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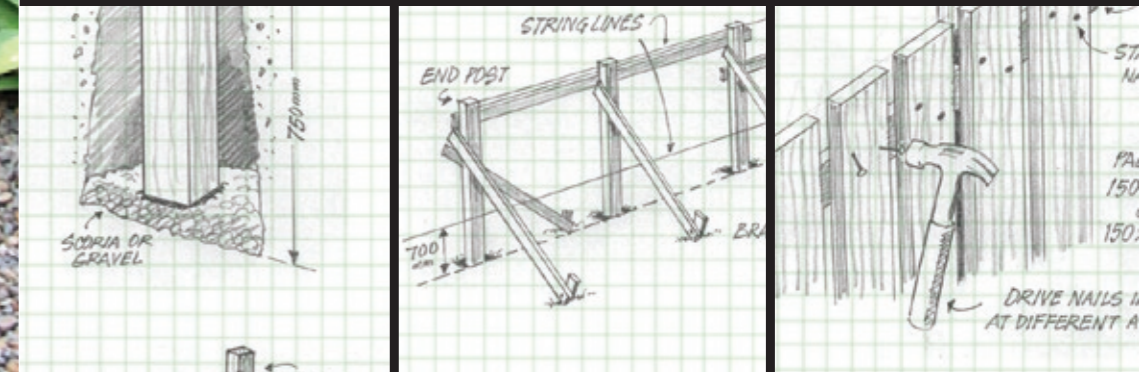
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# How to build a timber fence.



Building the right fence can make a big difference to the look and privacy of your property. It's easier than you might think and Carters have everything you will need. Before you begin read this guide carefully, follow the simple steps and if you need any further help or advice, please don't hesitate to ask at your local Carters branch.



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## STEP 1. SETTING OUT POSTS (FIG 4)

- Drive a stake firmly into each end of your fence line, marking your end posts. Stake needs to be past end of fence, otherwise it will be in the way of fence post.
- Run a stringline between each and secure tightly.
- Mark stringline with chalk or pen, the positions of your intermediate posts.
- The position of your intermediate posts is determined by calculating the length of your stringline, divided into equal parts, depending on your design and materials, general spacing is 1800mm maximum.

## STEP 2. EXCAVATE POST HOLES

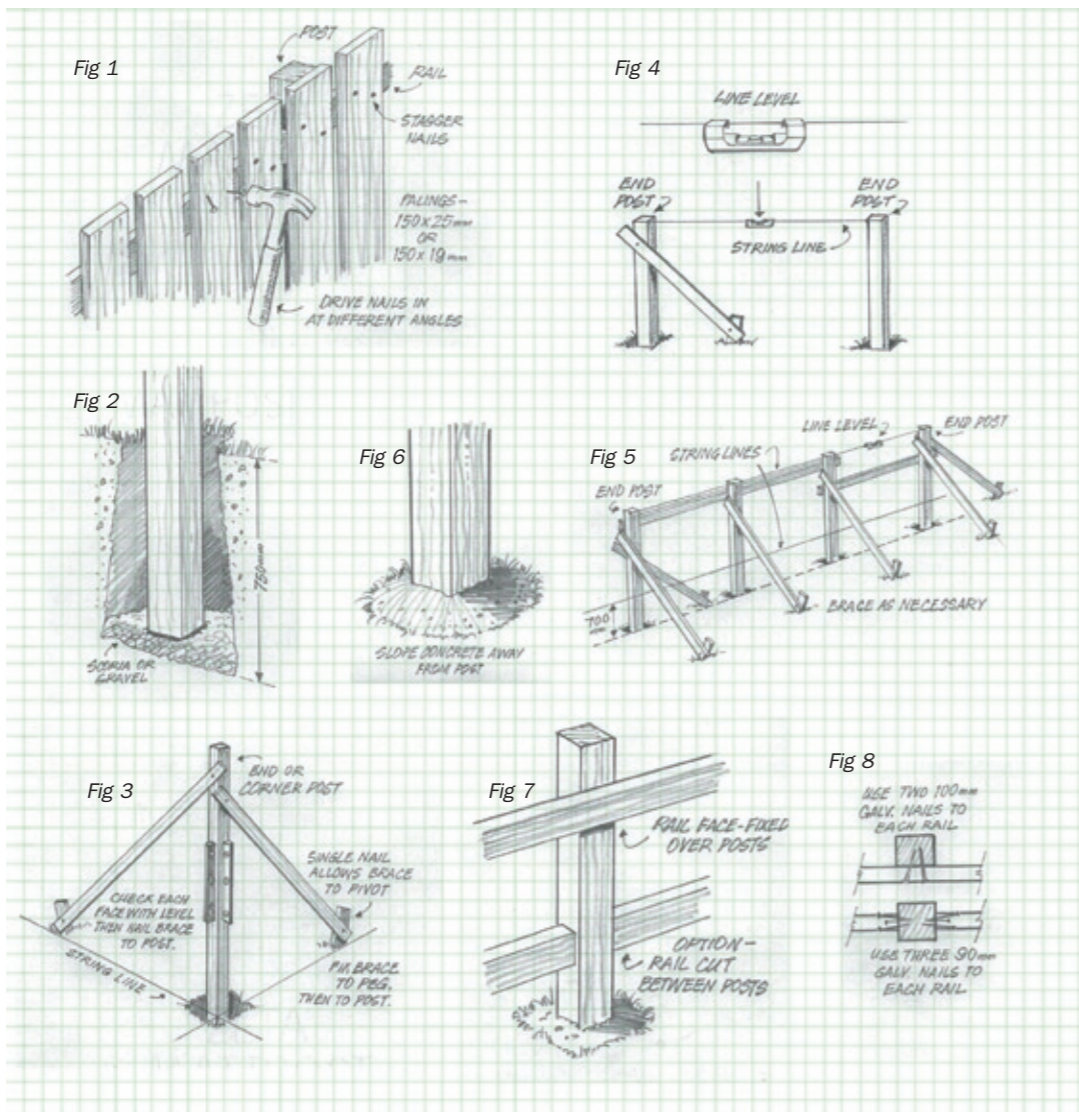
- Dig post holes or use 300mm post hole borer.
- If fence height is up to 1800mm, holes should be at least 750mm deep.
- The hole diameter should be 3 times the width of square posts, or diameter of round posts.
- Corner and gate post holes diameter should be 400mm.
- Add scoria and gravel to post holes, approx. 100mm at the bottom for drainage. This will prevent post sinking and assists with adjusting posts to desired height (fig 2) or support post 100mm off the bottom of the hole and fill with concrete.

## STEP 3. ALIGNING POSTS

- Ensure end post is vertical (plumb) by checking two adjoining sides with spirit level.
- Fit braces to hold post for concrete application (fig 3). Use a horizontal piece of timber across the top of the hole and nail to the post with one nail to hold post off the bottom of the hole when not using scoria or gravel.
- Repeat with other end post.
- If tops of the end posts are at same level, run a stringline from top of one post to the top of the other, use level to check it is straight.
- Place a line level at the centre of the string and adjust to ensure tops of posts are level accordingly (fig 4) or cut posts to level after all posts are installed.

## STEP 4. INTERMEDIATE POSTS

- Run 2 string lines between both end posts.
- One stringline to be positioned 300mm above ground level; the second, 100mm from top of end posts.
- Be sure to keep intermediate posts just clear of string lines (1mm), they are aligned to ensure all posts are plumb and in line with each other.
- Use a level to ensure intermediate posts are plumb both ways.
- Brace each post.



RAIL SIZES	
SPACING BETWEEN POSTS	RAIL SIZE
Up to 2400mm	75 x 50mm
2700mm	100 x 50mm
TREATMENT OF FENCE	
	TREATMENT
Rails, Pailings, Capping, (not in contact with ground)	H3.2 unpainted, H3.1 painted
Sawn Timber Post (in contact with ground)	H4

## STEP 5. CONCRETE IN POSTS (FIG 5)

- Ensure end posts are at least 100mm above top string line so they can be cut level later (fig 5).
- When posts are placed and braced, fill hole with concrete.
- Utilise bags of instant concrete or mix your own.
- If mixing your own, use 1 part cement to 6 parts builders mix, don't make the mix too stiff.
- Compact the concrete using a steel rod (moving it up and down in the concrete) to remove air bubbles – stiff mixes are difficult to compact.
- Slope concrete away from post to shed water (fig 6).
- Leave for at least 2 days, preferably a week, for concrete to harden.

## STEP 6. FIXING RAILS

- Fences up to 1200mm in height require 2 rails, fences over this height require at least 3.
- Rails can be face fixed to posts or cut between as required.
- Face fixed is easier, however takes up more room on your section.
- Rail cut is the best option and produces a narrower fence.
- Face fixed rails can be bolted with 10mm galvanised bolts with 50 x 50 x 3mm washers (coach bolts shouldn't be used as they pull in to the timber too much).
- Rail can be fixed with 3 x 90mm galvanised nails (fig 7, 8).
- The bottom rail should be fixed a maximum of 150mm above the ground, top rail should be 150mm below the top of the posts.

## STEP 7. FIXING PALINGS

- Use a stringline to ensure the top of your palings line up.
- Set the stringline between both end posts.
- If fence runs downhill, the upper point of each paling should line up with the stringline.
- If palings are set apart, use a space block or pencil to calculate accurate spacing.
- Before erecting palings, stain/paint the inside edges or complete all surfaces.
- Keep the bottom of palings at least 50mm above the ground.
- If paling needs to be cut to length, keep uncut edge to the top, ensure cut edges get a coat of preservative and paint/stain.
- Fix palings with 2 x 50 x 2.8mm galvanised flat head nails to each railing, driving in at different angles, to prevent paling from lifting.

## STEP 8.

- Installing a capping can provide an attractive finish.
- Use 150 x 40mm wide board as cap rail or a profiled cap from one of our branches.
- Fix over top of or between posts.

## DESIGN TIPS

- Make sure you know where you want the fence to go.
- You will need to locate surveyor pegs, if constructing a boundary fence, so that you don't build on the neighbour's property.
- Boundary fences should always be discussed with the other party.
- Fences up to a height of 1800mm generally do not require a Building Consent, however it is always best to check with your local council.
- If the fence is to act as a wind shelter, it should have equal parts of solids and gaps – horizontal fence palings with varied gaps (getting wider towards the top of the fence) actually performs best for a wind break.
- Wind tunnel tests show that a solid fence creates a greater turbulence than the wind it is meant to prevent.
- All radiata timber should be No.1 grade (check with your branch).
- Fences require firm ground for secure installation.
- Generally posts should have 1/3 of their length embedded in the ground.
- Gate posts should be sunk at least another 100mm in the ground to bear load of gate.
- Stack timber materials at least 150mm above ground level, ensuring timber is level, straight and covered.
- Few timber pieces are dead straight, sight along fence rails so the slight bow can be fixed upwards, and subsequent sagging will tend to straighten rail.
- Uncut ends must be embedded into ground, cut ends must be treated with suitable preservative.
- If laying concrete mowing strips, they should be about 150mm wide between posts and done at the same time you erect your posts. For boundary fences, mowing strips must be on your side only unless your neighbour agrees in writing.
- Ensure you have a 40-50mm gap between the bottom of the palings and the ground.
- Use hot dip galvanised nails/bolts or screws to prevent rust marks.
- Timber shrinks over time, so tighten after 6 months.
- Use 50 x 50 x 3mm hot dip galvanised washers under all bolt heads and nuts.
- DO NOT use coach bolts.
- Ensure the stain or paint you choose is compatible with your timber treatment and galvanised fittings – follow manufacturers instructions.
- Sawn timber is best for a stain finish.
- Dressed gauged timber is preferable for paint finishes.

## MATERIALS REQUIRED

■ String	■ Timber - 100 x 100 or 100 x 75mm posts, 75 x 50mm or 100 x 50mm rails, 150 x 25mm palings
■ Stakes	■ Stain/paint
■ Timber for bracing and supporting posts until concreted	■ Capping (optional)
■ Scoria	100 x 75mm posts are adequate for a fence height up to 1200mm
■ Hot-dip galvanised nails or bolts and washers	100 x 100mm posts are required for end/corner/gate posts, or a fence height ranging between 1200-1800mm
■ Concrete mix	

## TOOLS REQUIRED

■ Spade	■ Adjustable spanner	■ Combination square (for cutting posts off square and cutting rails square)
■ Post hole borer	■ Level	
■ Stringline	■ Tape measure	
■ Hammer		

Although every care has been taken to ensure that the information in this How to Guide complies with existing standards and codes of practice Carters does not accept responsibility for any errors or omissions in the project, nor for any specifications or work based on this information.