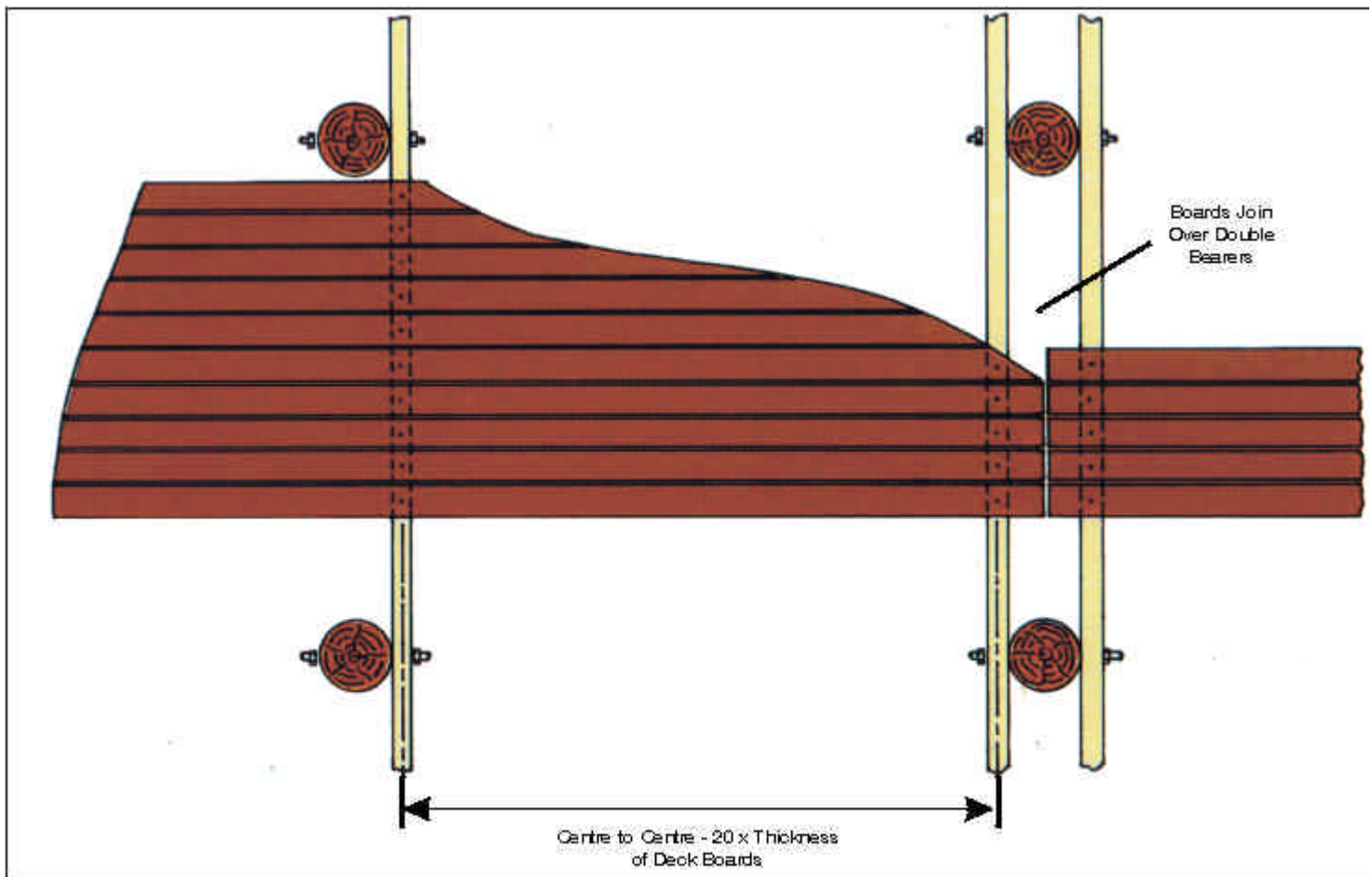


Fig 1: Double bearers must be used where there are joins

In other words, if a 20mm deck board is to be used, the spacing between bearers should be about 400mm. In the case of a 35mm plank, the spacing would 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 by 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, would be more expensive.

Also while designing, take account of the spacing between boards. Depending on deck function and the material used, a space of between 3mm and 5mm should be allowed.

PHASE TWO

Suitable materials

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 cheaper locally grown timbers that can be used are pine or saligna. Fortunately, with proper impregnation of a suitable wood preservative, these timbers can offer long term durability.

There are various timber preservatives available. Some are not suitable for timber in ground contact, while others protect timber in all possible applications. Creosote and CCA preservatives are equally suitable for the support poles and bearers, and CCA treated timber is suitable for the boards. CCA treated timber has a greenish

colour and creosote colours timber dark brown or black. Timber treated with boron or TBTO does not change its natural appearance.

The latter two preservatives are, however, leachable and should therefore contain a water repellent in the preservative in order to meet the H3 requirement of SABS 1288. This water repellency property has to be maintained to prevent leaching of the preservative.

A water repellent also protects the timber from degradation from weathering. In order to inhibit the effects of ultra violet rays at the same time, an inhibitor may be added in the form of a brown or red colourant.

Remember, the use of treated timber ensures that a deck is protected against attack by termites, borers and fungal decay.

Should it be necessary to paint the timber, boron, TBTO and CCA treated timber can be painted directly. Creosote timber can also be painted, provided it is first coated with a bituminous based aluminium coating.

As a general rule, preservative treated timber in its natural form is the easiest and cheapest solution. Remember that support poles should never be cut. Order them in the lengths required. Only beams, boards and bearers can be cut if necessary. However, their ends should be brushed with a preservative before assembly.

It is essential that all ground contact poles are treated in accordance with the SABS H4 Hazard Class. Beams, bearers and boards can be treated to H3 requirements. ([See Hazard Classification Classes in South Africa](#))

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 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 splintering and surface degradation.

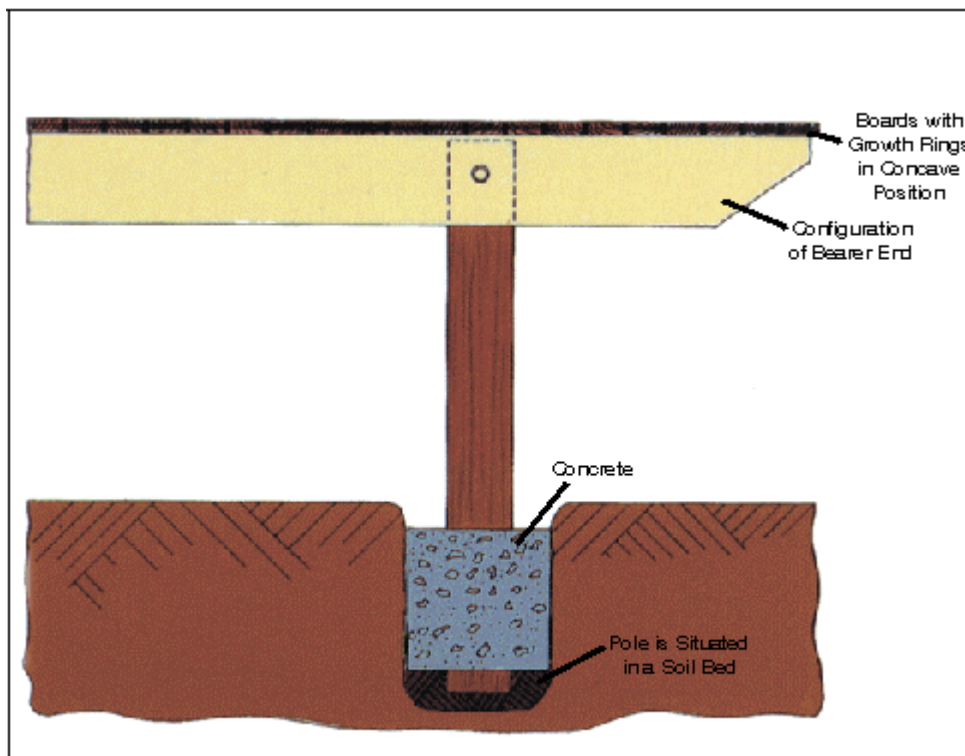


Fig 3: Correct footing for posts and angle for bearer ends

PHASE THREE

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).

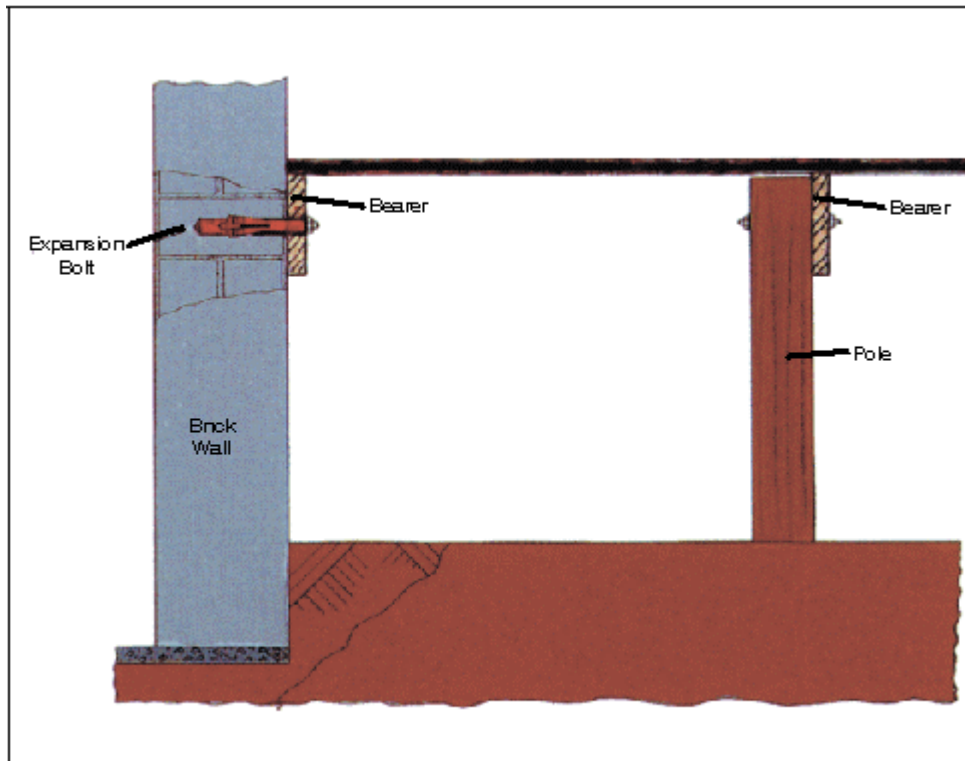


Fig 2: Detail of bearer bolted to wall

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 board thickness. Here it would be advisable to choose 38mm by 76mm boards, if installed in the rough form, or 36mm by 73mm planed boards. This would dictate a space between the bearers of 700mm. Support poles would then be planted accordingly. The bearers should be 36mm by 152mm Grade 5 timber.

Poles should not be totally encased in concrete. ([See How to Plant a Pole](#)) When installing the poles, 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.

Also bearer ends should be cut as shown in fig 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 fig 4.

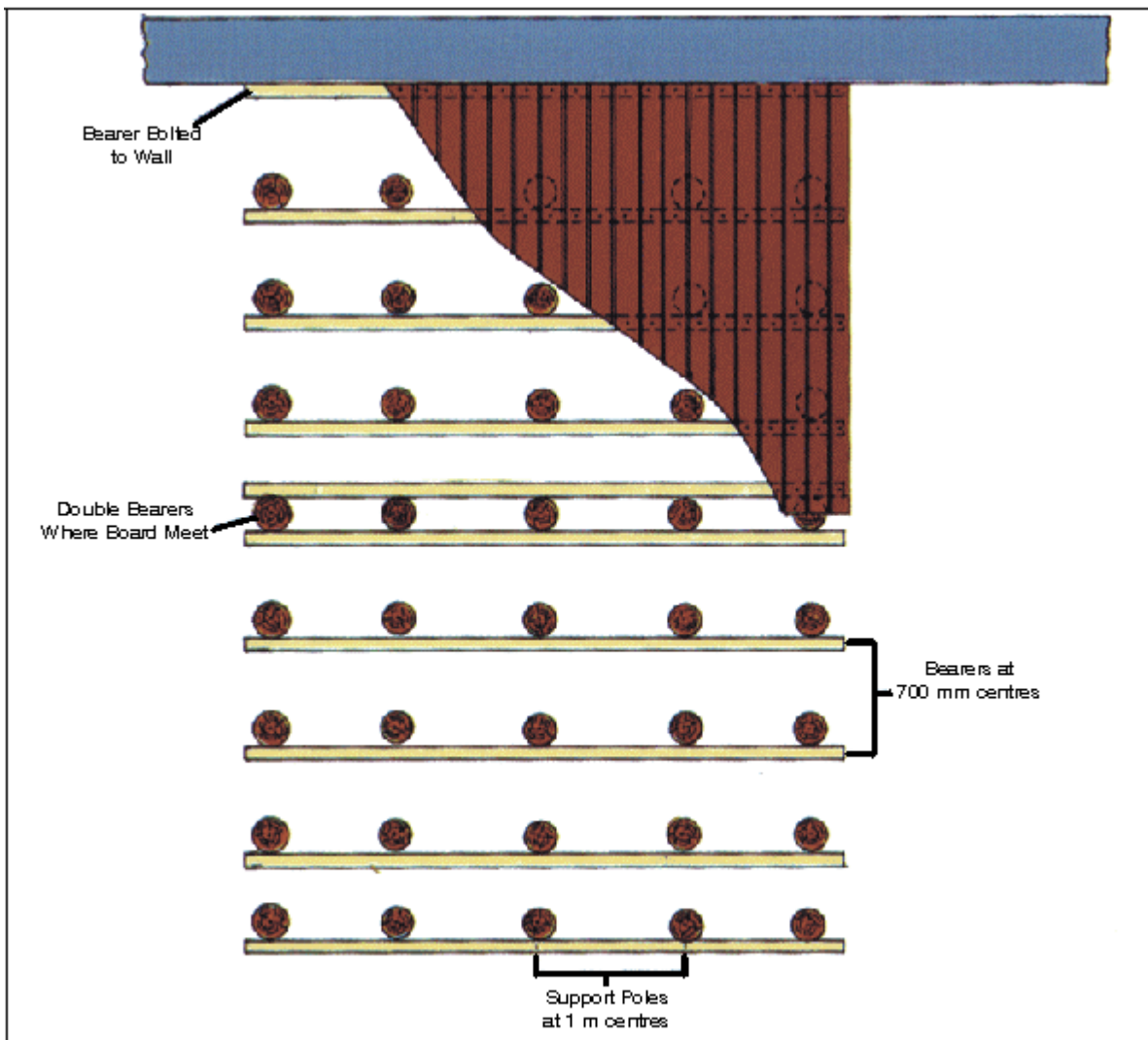


Fig 4: Plan of deck layout

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 be necessary to obtain bolts, nuts and washers to tie the bearers to the poles, cement, sand and stone and ringshank nails for fixing the boards to the bearers.

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 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 an even diameter.

PHASE FOUR

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 a board and, where possible, drive it through the centre of a 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.

Making provision 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 onto the support poles to provide uprights for a railing system (fig 5). If desired they can be recessed to allow for overhang.

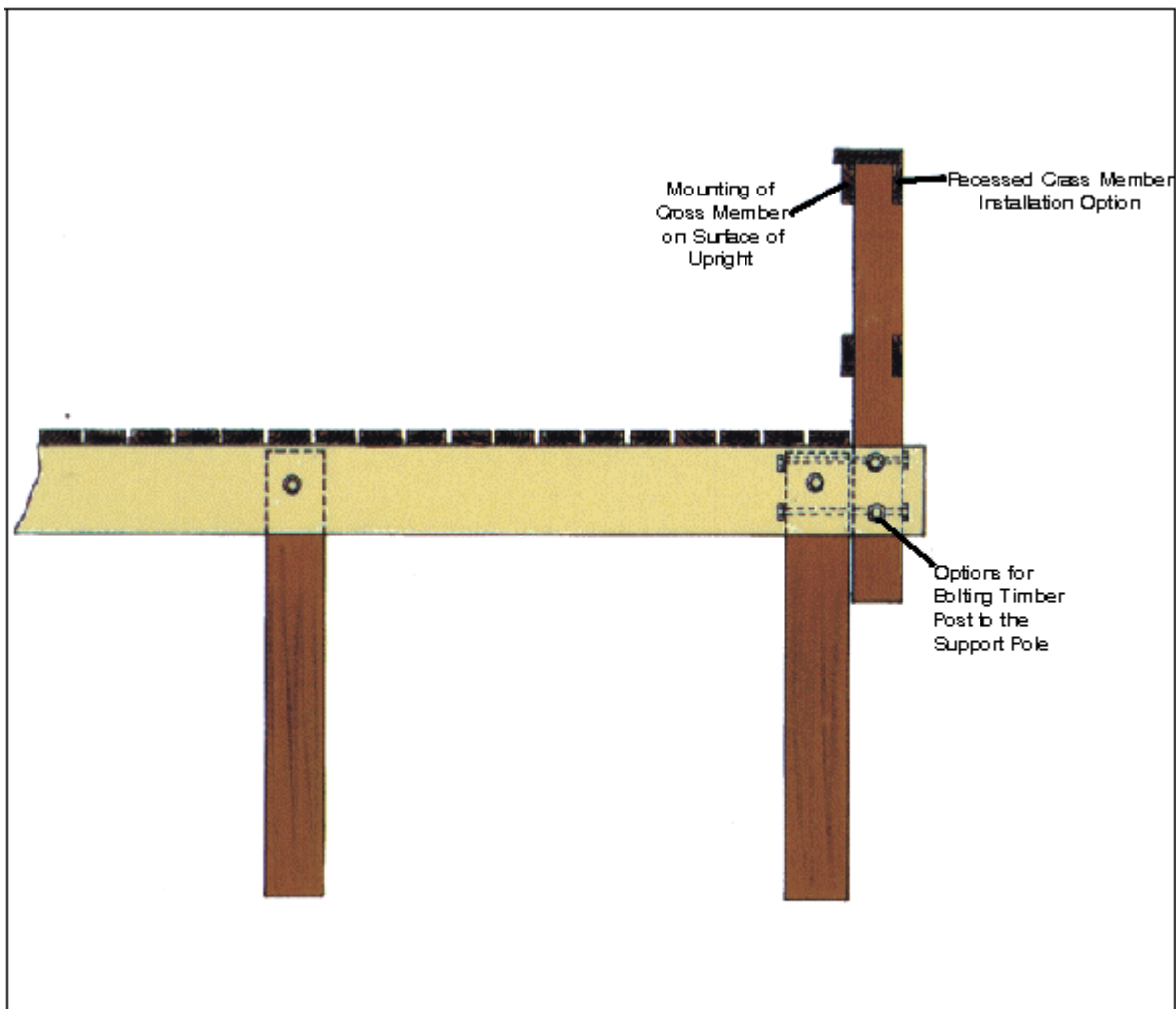


Fig 5: Erecting a railing

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.

This article was compiled by The South African Wood Preservers Association (SAWPA) with the assistance of Mr Sakkie Burger.