Metalcraft Fencing

SELECTION & INSTALLATION GUIDE

THIS GUIDE IS FOR LOW TO HIGH WIND ZONES ONLY, FOR VERY HIGH AND ABOVE WIND ZONES GO TO PAGE 8 FOR INFORMATION.

BEFORE YOU START

- Read this guide completely to ensure you understand the process.
- Check council regulations on boundary fencing.
- Check for underground services before you dig.
- Identify the soil type to determine the concrete required for the job.
- Ensure you have the right components and tools. →
- Pay particular attention to items marked IMPORTANT as they will ensure the satisfactory long term performance of your fence. These items include:
  a) Post holes of the correct size and concrete.
  b) The recommended number of self-drilling screws to fix posts together.
- Check your wind-zone, you can identify this by:
  a) Using BRANZ maps: www.branz.co.nz/branz-maps-zones/
  b) Enquire at your local council; or
  c) If you have consent documentation for your home-building the wind-zone is most likely on the plans; or
  d) Contact Metalcraft Fencing and they will find out for you.

EQUIPMENT REQUIRED

- Self-drilling Screw Gun/ Drill
- Spirit Level
- Tin Snips or Nibbler
- Rubber Mallet
- String Line & Marker Pegs
- Shovel / Spade
- Marker (NOT lead pencil)
- Concrete
- Hacksaw
- Rivet Gun
- Post Hole Digger
- Tape Measure
- Safety Glasses & Gloves

WINDZONES

- You may need to use a smaller 2 sheet panel if:
  a) Your fence is in a "High wind-zone" location; or
  b) Will be over the height of 1.8 meters

CHOOSE THE RIGHT FENCE

STEP 1. CHOOSE YOUR FENCE STYLE & COMPONENTS

FENCE COMPONENTS

- **Sheets** made to custom lengths
- **Slats** made to custom lengths
- **Posts** (0.95mm BMT) made to custom lengths
- **Rails** (0.95mm BMT) lengths vary depending on profile selection
- **Post Caps**
- **Fasteners**
- **SHS Posts**
- **Gates**

CONSULT YOUR METALCRAFT BRANCH FOR PROFILE, SIZE & COLOUR AVAILABILITY

AZTEC
0.35mm BMT

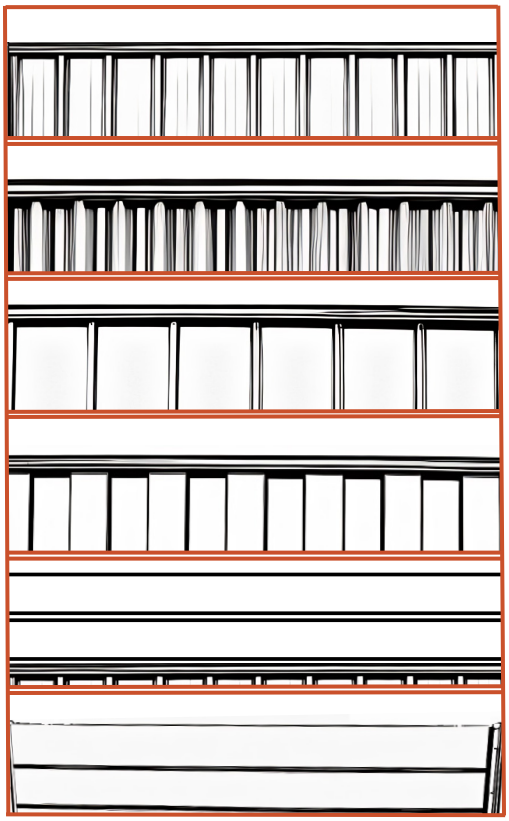
KAHU
0.40mm BMT

METSPAN
0.40mm BMT

APEX
0.40 BMT

METRAIL
0.55 BMT

PARADOX
0.55 BMT



STEP 2. ESTABLISH FENCE SPACINGS

Sheet Infill Style	Low-Med Windzone Fence Post Spacing (3 sheets)	Low-Med Windzone Fence Rail Size (3 sheets)	High Windzone Fence Post Spacing (2 sheets)	High Windzone Fence Rail Size (2 sheets)
Aztec	2.380	2.360	1.620	1.600
Kahu	2.725	2.705	1.850	1.830
Metspan	2.260	2.240	1.530	1.510
Apex	2.110	2.090	1.450	1.430
Paradox/Metslat	2.000			

STEP 3. DETERMINE YOUR POST FOOTINGS

IMPORTANT!

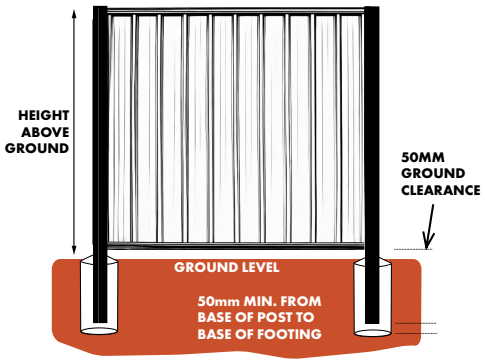
	FENCE HEIGHT			Quanity of 20KG Concrete Bags Required per Hole
	1500	**1800**	**2100**	
WIND REGION	LOW, MEDIUM & HIGH			
SOFT CLAY, LOOSE SAND	200 dia. x 900mm deep			3
MED - DENSE SAND, GRAVEL,	200 dia. x 600mm deep	200 dia. x 900mm deep		2
ROCK	200 dia. x 300mm deep			1

*Based on standard 3 Panel System

STEP 4. CALCULATE THE REQUIRED POST LENGTH

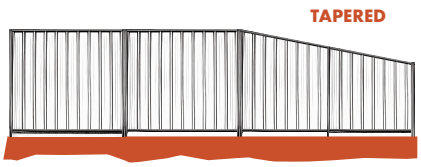
FOOTING DEPTH LESS 50mm + **HEIGHT ABOVE GROUND*** = **REQUIRED POST LENGTH**

***HEIGHT ABOVE GROUND CALCULATED BY:** In fill panel height + 50mm ground clearance

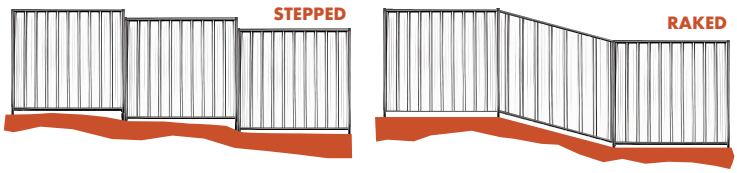


STEP 5. DETERMINE ENDS, CORNERS

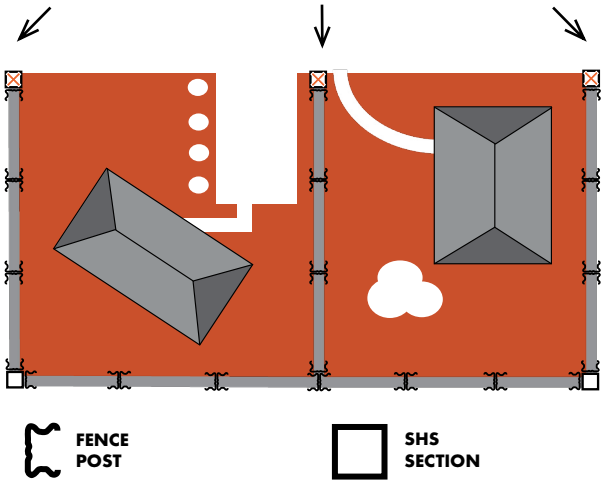
End Panels also know as "Free ends" can either be "Tapered" to reduce wind pressure for the last two panels and will need to be be two sheet panels only tapering to 1.2 high; or



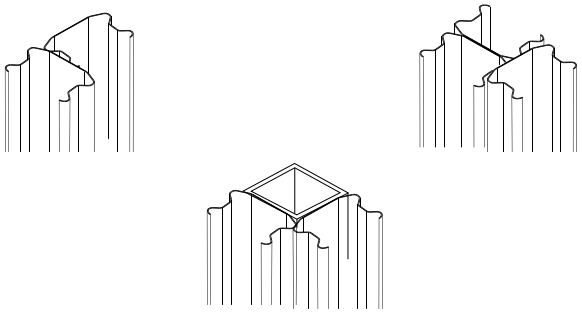
If the ground is not level where your fence is being installed you will need to consider if the fence will be stepped or raked.



For 1.8 high end panels in high wind-zones a 65x65x2.5 SHS End Post is required, as shown in diagram marked with X.



CORNER OPTIONS



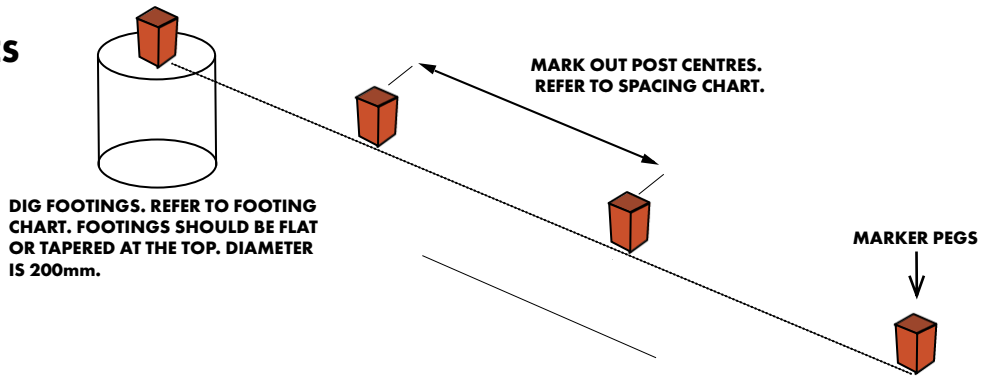
Use a powder-coated SHS post as a corner for a neater & stronger finish. Available from Metalcraft in 65 x 65 and 75 x 75.

INSTALLING YOUR FENCE

STEP 6. MARK OUT THE POST HOLES

(see step 2 for profile spacings)

Run a string line the length of the fence and dig the first hole.

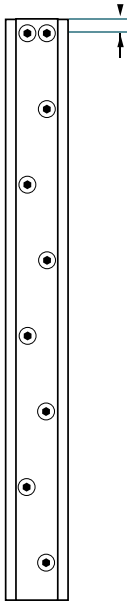


STEP 7. ASSEMBLE POSTS

IMPORTANT!

Assemble posts by screwing them back-to-back with at least 9 screws, staggering the centre screws

HINT: Position the top screw below your top rail to avoid catching when positioning the top rail in place.



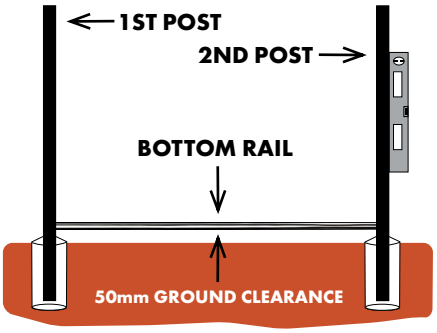
2 x SCREWS APPROX. 60mm FROM TOP OF POST

Use minimum 9x 10 -16 x16mm SELF- DRILLING SCREWS no more than 300mm apart

STEP 8. INSTALL POSTS

PREPARE THE FIRST POST

1. Measure down a single post the height your fence will be out of ground, and mark - this is the bottom rail position.
2. Place in footing and adjust to correct height ensuring the footing is 50mm deeper than the end of the post.
3. Concrete the post in making sure the bottom rail mark is no more than 50mm above the ground.
4. Pack the concrete hard against the post and use a level to ensure the post is vertical. Ensure the top of the concrete tapers away from the post to allow for drainage.
5. Clean off any concrete splashes and allow to set.



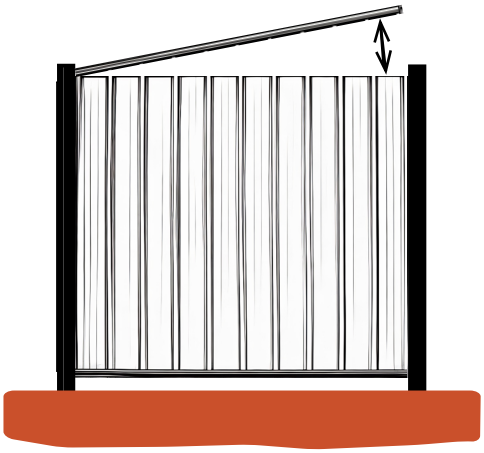
***Based on Aztec Panels, see Profiles (page2) for other widths**

PLACE REMAINING POSTS

1. While the first post is setting lay a string line, mark out and dig the remaining holes at 2380mm centres*. Use the bottom rail as a guide. Remember raked fences may require longer rails.
2. Position gate posts if required.
3. Place the second post into the hole and insert a bottom rail between the posts using the marks to position. Ensure the rail is inserted fully into the posts and that there is a gap of 50mm between the bottom rail and the ground. Placing a packer under the rail can assist while the rail is then screwed into position.
4. Place the top rail into the posts and fix with self-drilling screws on both sides of the post. Do not fully tighten as these screws must be removed to insert the sheets. Use a level to position posts in line and at the correct height. Concrete in the second post.
5. Continue to install the framework until completed. Do not install the infill sheets at this time.

STEP 9. INSTALL INFILL SHEETS

Allow the concrete to set for a minimum of 24 hours. Remove the screws on one side of the top rail and hinge it up to slide the infill sheets into the bottom rail. Lower the top rail over the sheets to help hold the sheets together.



Allow for an overlap when inserting the second sheets. Refer to the below diagram:

ATLAS, METSPAN OVERLAP

AZTEC, THOUSAND, KAHU OVERLAP

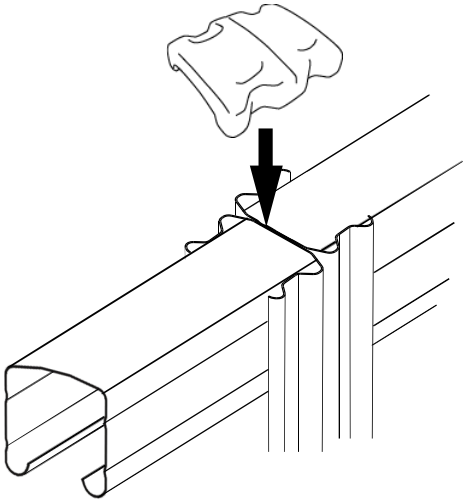
Once the 3rd sheet is in place step back and assess the panel. Make adjustments where required to ensure rails are aligned and the overall panel looks right. Screw the top rail in place once satisfied.

STEP 10. COMPLETING THE FENCE

Before screwing any rails into position step back and assess the fence. Check infill sheets run parallel to the posts; ensure overlaps are tidy and flush and rails are aligned. Make adjustments as required and then screw the rails into position. Rinse the fence clean of swarf.

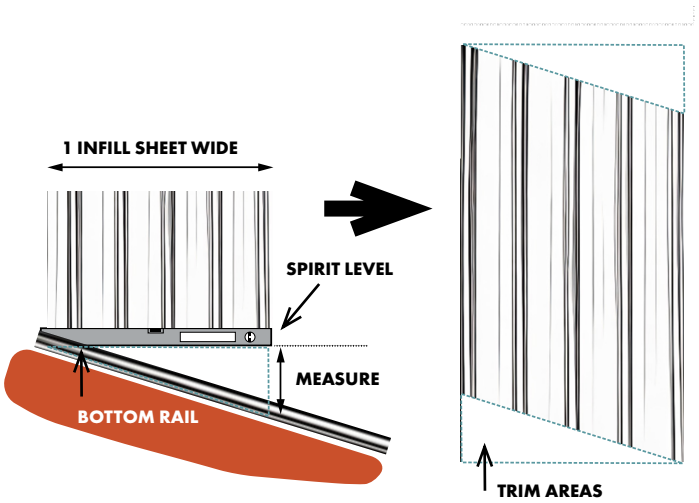
Fix specially designed Metalcraft Fence post caps to your fence using hex-head screws or silicone sealant.

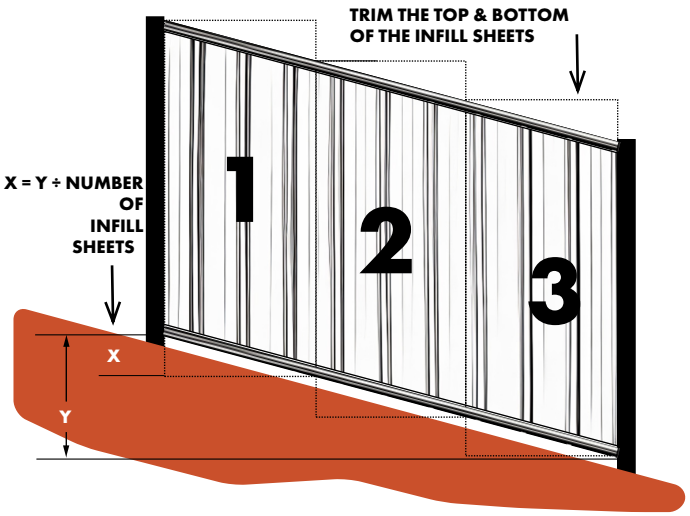
Single caps are supplied where needed.



HOW TO DETERMINE THE CUT OF INFILL SHEETS

1. Place a spirit level inside the rail at the high end.
2. Measure across the width of a sheet. From this point measure the height from the bottom of the level to the inside of the rail. This determines the angle of the cut.
3. Where possible match the angle of the top of the rail to that of the bottom rail. The top rail angle can be adjusted if desired, but note that the post height will increase. Make allowances for this when fixing posts in the ground.
4. Measure the height of the cut required from the base of the infill sheet. Do the same at the top of the sheet to ensure angles match. Ensure you measure from edge to edge of the infill sheet. Placing all 3 infill sheets together and cutting once will ensure uniform finish.

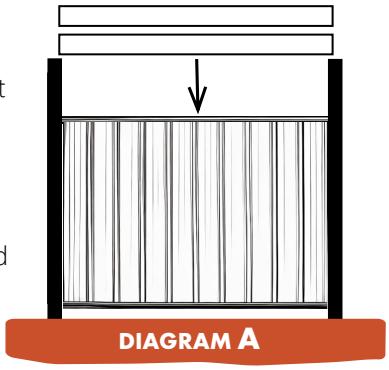


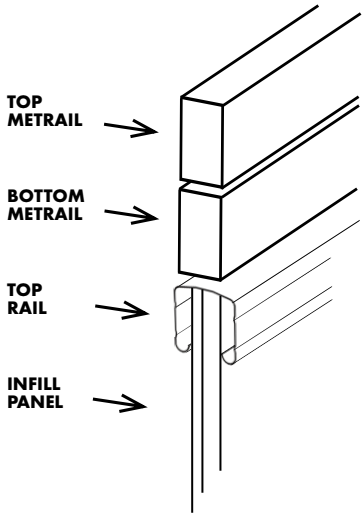


HOW TO INSTALL METRAIL & PARADOX

METRAIL INSTALLED AS TOP RAIL ON A FENCE

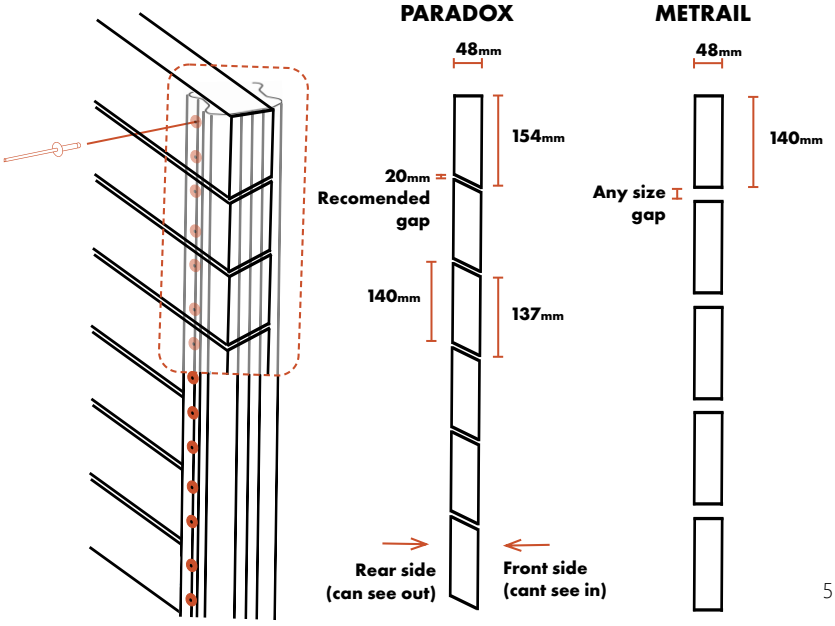
1. Calculate the total post length necessary to match your required Infill-sheet height and MetRail gap measurements.
2. Install posts as step 8 - ensure you have the correct infill-sheet horizontal spacings; refer to Step 2.
3. Build the bottom infill section of fence as per diagram A.
4. Slide the MetRails down the posts to the desired positioning and fix with rivets.
5. Fix Metalcraft Fence post-cap to your post-top using hex-head screws or silicone sealant.
6. Tag the fence so you can later recognize your work.





PARADOX & METRAIL FULL FENCE INSTALL

1. Slide Paradox/MetRail down panel ensuring the ends are inserted into the posts.
2. Lift top Paradox/MetRail flush with top of post.
3. Rivet off at both ends with 2 rivets back and front of fence.
4. Continue with rest of Paradox/MetRail spacing as per recommended or chosen for MetRail.
5. Fix specially designed Metalcraft Fence post caps to your fence using hex-head screws or silicone sealant.
6. Hose down with water once completed to ensure filings and swarf is removed.



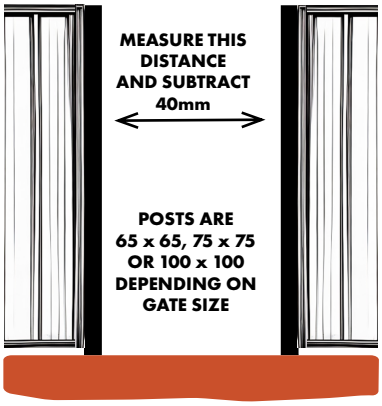
GATES

Metalcraft gates are manufactured to size with personal access (PA); single and/or double swinging and sliding gate options are available. The frames are welded, making them strong and ensuring they do no twist, bend or break. Gates are available in the fence colour range and with slat tops.

Posts are available in 65 x 65 x 2.5mm for smaller, single gates and in 75 x 75 x 2.5mm or 100 x 100 x 2.5mm for large gates.

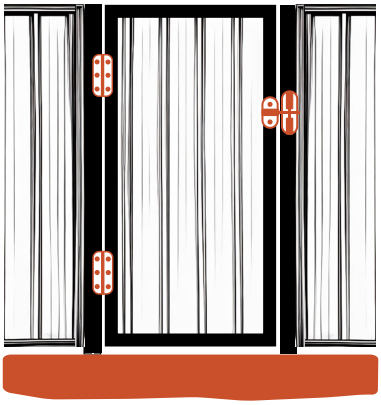
INSTALLING YOUR PA GATE

1. Once you have two fixed points between which the gate is to hang (normally two gate posts), measure the distance between the two points and subtract 40mm to allow for the hinges and latch.
The measurement is the final width that the actual gate needs to be.



2. Determine the orientation for the gate, whether hinged on the left or right and whether opening inwards or outwards.
Then position and attach the hinges on the gate.
(recommended between 100 and 150mm from top and bottom)

Lift the gate into position, ensuring the gate is level and in the correct position.
Once you are happy with the placement fasten the hinges to the posts.



3. Install the latch (refer to the manufacturer's guide on how to install)

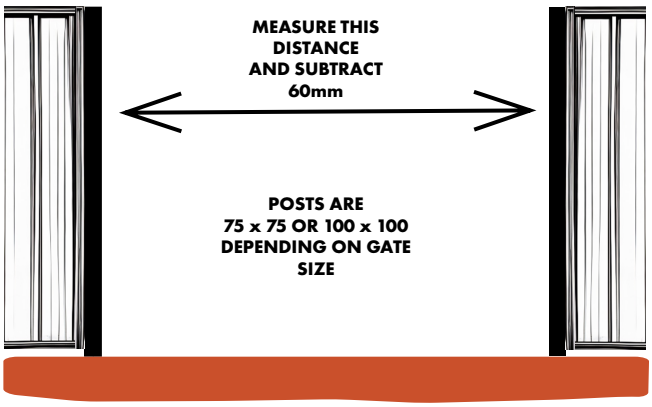
INSTALLING DOUBLE SWING GATES

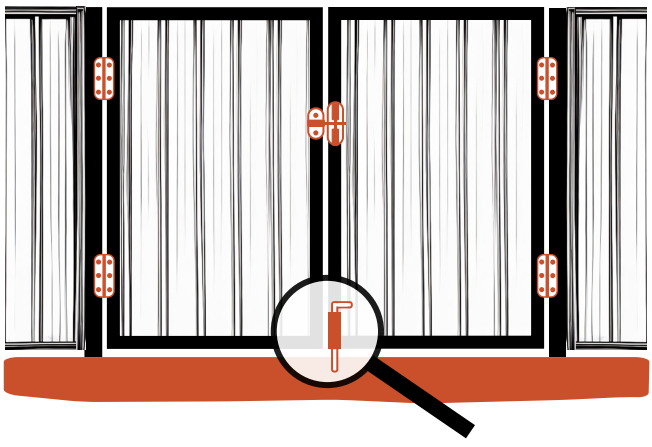
1. Once you have two fixed points between which the gates are to hang (normally two gate posts) measure the distance between the two points and subtract 60mm to allow for hinges and latch.
The measurement divided by two is the final width the actual gates need to be.

2. Determine whether opening inwards or outwards. Then position and attach the hinges on the gate.
(recommended between 100 and 150mm from top and bottom)

3. Lift one gate into position, ensuring the gate is level and in the correct position. Lift the second gate into position, also ensuring the gate is level and in the correct position and aligns with the first gate.
Once you are happy with the placement fasten the hinges to the posts.

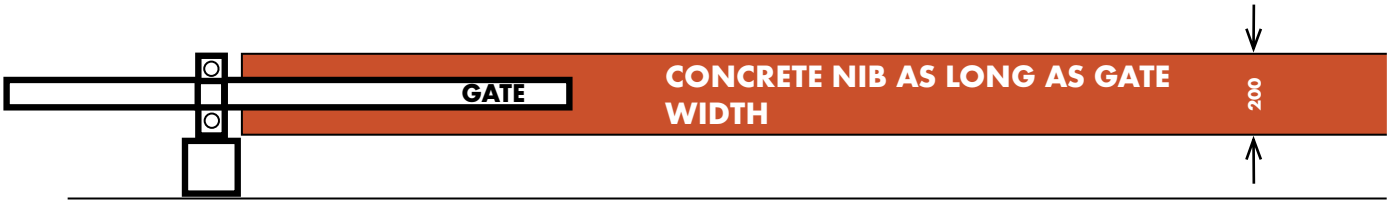
4. Install the latch (refer to the manufacturer's guide on how to install) and drop bolt.





INSTALLING YOUR SLIDING GATE

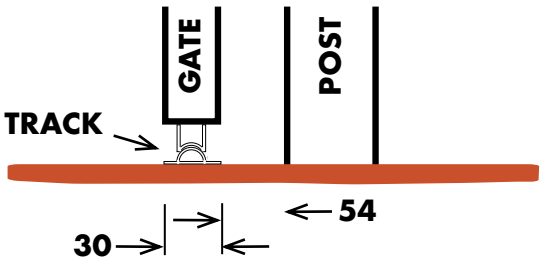
1. Prepare ground behind the fence at the gate opening end.
This is for the concrete plinth to carry the sliding track. The plinth will be as wide as the gate opening and at least 200mm wide.



2. Dig the area down at least 100mm beneath ground level, 200mm minimum wide. Once excavated, install boxing to the perimeter of the plinth and pour concrete into the area. Note: This must be level so when the gate is installed, gravity will not either open or close the gate.

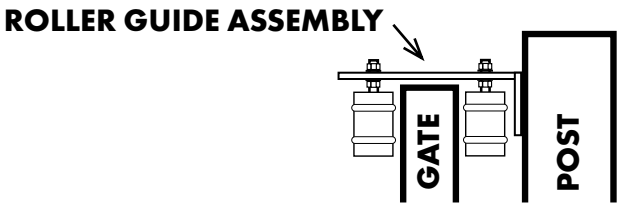
3. Once concrete has cured (a minimum of 24 hours) remove boxing and landscape the surrounding area, so no stones or debris will get onto the sliding gate track.

4. Using a stringline or chalk-line, mark the line for the gate across the driveway and plinth. This will be the centre of the track. It must be a minimum of 54mm from the gate post + half the thickness of the gate.
Eg: if the gate is 60mm thick then - 30 + 54 = 84mm from the post.



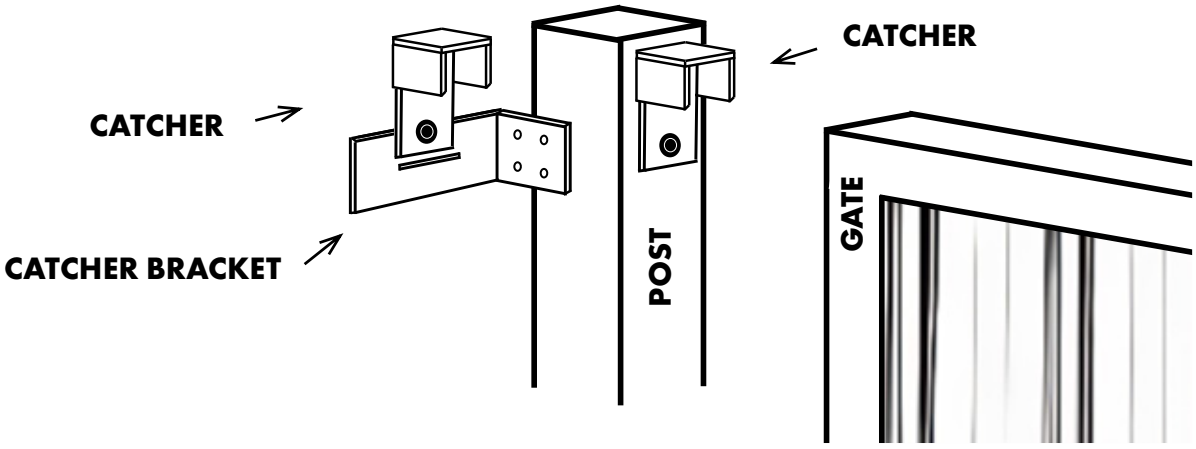
5. Fix the track to concrete with 6mm dynabolts (minimum of 50mm long) through the holes provided in the track.

6. Fix the Roller Guide Assembly to the post so the rollers are in contact with the top frame of the gate. Using the adjustment of the bolts on the Roller Guide Assembly to ensure the gate is plumb.



7. Once the gate is hung and sliding freely along the length of the track, install the stopper over the track (using 6mm dynabolts). The position is gauged by when the gate is fully open. Ensure the gate is still inside the Roller Guide Assembly.

8. Close the gate and using the catcher and catcher bracket. Mount these on the post on the closing side of the gateway.
This is positioned over the top of the gate, preventing it being lifted to gain access. (if the gate closes against the post, then the catcher bracket is not needed. If the gate closes beside the post use the catcher bracket to mount to the post and bolt the catcher to the catcher bracket.



WIND REGIONS AND ZONES

FOR WIND REGIONS OF VERY HIGH AND ABOVE CONTACT OUR TEAM AT METALCRAFT FENCING.
Determining your property's wind zone is a straightforward process. Follow these simple steps and options:

- BRANZ Interactive Map:

Search your address at branz.maps.arcgis.com to view your location's regional wind classification.

- Local Council Overlays:

Download territorial authority wind-load rating PDFs or GIS layers.

- Building Consent Records:

Review your existing consent documents—your site's wind-speed category is often specified.

- Engineering Assessment:

For sites with complex topography or "Specific Design" requirements commission an AS/NZS 1170.2 report to establish your wind-load designation.

NZS 3604 classifies wind zones into categories, set out in the following table according to maximum ultimate limit state speeds

MAXIMUM SPEED

	METRE PER SECOND	KILOMETRE PER HOUR
Low	<Below 32 M/S	<Below 115.2 KM/H
Medium	<Below 37 M/S	<Below 133.2 KM/H
High	<Below 44 M/S	<Below 158.4 KM/H
Very High	<Below 50 M/S	<Below 180 KM/H
Extra High	<Below 55 M/S	<Below 198 KM/H
Specific Design (SD)	>Over 55 M/S	>Over 198 KM/H

HIGHEST MAXIMUM WIND GUST AT SELECTED NEW ZEALAND LOCATIONS
RECORDED UP UNTIL 2016, KM/H

Wellington	146.4 KM/H	Invercargill	118.6 KM/H
Lake Tekapo/Whangaparaoa	109.3 KM/H	New Plymouth/Gore	107.5 KM/H
Napier	103.8 KM/H	Christchurch	101.9 KM/H
Rotorua	98.2 KM/H	Dannevirke	96.4 KM/H
Timaru	94.5 KM/H	Hokitika	92.7 KM/H
Taupo	90.8 KM/H	Reefton	70.4 KM/H
Masterton	44.5 KM/H	Hamilton/Whanganui	83.4 KM/H
Auckland/Queenstown/Tauranga	85.2 KM/H	Gisborne/Whangarei	79.7 KM/H

Design Considerations: Refer to the fencing Act 1978 for legal considerations and obligations when building a fence.