



NZ MADE AND TESTED TO PERFORM
TO NZ SEVERE WIND CONDITIONS.

PROUDLY USING  COLORSTEEL.



Eco[®]
Choice
Aotearoa

LICENSE NUMBER: 5717145

METAL FENCING DESIGN GUIDE

BEFORE YOU BEGIN

Before you begin ordering your fence you need to determine if you need building consent or resource consent, your local council will also have rules and regulations that your fence will need to comply with.

Its important you understand these requirements before ordering and installing a fence.

Its important to get written permission from your neighbour and get them to agree on the fence design, height and installation as well.

If your neighbour objects, then you might want to refer to the Fencing Act 1978 as this offers guidelines and advice on how best to proceed, it also explains your rights.

The Fencing Act 1978 gives you the right to build a fence on the boundary line, if your neighbour refuses the build, you might want to issue them with a fence notice.

We recommend you read the Fencing Act:
www.legislation.govt.nz

For more information about fence notices go to consumer.org.nz/articles/fencing-law.

or;

Citizens Advice Bureau
www.cab.org.nz/search/fencing

You need to also agree on who is to pay for the fence typically if its a boundary fence then the costs are typically split 50-50 with your neighbour.

IT'S IMPORTANT TO GET AGREEMENT IN WRITING ON YOUR METALCRAFT FENCE, FROM YOUR NEIGHBOUR IN WRITING PRIOR TO PROCEEDING AND AGREE ON PAYMENT.

SEEK EXPERT ADVICE IF IN DOUBT.

CONSENT FAQ'S

WHAT HEIGHT FENCE CAN I BUILD?

This will depend in which Local Authority you plan to install the fence. Each Local Authority has different requirements for fence heights positioned at front of house, fence in front of house on boundary line and also different requirements for fencing along the boundary line.

Its important you get it right before ordering and installing your fence.

DO I NEED BUILDING CONSENT TO INSTALL A FENCE?

Please note your local council will have restrictions regarding maximum fence height for front of house and also for fencing down the boundary line with your neighbour's.

IMPORTANT TO CHECK WITH YOUR LOCAL COUNCIL AS TO YOUR REGIONAL FENCE HEIGHT RESTRICTIONS.

Fences to access a residential pool or barrier fencing will require a building consent. You may need resource consent for your fence.

WE RECOMMEND YOU
CONSULT WITH
YOUR LOCAL COUNCIL
SO YOU ORDER
THE RIGHT FENCE.
FOR YOUR SITE



SELECTING THE RIGHT FENCE

SELECTING THE RIGHT FENCE FOR YOUR ENVIRONMENT IS IMPORTANT. ALL FENCING NEEDS TO BE DESIGNED TO WITHSTAND THE WIND CONDITIONS AT THE SITE WHERE THE FENCE IS TO BE ERECTED.

WE HAVE TESTED OUR METAL FENCING IN NZ TO WITHSTAND THE HARSH WIND CONDITIONS OF THE NEW ZEALAND ENVIRONMENT.

THE WIND LOAD ON YOUR FENCE AT YOUR SITE WILL DEPEND ON A NUMBER OF FACTORS, INCLUDING WHERE YOU LIVE, WHERE THE FENCE IS TO BE INSTALLED AND THE NUMBER OF SURROUNDING PROPERTIES.

ONCE YOU DETERMINE YOUR WIND ZONE YOU ARE READY TO BEGIN SELECTING THE RIGHT FENCE FOR YOUR SITE.

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STEP 1 - IDENTIFY YOUR WINDZONE

HOW TO IDENTIFY YOUR WIND ZONE REGION?

The easiest way to determine your wind zone is by looking on the Branz site as they have a wind zone identification map, you can find this here: www.branz.co.nz/branz-maps-zones/ (please read terms and condition of use and disclaimer on Branz website)

Or:

Alternatively you can enquire at your local council, or look on your house plans -If you have consented documentation for your home the wind zone is most likely on the plans.

Or:

Alternatively NZS 3604:2011 can be used to determine your wind zone region, however it can be complicated to understand so if you find it difficult you might need to seek assistance.

YOU CAN DOWNLOAD THE GUIDANCE DOCUMENT:

DETERMINE YOUR WIND ZONE REGION TO NZS3604:2011

THIS CAN BE DOWNLOADED FROM WWW.METALCRAFTGROUP.CO.NZ

Or contact your Metalcraft Fencing branch who can assist on how best to proceed.

WIND ZONES EXPLAINED

NZS 3604:2011 is a New Zealand standard and it contains the basic wind speed regions for New Zealand and also the modifying factors that govern the design wind load.

The predominant wind speed for New Zealand is 45m/s (High wind zone). The exceptions are either side of Cook Strait and areas in the lee of mountainous areas.

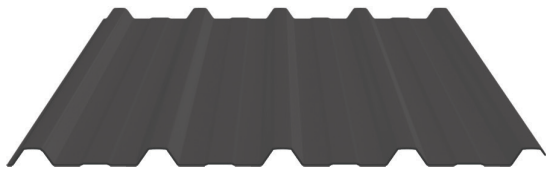
Terrain also has a big effect. Structures near the crest of a rise or on flat land near a steep face will have increased design wind pressure.

Wind Design Load is affected by design factors such as height, shape, proportions and orientation.

STEP 2 -SELECT YOUR FENCE PROFILE

AZTEC PROFILE NEW ZEALAND WIDE

Aztec has strong defined lines. The Aztec profile has a raised five rib trapezoid form on one side, and a flat aspect on the other.



PANEL CONFIGURATIONS:
Dimensions are nominal.

- 1 sheet width = 860mm
- 2 sheet width = 1620mm
- 3 sheet width = 2380mm

KĀHU® PROFILE SOUTH ISLAND ONLY

A contemporary look with strong defined shadow lines. The Kāhu® profile has a high rib symmetrical profile which looks great from either side of the fence.



PANEL CONFIGURATIONS:
Dimensions are nominal.

- 1 sheet width = 925mm
- 2 sheet width = 1850mm
- 3 sheet width = 2725mm



STEP 3 -SELECT YOUR FENCE COMPONENTS

FENCE COMPONENTS

- Posts
- Rails
- Post caps
- Gates
- Post Stiffeners
- SHS posts
- Fasteners

GATES

Metalcraft Roofing has a range of gates to complement the standard range of Metalcraft fencing and accessories.

For more information on gates please contact your Metalcraft Fencing branch.

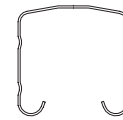
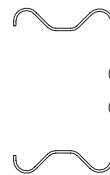
POST AND RAILS

An innovative roll formed post and rail system offers the dual benefit of strength and ease of installation. A key advantage of this fencing system is that our steel posts and rails are robust enough to eliminate the need for any intermediate rails, affording clean lines and a tidy look on both sides of the fence.

The post and rails are available as standard in the same colours as the fence. If you want you can also request post and rails in another complementary colour to the metal fence panels. Refer to the 6 stocked colours for options.

POST
0.95BMT G550 STEEL

RAIL
0.75 BMT G550 STEEL



STEP 4 -SELECT YOUR FENCE COLOUR

Metalcraft Fencing is available in 6 popular double sided colours from New Zealand Steel in COLORSTEEL® ENDURA®. For non-stocked colours please check availability and minimum order quantities with your local Metalcraft Fencing branch.

WE STRONGLY RECOMMEND CHECKING YOUR CHOSEN COLOUR AGAINST AN ACTUAL SAMPLE OF THE PRODUCT BEFORE PURCHASING AS VARYING LIGHT CONDITIONS AND LIMITATIONS OF THE PRINTING PROCESS WILL AFFECT COLOUR TONES.

These can be obtained from your nearest Metalcraft Fencing branch.

GREY FRIARS



TITANIA



IRONSAND



FLAXPOD®



TEMPEST (EBONY)

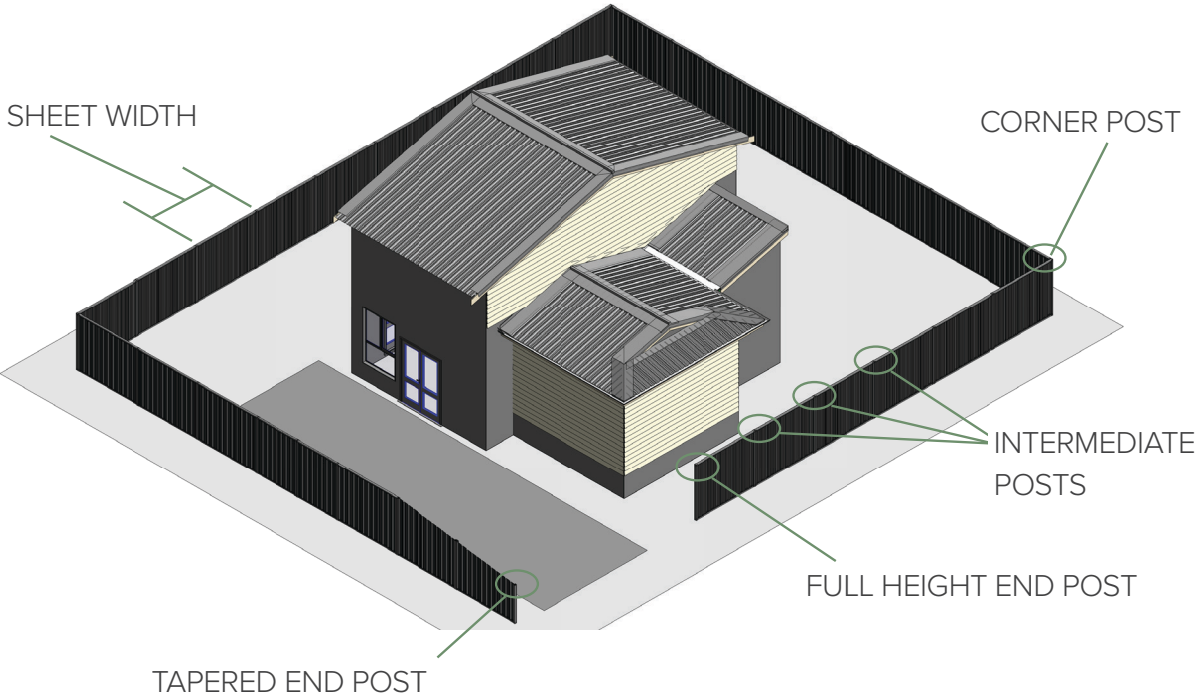


THUNDER GREY



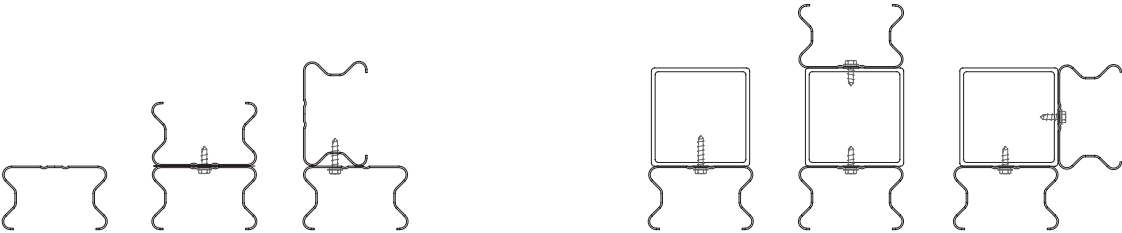
STEP 5 -SELECT SHEET AND CONFIGURATION OPTIONS

WHEN CHOOSING YOUR FENCE PANEL CONFIGURATION YOU MUST CONSIDER THE HEIGHT OF THE FENCE, AND ALSO THE WIND ZONE WHERE YOUR FENCE IS TO BE INSTALLED. IF YOUR DESIRED SHEET CONFIGURATION IS NOT ACHIEVABLE YOU MIGHT NEED TO REDUCE THE FENCE HEIGHT OR USE A STIFFENER BETWEEN THE POSTS.



ENDS, CORNERS AND JUNCTIONS

The selection of the correct corner posts, intermediate posts and end posts is determined by the wind zone and fence height for your site.



STEP 6 -SELECT CORRECT SHEET CONFIGURATION

FENCE END TYPES

The correct sheet width configuration for your site is important. The wind zone and fence height determines the sheet width required for your site. The wind load at ends of fences are typically double to that on an intermediate post so its important you select the correct sheet and stiffening requirements for your fence height and wind region.

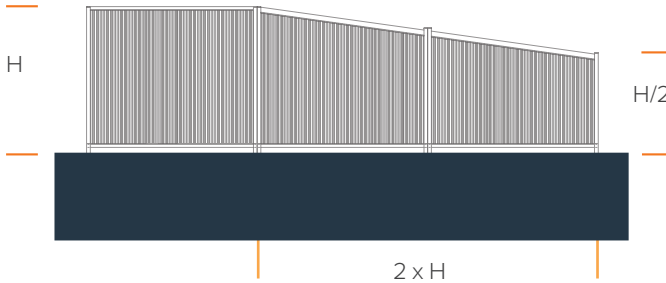
STRAIGHT END

Straight end posts



TAPERED END

The end post on a tapered fence needs to be half the height of the fence. The tapering applies to a horizontal distance of twice the fence height.



INSTALLATION TYPES

LEVEL GROUND FENCE

Level ground is the easiest to install on and provides for a level fence where post lengths are all the same.



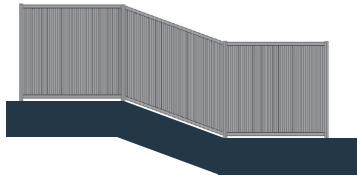
STEPPED FENCE

Stepped fencing is used when there is a large slope in ground level.



RAKED FENCE

On sloping or uneven ground it is recommended that you rake out your fence rather than choosing a stepped fence. This provides for a better finish and a stronger fence. Raked fences may require additional preparation of rails and infill sheets. Longer rails and sheets may be required for raked sites.



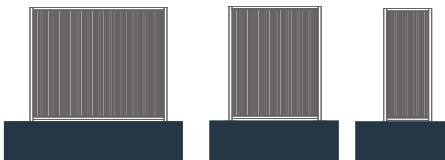
SHEET WIDTHS

The correct sheet width configuration for your site is important. The wind zone and fence height determines the sheet width required for your site.

3 SHEET WIDTHS

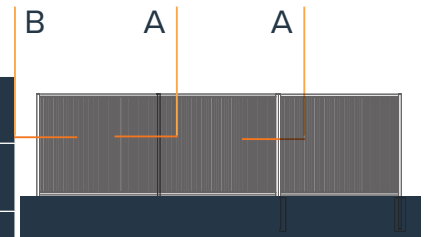
2 SHEET WIDTHS

1 SHEET WIDTH

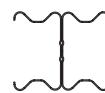


STEP 7 -CHOOSE CORRECT INTERMEDIATE AND CORNER POST OPTIONS

HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POSTS BACK TO BACK WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET				
	KAHU®	3 SHEET				
1.2	AZTEC	3 SHEET				
	KAHU®	3 SHEET				2 SHEET
1.4	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET			2 SHEET	
1.6	AZTEC	3 SHEET			2 SHEET	1 SHEET
	KAHU®	3 SHEET		2 SHEET	1 SHEET	
1.8	AZTEC	3 SHEET			2 SHEET	1 SHEET
	KAHU®	3 SHEET	2 SHEET	2 SHEET	1 SHEET	1 SHEET
2.1	AZTEC	3 SHEET	2 SHEET	1 SHEET		
	KAHU®	2 SHEET	2 SHEET	1 SHEET		NO



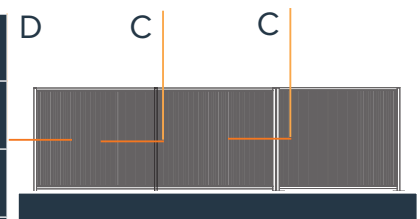
SECTION A
0.95MM POST
BACK TO BACK



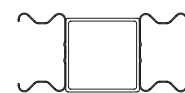
SECTION B
0.95MM POST
OUTSIDE ALIGNED



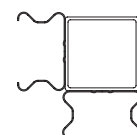
HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POSTS BACK TO BACK WITH 65X65X2.5MM STIFFENER WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET				
	KAHU®	3 SHEET				
1.2	AZTEC	3 SHEET				
	KAHU®	3 SHEET				2 SHEET
1.4	AZTEC	3 SHEET				2 SHEET
	KAHU®	3 SHEET			2 SHEET	
1.6	AZTEC	3 SHEET				2 SHEET
	KAHU®	3 SHEET			2 SHEET	
1.8	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET		2 SHEET		
2.1	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET		2 SHEET		



SECTION C
0.95MM DOUBLE POST
WITH ADDITIONAL
65X65X2.5MM SHS

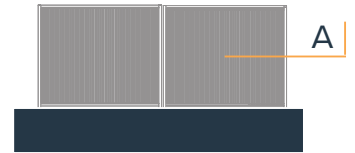


SECTION D
0.95MM POSTS
WITH ADDITIONAL
65X65X2.5MM SHS
OUTSIDE ALIGNED



STEP 8 -CHOOSE CORRECT STRAIGHT END POST OPTIONS

HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POST WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET	2 SHEET		1 SHEET	
	KAHU®	2 SHEET		1 SHEET		
1.2	AZTEC	2 SHEET		1 SHEET		
	KAHU®	2 SHEET		1 SHEET		
1.4	AZTEC	2 SHEET	1 SHEET			
	KAHU®	2 SHEET	1 SHEET			
1.6	AZTEC	2 SHEET	1 SHEET		NO	
	KAHU®	2 SHEET	1 SHEET		NO	
1.8	AZTEC	2 SHEET	1 SHEET		NO	
	KAHU®	1 SHEET			NO	
2.1	AZTEC	1 SHEET		NO		
	KAHU®	1 SHEET		NO		



SECTION A
WITH 0.95MM POST



PLEASE NOTE:
FOR ZONES DENOTED "NO" YOU WOULD NEED TO EITHER USE THE TABLE BELOW WITH A 65X65X2.5MM SHS OR REFER TO TAPERED END TABLES.

HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POST WITH 65X65X2.5MM STIFFENER WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET	2 SHEET		1 SHEET	
	KAHU®	2 SHEET		1 SHEET		
1.2	AZTEC	2 SHEET		1 SHEET		
	KAHU®	2 SHEET		1 SHEET		
1.4	AZTEC	2 SHEET		1 SHEET		
	KAHU®	2 SHEET	1 SHEET			
1.6	AZTEC	2 SHEET	1 SHEET			
	KAHU®	2 SHEET	1 SHEET			
1.8	AZTEC	2 SHEET	1 SHEET			
	KAHU®	1 SHEET			1 SHEET	
2.1	AZTEC	1 SHEET			1 SHEET	
	KAHU®	1 SHEET			1 SHEET	

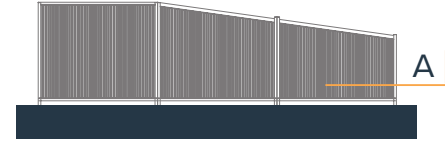


SECTION B
0.95MM POST
WITH ADDITIONAL
65X65X2.5MM SHS



STEP 9 -CHOOSE CORRECT TAPERED END POST OPTIONS

HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POST WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET				
	KAHU®	3 SHEET	2 SHEET		1 SHEET	
1.2	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET	2 SHEET		1 SHEET	
1.4	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET	2 SHEET		1 SHEET	
1.6	AZTEC	3 SHEET			2 SHEET	1 SHEET
	KAHU®	3 SHEET	2 SHEET	1 SHEET		
1.8	AZTEC	3 SHEET	2 SHEET	1 SHEET		
	KAHU®	2 SHEET		1 SHEET		NO
2.1	AZTEC	2 SHEET	1 SHEET			
	KAHU®	2 SHEET	1 SHEET		NO	

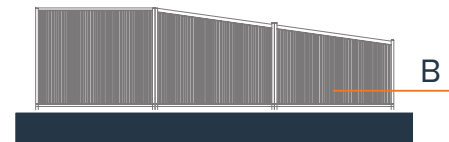


SECTION A
0.95MM POST



PLEASE NOTE:
FOR ZONES DENOTED "NO" YOU WOULD NEED TO EITHER USE THE TABLE BELOW WITH A 65X65X2.5MM SHS.

HEIGHT (m)	FENCE PROFILE	WIND ZONE AS DEFINED IN NZ3604:2011				
		0.95MM POST WITH 65X65X2.5MM STIFFENER WITH 0.75mm RAILS				
		MAXIMUM SHEET WIDTH REQUIRED				
		LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
1.0	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET			2 SHEET	
1.2	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET			2 SHEET	
1.4	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET	2 SHEET			1 SHEET
1.6	AZTEC	3 SHEET			2 SHEET	
	KAHU®	3 SHEET	2 SHEET		1 SHEET	
1.8	AZTEC	3 SHEET	2 SHEET			1 SHEET
	KAHU®	2 SHEET		1 SHEET		
2.1	AZTEC	3 SHEET	2 SHEET	1 SHEET		
	KAHU®	2 SHEET		1 SHEET		

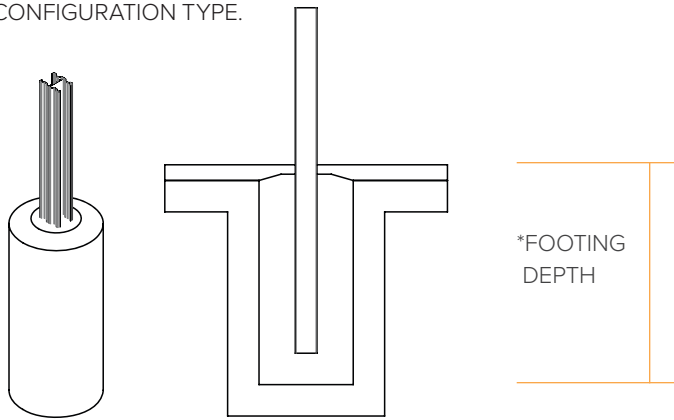


SECTION B
0.95MM POST
WITH ADDITIONAL
65X65X2.5MM SHS



STEP 10 -CHOOSE CORRECT FOOTING SIZE

THE FOOTING DETAIL WILL CHANGE PER POST CONFIGURATION TYPE.



GUIDANCE NOTES

Soil to be "Good Ground" as per NZS 3604 (e.g. not fill or peat)

e.g. Firm to stiff clay (indented only by strong finger pressure)

e.g. medium-dense sand (25mm per Scala Penetrometer blow)

*FOOTING DEPTH:

*The footing depths below assume a 200 mm of surface topsoil. If topsoil is deeper than this, increase the footing depth accordingly. If the topsoil is less than this the footing size can also decrease accordingly.

Footing concrete 17.5 MPa, top surface sloping away from posts.

MOWING STRIP ALLOWANCE

If you want to include a mowing strip on top of the footing then you need to make height allowances for the size of mowing strip to be included within your footing design.

FENCE HEIGHT (M)	0.95MM POSTS BACK TO BACK	
	FOOTING DIAMETER (mm)	FOOTING DEPTH (mm)
1.0	250	500*
1.2	250	600*
1.4	250	700*
1.6	250	800*
1.8	250	900*
2.1	250	1050*

FENCE HEIGHT (M)	0.95MM POSTS BACK TO BACK + 65X65X2.5SHS	
	FOOTING DIAMETER (mm)	FOOTING DEPTH (mm)
1.0	300	500*
1.2	300	600*
1.4	300	700*
1.6	300	800*
1.8	300	900*
2.1	300	1050*

HOW MUCH CONCRETE DO YOU NEED?

Calculate volume of footing size + topsoil depth and check with concrete bag label. As an approximate indication you might need:

INDICATIVE ONLY:

3 -20kg bags per footing for 200mm dia x 900mm deep
2 -20kg bags per footing for 200mm dia x 600mm deep

STEP 11 -DETERMINE CORRECT POST LENGTH

It is recommended that you rake out your fence on sloping or uneven ground rather than stepping the panels. This achieves a better finish and provides for a stronger fence. Raked fences may require additional preparation of rails and infill sheets. Longer rails and sheets may be required for raked sites. Where the rake is small the rail increase is not required. Rail length and infill sheet cuts are determined by the height of the raked section. Small rakes less than 150mm do not require an increase in rail length.

CALCULATE THE CORRECT POST HEIGHT

GROUND TYPE	FENCE HEIGHT (M)					
	1.0	1.2	1.4	1.6	1.8	2.1
(LEVEL GROUND)	HEIGHT ABOVE GROUND + INGROUND DEPTH					
STEPPED GROUND	HEIGHT ABOVE GROUND + HEIGHT OF STEP + INGROUND DEPTH					
SLOPED GROUND	HEIGHT ABOVE GROUND + HEIGHT OF SLOPE + INGROUND DEPTH					
IN-GROUND DEPTH	FOOTING DEPTH + TOPSOIL DEPTH - 100mm CLEARANCE					
FOOTING SIZE*	DEPENDS ON SOIL TYPE AND FENCE HEIGHT REFER PAGE 23					

RAKED RAIL LENGTHS

When you are requiring a raked fence the top and bottom rail will need to be longer in length and you should ensure you have allowed for the increase in the rail length to accommodate your slope and the degree of your degree.

BRANCHES

Metalcraft fencing is available nationwide from all of Metalcraft Roofing branches.

the following branches manufacture and distribute fencing.

Please contact for more information and if you require assistance with fencing orders and any enquiries you might have.

STEEL BUILDING PRODUCTS (CENTRAL)
TRADING AS:

METALCRAFT ROOFING- HASTINGS
1454A Omaha Road, Hastings

06 873 9020
sales.hastings@metalcraftroofing.co.nz

STEEL BUILDING PRODUCTS (SOUTH ISLAND)
TRADING AS:

METALCRAFT ROOFING -CHRISTCHURCH
85 Columbia Ave, Hornby, Christchurch

03 349 7350
sales.christchurch@metalcraftroofing.co.nz

DISCLAIMER

As part of Metalcraft Roofing's policy of continued improvement, final specifications may vary from those contained in this publication. The company reserves the right at any time and without notice to change the design, materials or features and withdraw products from the market without incurring any liability whatsoever. This publication is issued as a general guide only and should not be treated as a substitute for technical advice. Contact with your nearest Metalcraft branch is recommended to confirm current specifications and availability.



Metalcraft Roofing are members of the Roofing Association, New Zealand and the New Zealand Metal Roofing Manufacturers Incorporated.

For more information on Metalcraft Roofing visit:
www.metalcraftgroup.co.nz.

Metalcraft Roofing is part of United Industries Ltd.
For more information on United Industries visit:
www.unitedindustries.co.nz.

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