

Timber fences can provide an effective means of:

- defining property boundaries
- confining pets
- screening from sun and wind
- providing privacy from the street or neighbours
- reducing traffic noise
- providing a safety barrier around swimming pools or other hazards.

This data sheet provides recommendations for the construction of domestic timber fences up to 1800 mm high. It contains suggested paling sizes and configurations for the different applications.

REGULATIONS, COVENANTS ETC.

There are various Government Acts, Local Authority planning and building regulations, as well as possible site covenants which could restrict or otherwise dictate the location, height, and/or construction of fences. Compliance with these regulations is necessary. There are special requirements for safety fences around swimming pools.

It is necessary to reach prior agreement with neighbours regarding the fencing type, height etc, as well as the sharing of costs.

Note: Additional information is available from your local authority and from www.qld.gov.au

SITING

The correct property alignments (i.e. location of survey pegs) should be established before setting out boundary fencing. Unless otherwise agreed with neighbours, the centre-line of posts should be positioned on the boundary line.

TIMBER QUALITY

There is no Australian Standard or other grading requirements for fencing timber and the quality and cost can vary between different suppliers.

Timber sold for fencing could contain certain natural characteristics (knots, gum veins, minor insect damage, want, wane, etc.) and some movement (cupping, twisting etc.) can be expected. This timber quality is generally acceptable for domestic fencing situations.

Where a higher than normal appearance or performance is required for fencing, a higher quality timber should be specified. For posts and railings, structurally graded timber (e.g. cypress F5, hardwood F11, treated pine F5 or MGP10) could be used. For palings the following limitations could be specified:

- no loose or unsound knots
- no decay or insect galleries
- no heart or pith
- gum, latex or resin pockets not to extend from one surface to another
- sound knots not to exceed 50% of face width.

Note: Higher quality material could be at a higher cost than normal fencing timber

SPECIES SELECTION

To achieve a satisfactory service life, the following timber is recommended for fencing:

- Cypress – Sapwood in posts shall be limited to 20% of cross section and a maximum of 1/3 the width on adjoining faces.
- Hardwood - Posts - In-ground Durability Class 1 or 2 - Rails & Palings - Above Ground Durability Class 1 or 2
- Preservative treated pine.

PRESERVATIVE TREATMENT

All pine and hardwood containing sapwood shall be preservative treated.

Posts (and plinth boards where used) shall be treated to a minimum hazard level H4. Palings, rails, cappings etc., shall be treated to a minimum hazard level H3.

TABLE 1: MEMBER SIZES

Member	Hardwood	Cypress	Treated Pine
Corner and gate posts	100 x 100 mm or 125 dia. rounds	100 x 100 mm	90 x 90 mm or 125 dia. rounds
Intermediate Posts	100 x 75 mm or 100 dia. rounds	100 x 75 mm	90 x 70 mm or 100 dia. rounds
Rails	75 x 38 mm (2100 mm max. post spacing) 100 x 38 mm (2400 mm max. post spacing)	75 x 50 mm (2100 mm max. post spacing or 100 x 38 mm (2400 mm max. post spacing)	70 x 45 mm (2100 mm max. post spacing or 90 x 35 mm (2400 mm max. post spacing)

INSTALLATION OF POSTS

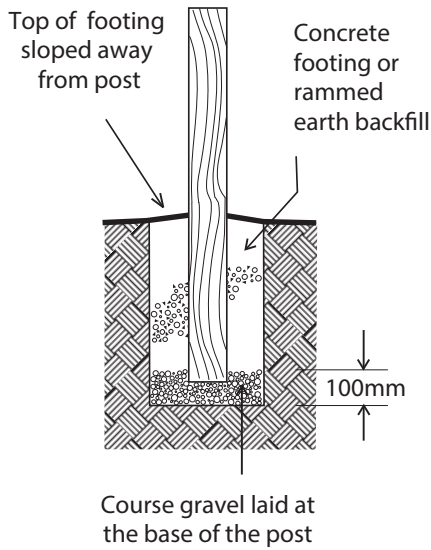
For most soil conditions, posts shall be set into ground approximately 450 mm deep for fences up to 1200 mm and 600 mm deep for fences between 1200 mm and 1800 mm high. Post holes shall be a minimum 300 mm diameter.

Note: For poor soil conditions or higher fences, professional advice should be obtained.

Posts shall be set plumb. Where not covered by capping, tops of posts shall be sloped to shed water.

Post holes shall be filled with a minimum 100 mm coarse gravel, to allow holes to drain. The remainder shall be filled with rammed earth (tamped at 150 mm intervals), or concrete with top sloped to shed water.

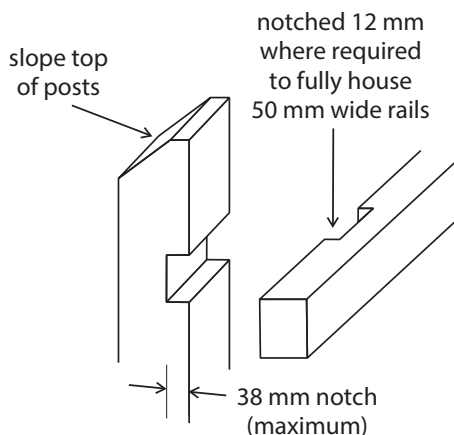
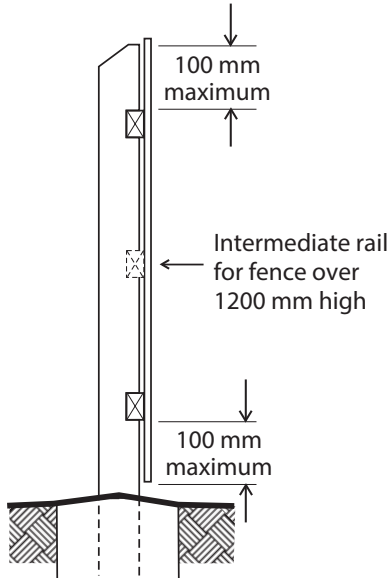
Note: 'No Fines' concrete is recommended for hardwood posts.



FIXING RAILS

Two rails may be used for paling fences up to 1200 mm high. Fences exceeding 1200 mm and up to 1800 mm high require three rails.

Rails shall be twice the length of the post spacing (i.e. two spans) with joints in top and bottom rails staggered.



Except where rails are required at the end of palings to fix capping or plinth, palings may project up to 100 mm beyond rails. Rails may be either notched into posts or fixed directly to the face. The maximum depth of notching shall be 38 mm for 100 mm deep posts and 35 mm for 90 mm posts.

Note: To fully recess 50 mm (45 mm) rails, the post shall be notched 38 mm (35 mm) and the rail notched 12 mm (10 mm). Alternatively, larger posts could be used.

One coat of water repellent preservative or the priming coat of the selected finish should be applied to notches before fixing rails.

Rails shall be fixed to posts with either:

- one 10 mm cup head bolt
- one No. 14 Type 17 batten screw
- two 3.15 mm diameter bullet head nails or
- two 3.05 mm flat head gun nails.

All fixings shall be hot dipped galvanised or stainless steel.

Nails and screws shall be 75 mm long for 38 mm rails and 90 mm long for 50 mm rails.

Nails into treated pine shall have deformed shanks.

PALINGS

Commonly used paling sizes are 100 x 15 mm and 75 x 15 mm.

Palings may be spaced or closely butted.

Note: Shrinkage and other movement in palings can create gapping. Where total privacy is required, palings should be lapped (refer Sound Fences).

Palings shall be fixed to rails with two hot-dipped galvanised or stainless steel nails.

Note: One nail per fixing is acceptable for first layer of lapped palings in sound fences.

For hardwood palings, hand driven nails shall be bullet head. For treated softwood palings, hand driven nails shall be flat head. Gun nails (for hardwood and treated pine palings) shall be either flat head or dome head.

Nails for 15 mm thick palings shall be either 50 x 2.8 mm (hand driven) or 45 x 2.5 mm (gun nails).

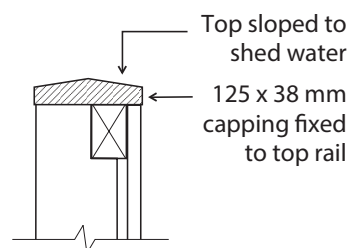
Note: Longer nails are required for thicker palings and for lapped sound fences.

CAPPING

Where capping is provided (to protect end grain of posts and palings), top rails shall be flush with the top of posts and palings.

Capping shall be 125 x 38 mm for hardwood or cypress and 120 x 35 mm for treated pine with top surface sloped to shed water.

Capping shall be fixed to top rail with 75 x 3.15 mm nails at 450 mm spacing.

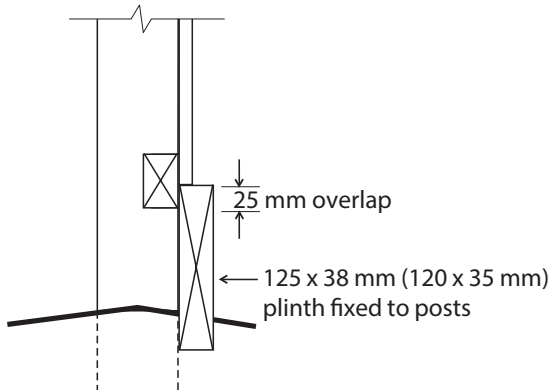


PLINTH

Where a plinth is provided at the base of sound fences, (to enclose small pets, etc.), bottom rails shall be positioned so that plinths and rails overlap a minimum of 25 mm.

Plinths shall be 125 x 38 mm cypress or durability class 1 hardwood, or 120 x 35 mm for treated pine.

Plinths shall be fixed to posts with the same fixings as for rails.



FINISHES

Unprotected timber exposed to the weather will fade to a silverygrey colour and could distort and develop splitting and surface checking. Where this is not desirable, various finishes can be applied to provide protection against these "weathering" effects of sun and rain. The following can be applied:

- **Good quality, light coloured Paints** provide the best level of protection.

Note: Low quality, dark coloured paints and finishes that only provide a film over the timber surface are not recommended. These products can accelerate decay.

- **Clear Finishes** may provide only short term protection and require frequent re-application.

- **Stains** provide reasonably good protection depending upon the amount of pigment and degree of exposure.

Paints, stains and clear finishes shall be applied in accordance with manufacturer's instructions.

Note: Where preservative treated timber is used, the compatibility of the selected coating should be checked.

GATES

Gates shall be framed with vertical stiles, rails and diagonal braces of the same size as rails in the adjacent fence.

Gate rails may be notched or half checked to stiles with the same fixings as fencing rails to posts. Alternatively, rails and stiles could be mortice and tenoned or butted and joined with galvanised nail plates in accordance with manufacturer's recommendations.

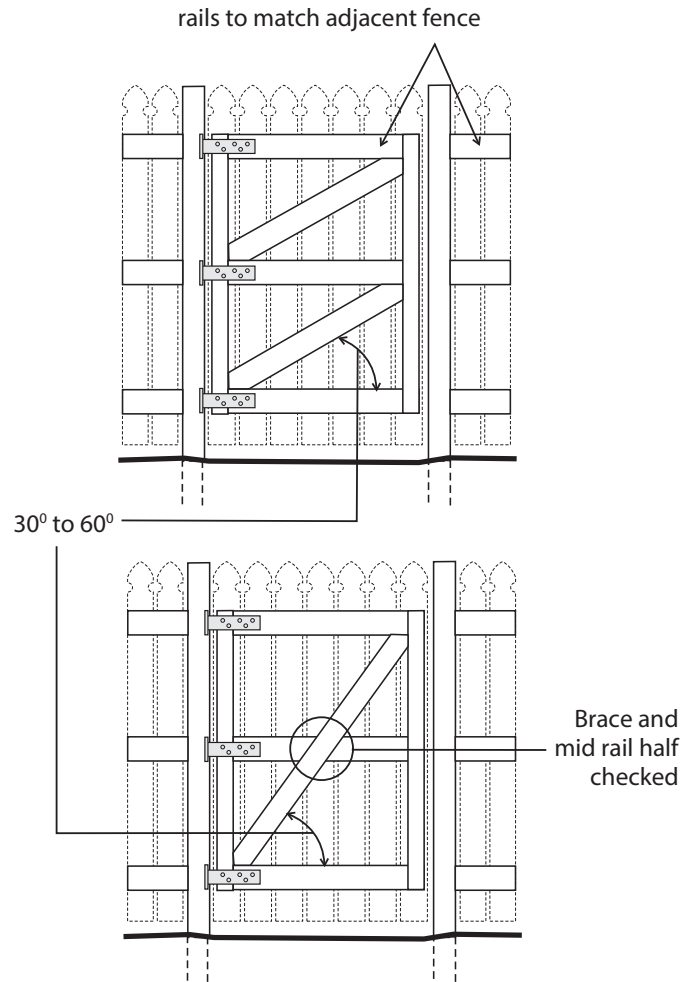
The sizes, number and spacing of gate rails shall match the adjacent fence.

Diagonal bracing (same size as rails) shall be provided at an angle between 30° and 60°. Braces shall be fixed to rails with one Type 17 batten screw or two skew nails. Braces shall be either butted tightly against stiles or notched approximately 10 mm into rails within 100 mm of stiles.

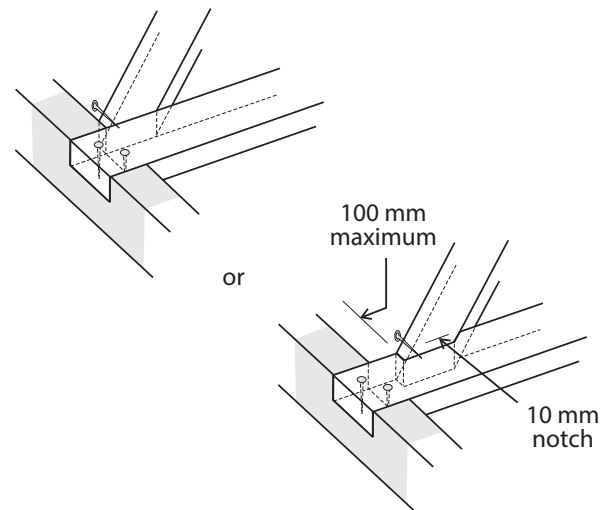
Hinges and latches shall be fixed in accordance with manufacturer's recommendations.

Note: Three hinges are recommended for gates with three rails (i.e. over 1200 mm high).

Palings shall be fixed to gates to match adjacent fencing.



brace to rail design options



brace to rail connection options

POOL FENCES

There are various government and local authority regulations which control the construction of safety fencing around swimming pools. The local authority shall be consulted prior to the erection of any pool safety fence to obtain the latest requirements. The key factors affecting timber paling fences around pools include:

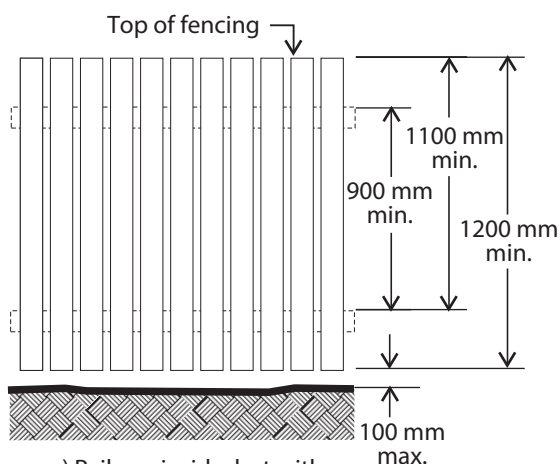
- The height of the fence and any gate shall be not less than 1200 mm above ground.

- The height of any opening between the bottom of the fence (or gate) and the ground shall not be greater than 100 mm.
- The maximum spacing between vertical members (i.e. palings) shall not be greater than 100 mm.
- To prevent children climbing the fence from the outside, paling fences shall either:

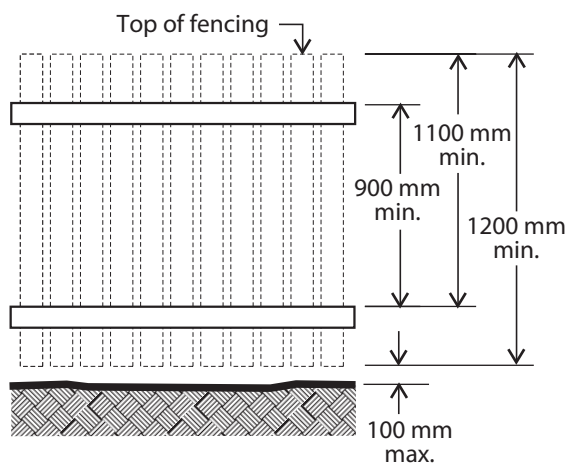
(a) have the rails on the pool side with the palings closely butted (less than 10 mm gaps) or

(b) if the palings have gaps greater than 10 mm, or if the rails are on the outside, rails shall be 900 mm minimum apart and the bottom rail positioned 1100 mm minimum below the top of the fence.

Note: There are also restrictions regarding sloping ground and climbable objects such as: trees, barbecues, fixed seating etc. adjacent to swimming pools (refer to Australian Standard AS1926 and www.hpw.qld.gov.au)



a) Rails on inside, but with palings spaced more than 10 mm apart



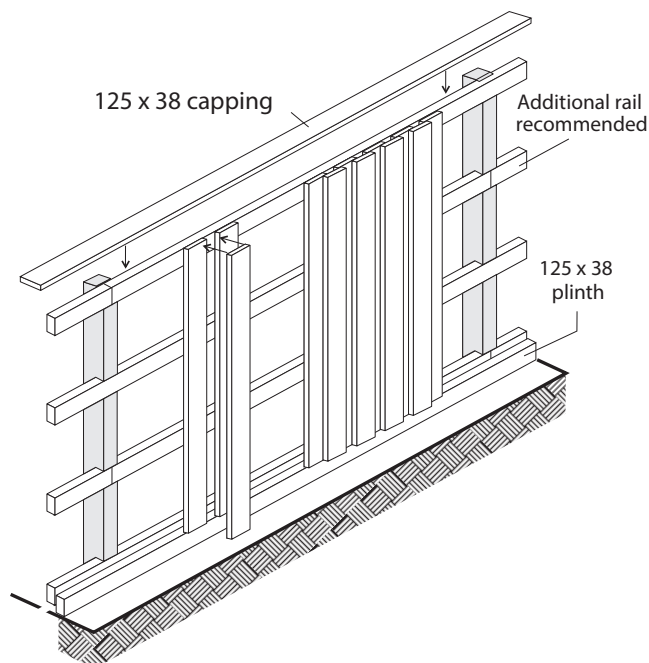
b) Rails on outside

SOUND FENCES

Sound fences shall be constructed generally as for 1800 mm high paling fences with the following additional requirements:

- a plinth shall be provided to fully seal fencing at the base
- palings shall be 100 x 15 mm for hardwood and 100 x 25 mm for cypress and treated pine.
- palings shall be lapped to prevent air gaps. The first layer of palings shall be spaced 50 mm apart and fixed with one 50 mm long nail to each paling at each rail. The outer layer shall be fixed with two 75 mm long nails to each paling at each rail.

Note: To further reduce movement and gapping between palings, the provision of an additional rail is recommended. The provision of capping to protect the end grain of palings is also recommended.



SAFE WORKING

Working with timber produces dust particles. Protection of the eyes, nose and mouth when sanding, sawing and planing is highly recommended.

Refer to tool manufacturers for safe working recommendations for particular items of equipment.

DISPOSAL OF OFFCUTS AND WASTE

As with all treated timber, do not burn offcuts or sawdust. Preservative treated offcuts and sawdust should be disposed of by approved local authority methods.



**TIMBER
QUEENSLAND**
We build Queensland

Timber Queensland Limited

ACN 092 686 756 | ABN 50 092 686 756

30 Boothby Street, Kedron
Brisbane Queensland 4031

Phone (07) 3358 7900

Fax (07) 3358 7999

PO Box 231, Kedron Qld 4031

admin@timberqueensland.com.au

www.timberqueensland.com.au

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