PermaTimber®

FENCE DESIGN GUIDE

Create the perfect fence with the PermaTimber® Fence Design Guide.

V.2019.1

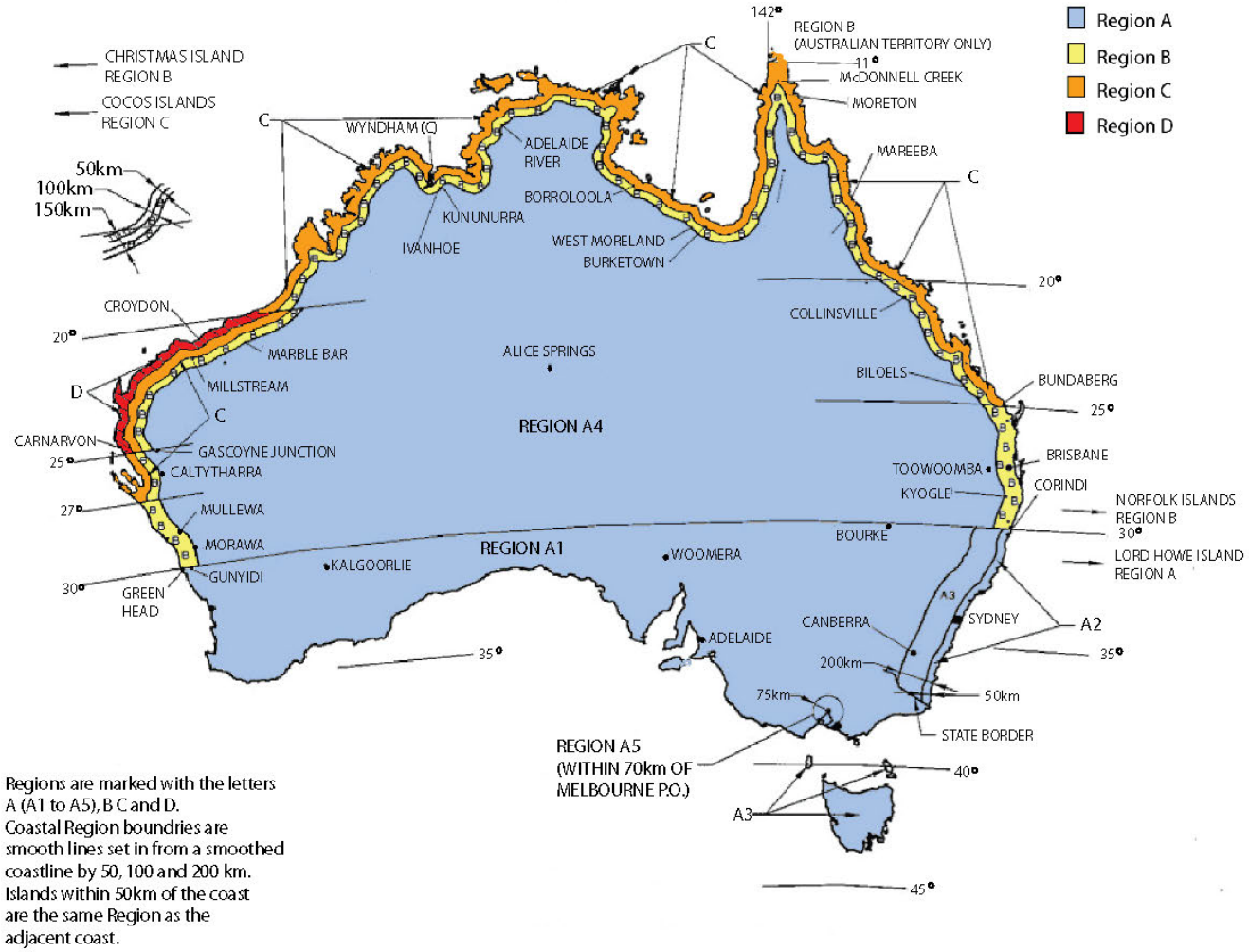
DESIGNING YOUR FENCE

When designing your fence, you must first be aware of the wind classification at the location where the fence will be installed. To determine the wind classification, you must consider the Region, Terrain Category, Shielding Factor and Topography.

REGION

Wind regions are derived from Australian Standard AS/NZS 1170.2.2011 and are determined by your location within Australia. The visible and hidden post configurations have both been classified and certified for Regions A1 to A5 and B, which are shown on the map below.

Please Note: Fence configurations can be designed to suit other regions upon request.



Regions are marked with the letters A (A1 to A5), B C and D. Coastal Region boundries are smooth lines set in from a smoothed coastline by 50, 100 and 200 km. Islands within 50km of the coast are the same Region as the adjacent coast.

DESIGNING YOUR FENCE

TERRAIN CATEGORY

Terrain category refers to the influence of the terrain and potential structures on the wind speed at a given location. Perma Fence™ by PermaTimber® is able to withstand a fully exposed open terrain (Category 1) and has been designed for use in all terrain categories.

Category 1

SHIELDING FACTOR

The shielding factor takes into account the influence of any upwind obstructions against incoming wind speed. The Perma Fence™ by PermaTimber® design has neglected this influence and has been designed for locations with a 'No Shielding' factor.

No Shielding

TOPOGRAPHIC EFFECT

The topographic effect is the effect of wind on a structure due to its location and height on a hill, ridge or escarpment. The Perma Fence™ by PermaTimber® design omits this effect.

GUST WIND SPEED

The Perma Fence™ by PermaTimber® has been designed to withstand gust wind speeds of up to 45ms-1. Please note that the fence configuration may vary in order to withstand this level of wind speed.

WIND DIRECTION

Perma Fence™ by PermaTimber® has been designed to withstand incoming wind from all directions.

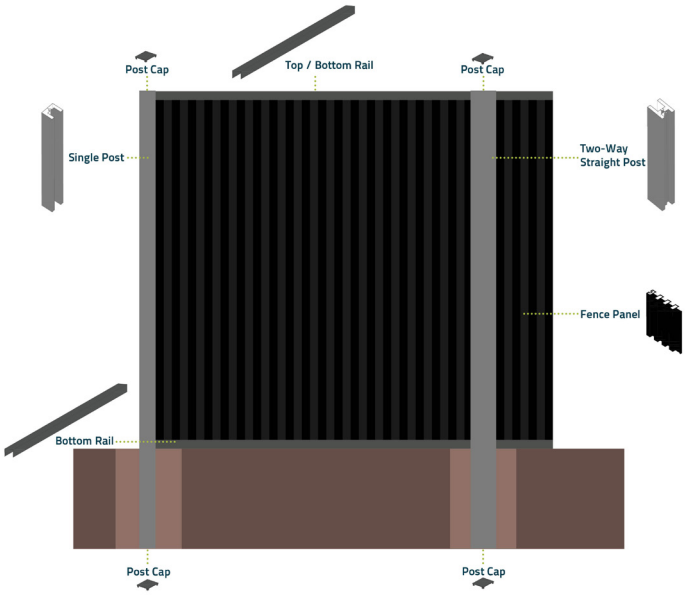
PERMA FENCE™ BY PERMATIMBER®

Made from a hard wearing, durable composite timber, Perma Fence™ by PermaTimber® is the perfect way to add a touch of style to your home or commercial project. A wide range of colours, accessories and configurations have been engineered and are available to suit any type of installation.

A Configuration to Suit Every Occasion

With Perma Fence™, you have the choice between two different configurations.

Configuration 1: Aluminium

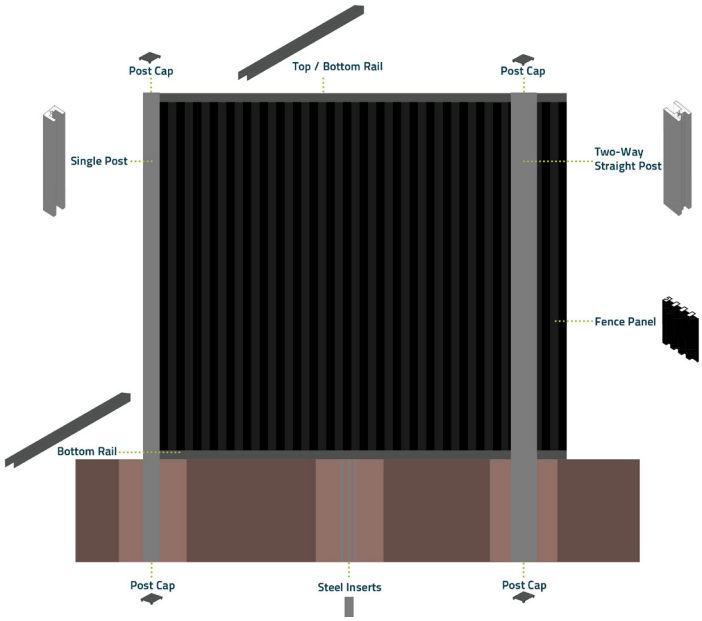


Post spacing and footing size will vary depending on the wind speed at the installation location.

Components Required:

- ✓ Perma Fence™ Panels
- ✓ Top / Bottom Rail
- ✓ Single Post
- ✓ Single Post Caps
- ✓ Two Way Straight Posts
- ✓ Two Way Straight Post Caps
- ✓ Corner Posts (Optional)
- ✓ Corner Post Caps (Optional)

Configuration 2: Aluminium & Steel



Post spacing and footing size will vary depending on the wind speed at the installation location.

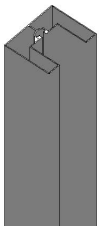
Components Required:

- ✓ Perma Fence™ Panels
- ✓ Top / Bottom Rail
- ✓ Single Post
- ✓ Single Post Caps
- ✓ Steel Inserts
- ✓ Two Way Straight Posts
- ✓ Two Way Straight Post Caps
- ✓ Corner Posts (Optional)
- ✓ Corner Post Caps (Optional)

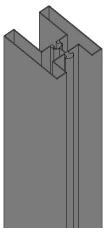
PANEL CONFIGURATION

Perma Fence™ by PermaTimber® has been designed to suit various wind speeds up to an N2 Wind Classification. All Perma Fence™ posts are 1800mm height and are configured as per the wind speed requirements in AS/NZS1170.2:2011.

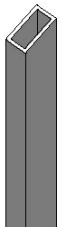
FENCE CONFIGURATIONS



S = Single Post
Used at beginning and end of fence

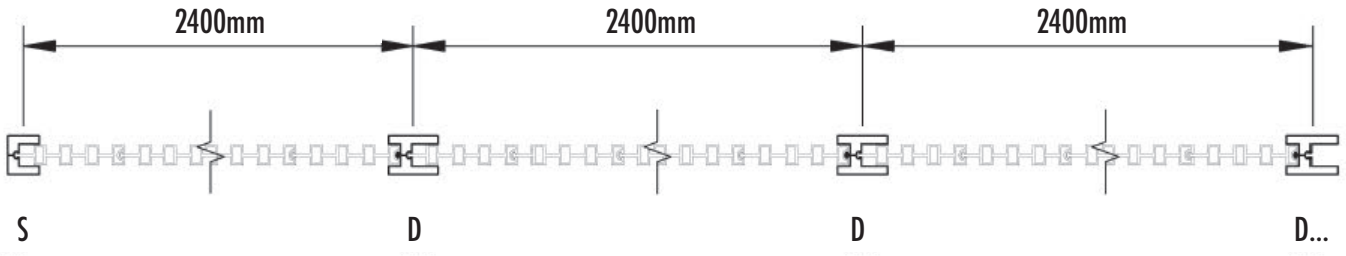


D = Two-Way Straight Post
Used at 2400 or 3600 intervals



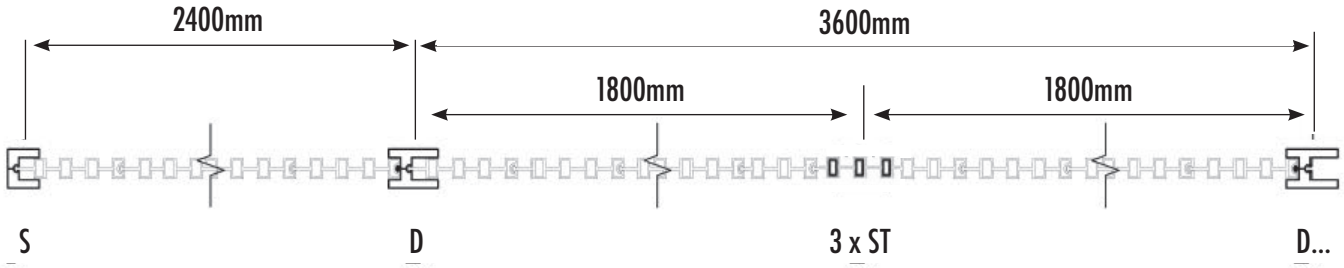
ST = Steel Insert
Used as support between 3600 sections

CONFIGURATION 1: ALL ALUMINIUM



S = Single Post (use as first and last post)
D = Two-Way Straight Post (use every 2400mm)

CONFIGURATION 2: ALUMINIUM & STEEL



S = Single Post (used as first and last post)
D = Two-Way Straight Post (use every 3600mm)
3 x ST = Steel Insert (use between the Two-Way Straight Post for additional support)

FOOTINGS

The Perma Fence™ post footings will vary depending on the soil type you choose for your fence. Footings can be founded in sand, clay or limestone, and concrete shall have a minimum 28-day characteristic strength of 20MPa (Grade 20).

The following table can be used to select the correct footing size for your application.

Please Note: Footings near the gates and/or end posts will need the depth increased by 100mm.

Configuration	Sand Dia x Depth (mm)	Clay Dia x Depth (mm)	Limestone Dia x Depth (mm)
1	**250 x 900**	**250 x 600**	**200 x 300**
2	**250 x 900**	**250 x 600**	**300 x 300**

DESIGN NOTES

Design wind speeds have been determined in accordance with AS1170.2-2002 and AS4055-1992.

Footings have been based on the soil properties in the following table.

Soil Type	Cohesion Properties	Shear Strength Perimeter
Sand	5kPa	35 Degrees
Clay	25kPa	15 Degrees
Lime Stone	8 MPa	37 Degrees

SOUND PROOFING PROPERTIES

Perma Fence™ by PermaTimber® can also be used as an acoustic fencing solution for both residential and commercial projects. Tested in compliance with AS1191, it achieved a Weighted Sound Reduction Index of **22 Rw.**

SOUND REDUCTION PERFORMANCE

Perma Fence™ by PermaTimber® will typically reduce sound by 22dB, which will make a substantial difference when looking to block out noisy traffic or neighbors.

The human perception of sound emittance is shown in the table below.

Sound Reduction (dB)	Loudness	Sensation
130	Jet Aircraft at 100'	Physical Pain
120	Bass Drum at 3'	
110	Thunder	Deafening
100	Elevated Train	
90	Loud Street Noise	Very Loud
80	Police Whistle	
70	Noisy Office	Loud
60	Average Factory	
50	Noisy Home	Moderate
40	Conversation	
30	Quiet Home	Faint
20	Quiet Conversation	
10	Rustle of Leaves	Whisper
0	Soundproof Room	

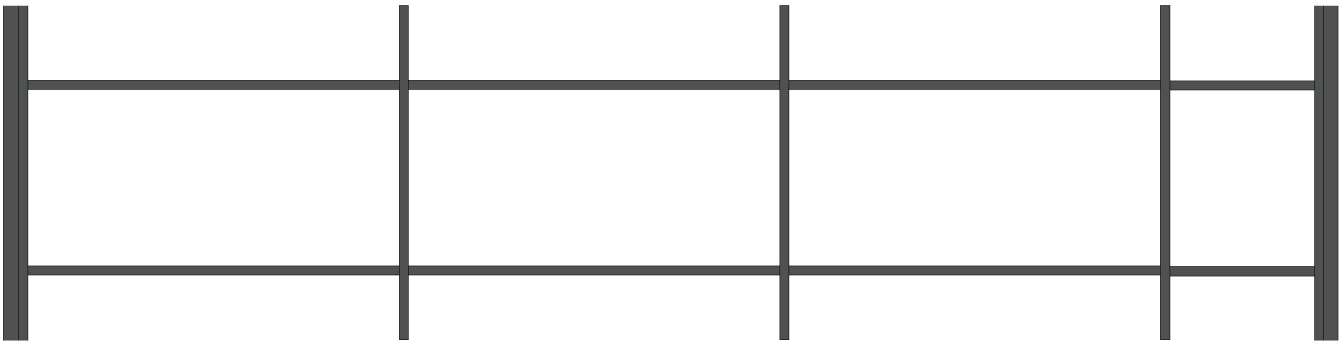
Perma Fence™ has the ability to reduce sound by up to 22dB, turning a noisy home into a quiet one.

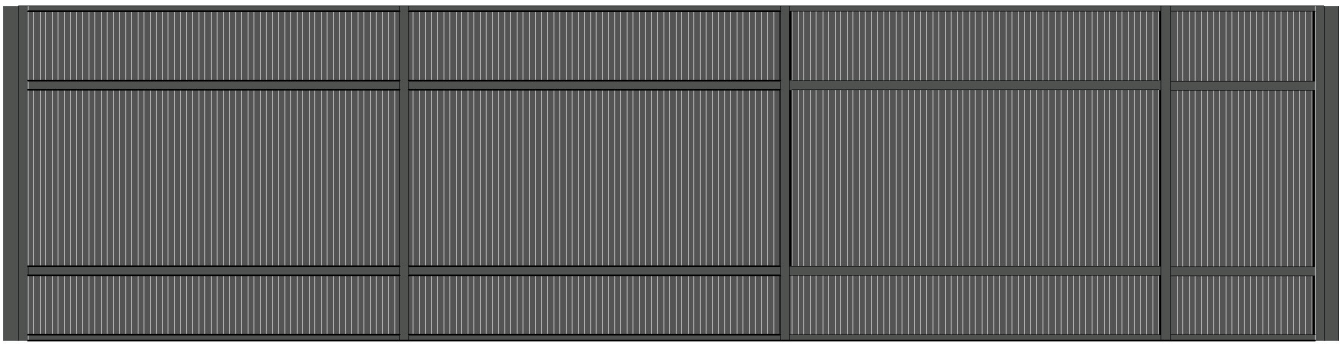
ALTERNATIVE CONFIGURATION

Due to its modular design, Perma Fence™ by PermaTimber® can be used in a variety of different configurations.

FRAMED CONFIGURATION

Steel framework can be used for ease of installation and extra support. Please speak to your local PermaTimber® representative for more information.





MAINTENANCE REQUIREMENTS

Perma Fence™ by PermaTimber® is suitable for use in marine environments, as the composite timber material will not rot or corrode. General cleaning will be required when it becomes dirty, please refer to the PermaTimber® Care Guide for further instructions.

Perma Composites® does not accept liability for any loss or damage suffered as a result of any errors in the interpretation or application of this design guide. Any person wishing to check any calculations made by them pursuant to this method may wish to seek independent engineering advice.