GENLAM
POSTS & FENCING SYSTEM

50 YEARS MICROPRO® (MCA) TREATMENT WARRANTY

HOW-TO-BUILD GUIDE

BEFORE YOU BEGIN - GET CONSENT

1. Building a fence within your property generally does not need a building consent up to 2.5m high.
2. For Boundary Fences, discuss the plans with your neighbour. Get written approval.
3. Know where your Boundary is, otherwise engage a Registered Surveyor to locate it.
4. If a dispute arises, get advise from your Local Council (Refer to Useful Information below)
5. Generally, fences less than 2.0m high do not require a building consent but the type and height of fence you are permitted to build may be limited by building covenants in your area.
6. Confirm all your fence requirements with your local Council prior to commencing any work.
7. Fences to Swimming Pools will require a Building Consent. (They also have very specific requirements)

Useful Information :
Fencing Act 1978 (Legal Requirements)
Fencing law - know your rights - Consumer NZ
Building Work That Does Not Require A Building Consent
- Exemption 21 Fences & Hoarding's (Building Act 2004)

PLANNING

Before starting on your fence, check the type of soil in the area, check for any obstructions, check with your local council for services that may be close to your proposed fence. The type of soil will affect the depth of the posts, which will need to be considered to ensure the fence is stable, if you are unsure of the ground conditions, consult a Registered Soil Engineer. Also check how even the ground is, preferably keep the ground surfaces as level as possible.

GENLAM FENCE OPTIONS

The GENLAM fence has interchangeable components, this gives the designer a number of creative options.

OPTION A

This fence you cannot see through.
It has solid interlocking paneling

OPTION B

This fence has fine gaps that
allows wind & light to filter through

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TYPE GENLAM H4 & H3.2 Post & Fencing Systems
HOW-TO-BUILD GUIDE

NAME KLC FENCE GUIDE - Detail Sheet 01

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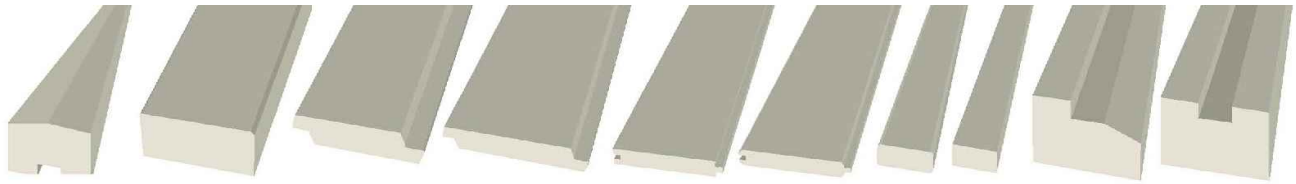
GENLAM FENCE SYSTEM COMPONENTS

The GENLAM fence has interchangeable components



H3.2 CAPPING | H3.2 TOP/ BOTTOM RAIL | H3.2 SHIPLAP PALING | H3.2 T&G | H3.2 TGV | H3.2 PRD4S | H3.2 D4S | H3.2 BOTTOM RAIL OPEN | H3.2 BOTTOM RAIL CLOSED

GENLAM FENCE SYSTEM

Palings	MicroPro® Treatment	Size	Lengths
T&G Paling	H3.2	90 x 18 135 x 18	1.8 1.8, 2.1, 2.4
TGV Paling	H3.2	90 x 18 135 x 18	1.8 1.8, 2.1, 2.4
Shiplap	H3.2	90 x18 135 x 18	1.8 1.8, 2.1, 2.4
PRD4S Paling (pencil round edge)	H3.2	90 x 18, 135 x 18	1.8, 2.1, 2.4
Top Cap	H3.2	65 x 43	5.4
Bottom Rail Closed	H3.2	65 x 40	5.4
Bottom Rail Open	H3.2	65 x 42	5.4
D4S Bead	H3.2	40 x 18	5.4
Mid Rail	H3.2	90 x 36	5.4
Top/Bottom Rail	H3.2	90 x 42	5.4

MICROPRO® TREATMENT WARRANTY 50 YEARS MICROPRO® TREATMENT WARRANTY

GENLAM GL8 POSTS

Post Size	MicroPro® Treatment	Lengths
88 x 88	H4	1.8, 2.1, 2.4, 2.7, 3.0, 3.6, 4.2, 4.8, 5.4, 6.0
112 x 112	H4	1.8, 2.4, 2.7, 3.0, 3.6, 4.2, 4.8, 5.4, 6.0
135 x 135	H4	1.8, 2.4, 2.7, 3.0, 3.6, 4.2, 4.8, 5.4, 6.0
180 x 180	H4	1.8, 2.4, 2.7, 3.0, 3.6, 4.2, 4.8, 5.4, 6.0
H4 treatment is suitable for exposure to weather and in-ground use		

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TOOLS REQUIRED

- [ ] BUILDER'S SQUARE
- [ ] DRILL
- [ ] HAMMER
- [ ] HANDSAW OR ELECTRIC SAW
- [ ] RETRACTABLE TAPE MEASURE
- [ ] SPADES AND SHOVELS
- [ ] SPIRIT LEVEL
- [ ] STRING SPIRIT LEVEL
- [ ] STRING LINE
- [ ] TWO SAWHORSES
- [ ] GROUND PEGS
- [ ] BRACING BOARDS
- [ ] WATER (For Concrete Mixing)
- [ ] FLURO SPRAY CAN (For Marking the Ground)
- [ ] PACKER BLOCKS
- [ ] WEDGES
- [ ] FILLER (For Nail Holes)
- [ ] PENCIL
- [ ] WHEEL BARROW (Moving Dirt & Mixing Concrete)

MATERIALS REQUIRED

	QUANTITY
[ ] 60 x 2.8mm HOT-DIP GALVANISED FLAT HEAD NAILS (Fixing Palings)	
[ ] 90 x 2.75mm HOT-DIP GALVANISED JOLT HEAD NAILS (Fixing Railings)	
[ ] 112 x 112mm INTERMEDIATE TIMBER POSTS - H4 MicroPro TREATED	
[ ] 135 x 135mm CORNER, END POST or GATE POST - H4 MicroPro TREATED	
[ ] CONCRETE READY MIXED 40 KG OR BUILDERS MIX CEMENT 40 KG	
[ ] PAINT (LRV) light reflective value of over 45 - (Refer Paint Section)	

TIMBER FENCE - OPTION A

[ ] PALINGS - Options - T&G, TGV, SHIPLAP or PRD4s - All H3.2 MicroPro TREATED	
[ ] TOP CAP - (65 x 43) - H3.2 MicroPro TREATED	
[ ] MID RAIL - (90 x 36, Fences over 1200mm) - H3.2 MicroPro TREATED	
[ ] BOTTOM RAIL - Options - Closed or Open - (65 x 40 or 65 x 42) - H3.2 MicroPro TREATED	
[ ] D4S BEAD - (40 x 18) - H3.2 MicroPro TREATED	

TIMBER FENCE - OPTION B

[ ] PALINGS - PRD4s - H3.2 MicroPro TREATED	
[ ] TOP CAP - (65 x 43) - H3.2 MicroPro TREATED - Optional or Top Rail	
[ ] TOP RAIL - (90 x 42) - H3.2 MicroPro TREATED - Optional or Top Cap	
[ ] MID RAIL - (90 x 36, Fences over 1200mm) - H3.2 MicroPro TREATED	
[ ] BOTTOM RAIL - (90 x 42) - H3.2 MicroPro TREATED	
[ ] D4S BEAD - (40 x 18) - H3.2 MicroPro TREATED	

TYPE GENLAM H4 & H3.2 Post & Fencing Systems
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NAME KLC FENCE GUIDE - Detail Sheet 03

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STEP 1 POST SETOUT (Figure 1)

- Measure the total length of your fence and lay out the line of the fence with a string attached to two pegs.
- Your stake needs to be past the end of the fence, otherwise it will be in the way of the fence post.
- The string should indicate where the front of the posts will sit.
- Hammer in pegs where the main supporting posts go, calculating the distance between pegs with a measuring tape.
- The distance depends on the type of fence you are building. As a guide, standard post spacing should be 1800mm from centre of post to centre of the next post. (1800mm is the best for material usage, but you can go up to 2400mm)
- Chalk or spray paint around the pegs, as they are removed to mark where the holes should be dug to complete the positioning of the post holes.
- Boundary Fences, ensure that the holes are positioned so the post sit inside the boundary of your property.

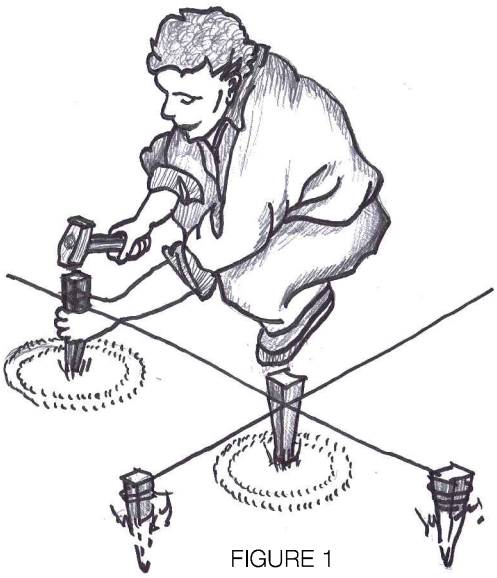

FIGURE 1

STEP 2 DIGGING HOLES (Figure 2)

- Dig post holes or use 300mm Ø post hole borer. Then Square the hole to the correct size.
- Excavate post holes to a depth of a third the length of the posts. (eg Height 2100 / 3 =700 Deep)
- The top of the footing is approximately three times the size of your posts. (eg Post 112 x 3 = 336 Square)
- Intermediate Post size = 112 x 112
- Corner, End Posts & Gate Posts size = 135 x 135
  These post require larger footings.
  Footing size 400mm Square + 100mm Deeper
  (eg Post 135 x 3 = 405 Square)
  (eg Height 2100 / 3 =700 + 100 = 800 Deep)
- Use a measuring tape to make certain each hole is the same depth.
- Pour a small amount of concrete into each hole before positioning the posts in the footings (This will ensure the posts aren't directly in contact with the ground) or put a temporary rail along the top of the holes and nail to the posts to hang all the post 100mm off the bottom of the hole prior to filling with concrete.
- Alternatively, 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.

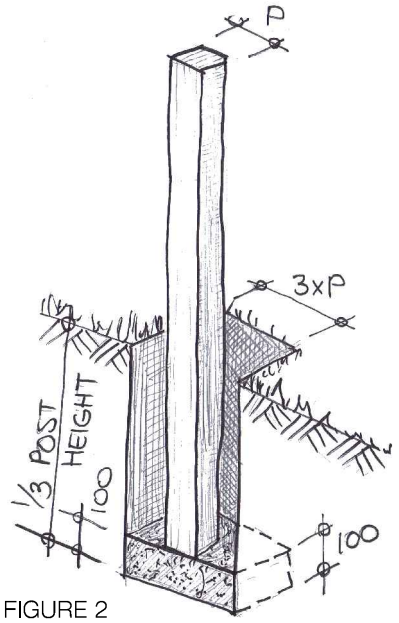

FIGURE 2

STEP 3 END POSTS (Figure 3)

- The end posts are an essential start for your fence. Brace the end posts in place with timber off-cuts. Tack in nails for easy removal later on.
- Ensure all end posts are vertical (plumb) by checking two adjoining sides with a spirit level.
- Repeat with other end post.
- Check that the top of the posts are at the correct height above ground level. Posts which are too high may be trimmed later.
- If the tops of the end posts are at the same level, run a string line from the top of one post to the top of the other
- Place a line level at the centre of the string and adjust to ensure tops of posts are level or cut posts to level after all posts are installed.

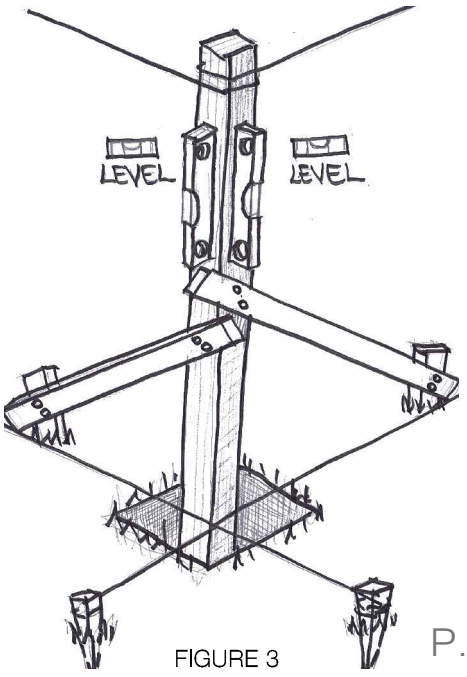

FIGURE 3

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DRAWING No	REVISION
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STEP 4 INTERMEDIATE POSTS (Figure 4)

- Run 2 string lines between both end posts.
- One string line to be positioned 300mm above ground level; the second, 100mm from top of the posts.
- Be sure to keep intermediate posts just clear of the string lines
- Use a level to ensure intermediate posts are plumb both ways.
- Brace each post, do a final check that all the posts are vertical and square in the hole and all the post are in alignment along the fence, before concreting in.

FIGURE 4

STEP 5 CONCRETING IN POSTS (Figure 5)

- Now you can concrete the posts in place, using pre-mixed concrete or a mix of 1 part concrete and 6 parts building mix.
- Keep the mix stiff and compact the concrete using a steel rod (moving it up and down in the concrete) to remove air bubbles
- Slope the top of the concrete away from the posts to shed water .
- Leave the posts for anything from two days to a week for concrete to harden.
- Finally, make sure all the posts are the same height and vertically aligned.

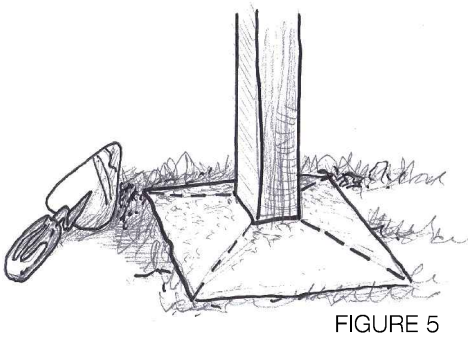
FIGURE 5

STEP 6 FIXING RAILS (Figure 6 & 7)

- The fence height dictates how many rails you need.
- Fences up to 1200mm in height require 2 rails, fences over this height require at least 3.
- Your rails can be attached in two ways, face fixed to posts or cut between as required.
- Face fixed rails to posts is easier, however this takes up more room on your section. Also the fence will look visually different from one side of the fence to the other.
  (With Boundary Fences confirm this option with your neighbour prior to building)
- 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).
- Rails cut to fit between posts is the best option and produces a narrower fence. They can be fixed with 4 / 90 x 2.75mm jolt head hot-dip galvanised nails

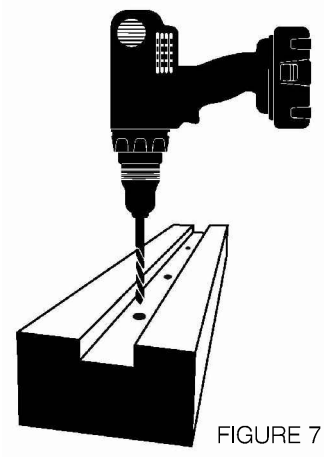
FIGURE 7

- It is usual to fix the bottom rail approximately 50mm above the ground. Use a string line and builder's square to ensure rail alignment.
- If you have chosen a design with a Bottom Rail Closed, You will require draining holes drilled into the bottom of the rebate using a 16mm spade drill bit spaced at 300mm centres (See Figure 7)

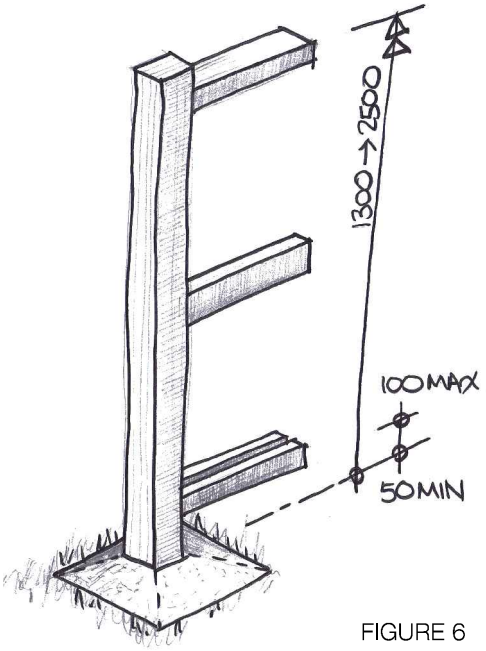

FIGURE 6

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DRAWING SCALE	ISSUE DATE
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STEP 7 FIXING PALINGS (Figure 7.1 & 7.2)

OPTION A

- Use a string line to ensure the top of your palings line up.
- Set the string line between both end posts.
- If you want your capping to slope with the ground, use a chalk line and jig saw the tops to match your ground slope.
- Alternatively, have a sloping base rail and level the top, square between intermediate posts. Then add a level Top Capping
- Before erecting palings, paint the inside edges or complete all surfaces.
- Starting with a 10mm packer against the post (This allow for a recommended expansion gap) start placing the tongue and grooved panels in the rebated grove provided by the closed bottom rail.
- Using a wedge to tighten up the expansion gap (being very careful not to over tighten as this will cause 'popping out' of the paling with expansion and contraction), place the wedge top and bottom, lightly tap each wedge. This will lightly clamp up the joins. Now fit the top cap of choice in place over the tongue and groove panels. Fixing with 4/90x2.75 galvanised jolt head nails.
- Ensure all panels are evenly spaced. We recommend nailing each panel in place through the top and bottom rebated panel lip using 50mm galvanised jolt head nails.
- Fit the 40x18 D4S bead (expansion cover batten). Fixing directly into the post. Maintain a 10mm gap between the last fence paling and the post (Use 20x20 instead of the 40x18 if you want a square edge look)

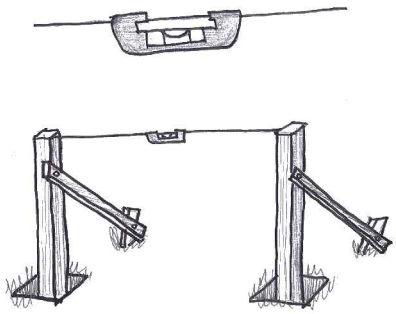

FIGURE 7.1

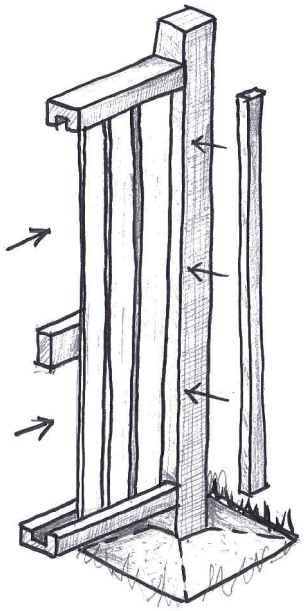

FIGURE 7.2

STEP 7 FIXING PALINGS (Figure 7.1 & 7.3)

OPTION B

- Use a string line to ensure the top of your palings line up.
- Set the string line between both end posts.
- If your fence runs downhill, the upper point of each paling should line up with the string line. If you are using a capping, use a chalk line and jig saw the tops to match your ground slope.
- Alternatively, have a sloping base rail and level the top, square between intermediate posts. (Cap if required)
- KLC recommends before installing, to paint the faces of the palings or complete all surfaces for the PRD4S palings. With the TGV and TG palings avoid painting the groove or the tongue.
- Fix palings with 2 / 60 x 2.8mm galvanised flat head nails to each railing, driving in at different angles, to prevent paling from lifting.
- As soon as nails are punched below the surface of the paling they must be filled with an exterior grade filler immediately to prevent moisture uptake.
- Space the palings evenly along the fence line. Do this with a suitable spacer block, made to suit the gap required. Use a spirit level to check that palings are kept vertically correct.
- Finish the bottom front face of the palings off with a bottom rail.

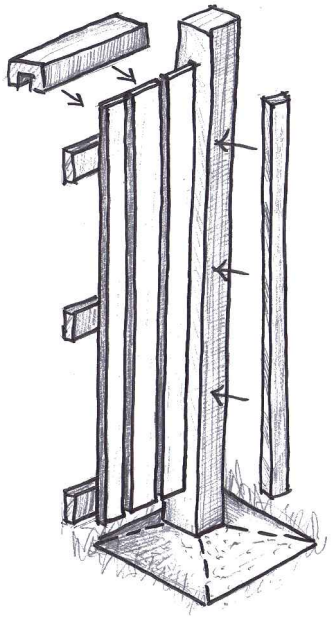

FIGURE 7.3

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NAME KLC FENCE GUIDE - Detail Sheet 06

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STEP 8 PAINTING

- As soon as you have completed the construction of your fence, you will need to paint it, or finish the top coating if you have pre-painted (as per Step 7). KLC's dual primer coating (1 primer, 1 undercoat coat) provides minimal protection and is not suitable for long term exposure to the elements.
- Prior to painting you must ensure the moisture content does not exceed 15%.
- Re-prime all cut ends, mitres, notching's, borings with two coats of a brush applied alkyd (oil based) primer.
- You are required to paint two applications of a premium oil based or water-based paint on top of the pre-primed GenLam products. This is essential for the long-term performance of your fence. This applies to the posts, rails, palings and finishing components.
- The paint MUST have a Light reflective Value (LRV) of over 45. The LRV information is available on the reverse side of the paint chits or ask the paint supplier. Darker colours have a lower LRV number than 45 and will absorb heat from the sun and may cause excessive movement, distortion, cracking and possible resin bleed. Light colours have higher LRV numbers over 45 and reflect the suns heat.
- The KLC warranty will be void if dark colours with a Light Reflective Value (LRV) less than 45 are used.

MicoPro® Wood Treatment Technology

- KLC use the MicroPro Micronized Copper Azole (MCA) based preservative system for their wood products. It accounts for 80% of wood treated in the US for domestic applications
- Micronized Copper Azole (MCA) preservatives are EPA-approved for use in NZ and AUS to NZS3640:2003 and AS1604.12012
- MicroPro preservative is applied using high-pressure and vacuum-pressure in the impregnation process in KLC's modern, automated treatment facility.
- Cut End Treatment : All cut ends surfaces are to be double coated and sealed before fixing. With a alkyd (oil based) primer
- MicroPro preservative solution has benefits of reduced corrosivity. Use Hot Dip Galvanised Fasteners & Stainless Steel fasteners. MicroPro may be placed in direct contact with Aluminium Building products in interior applications, and above ground exterior applications that provide proper water drainage
- MicroPro® is the first treated wood process to be EPP (Environmentally Preferable Product) certified by Scientific Certification Systems based on a life cycle assessment.
- MicroPro® is environmentally sustainable, is low leaching, low VOC emissions and the award of the GREENGUARD Children and Schools' Certification from the Greenguard® Environmental Institute.
- MicroPro® Wood Treatment Technology has received a Global GreenTag GreenRate™ Level A this declaration is 'Fit-for-Purpose' and confirmed for Green Building compliance.
- MicroPro® Wood Treatment Technology has received GreenTag PhD™ proving claims that MicroPro® is safe for human health (and ecosystems).

These environmental certifications have been awarded to MicroPro® Wood Treatment Technology

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EXTRA POINTS TO CONSIDER

- 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.
- 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 the load of the 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 painted.
- 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.

DISCLAMER :

Whilst the advice and recommendations contained in this brochure have been produced with proper care, they are offered only with the object of assisting those interested in home improvement projects and KLC does not accept responsibility for the advice, recommendations, etc, contained herein.
KLC does not accept responsibility for any errors or omissions in the project, nor for any specifications or work based on this information.
If you have any queries please contact KLC for further advice.
Note: A Building Consent may be required.

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