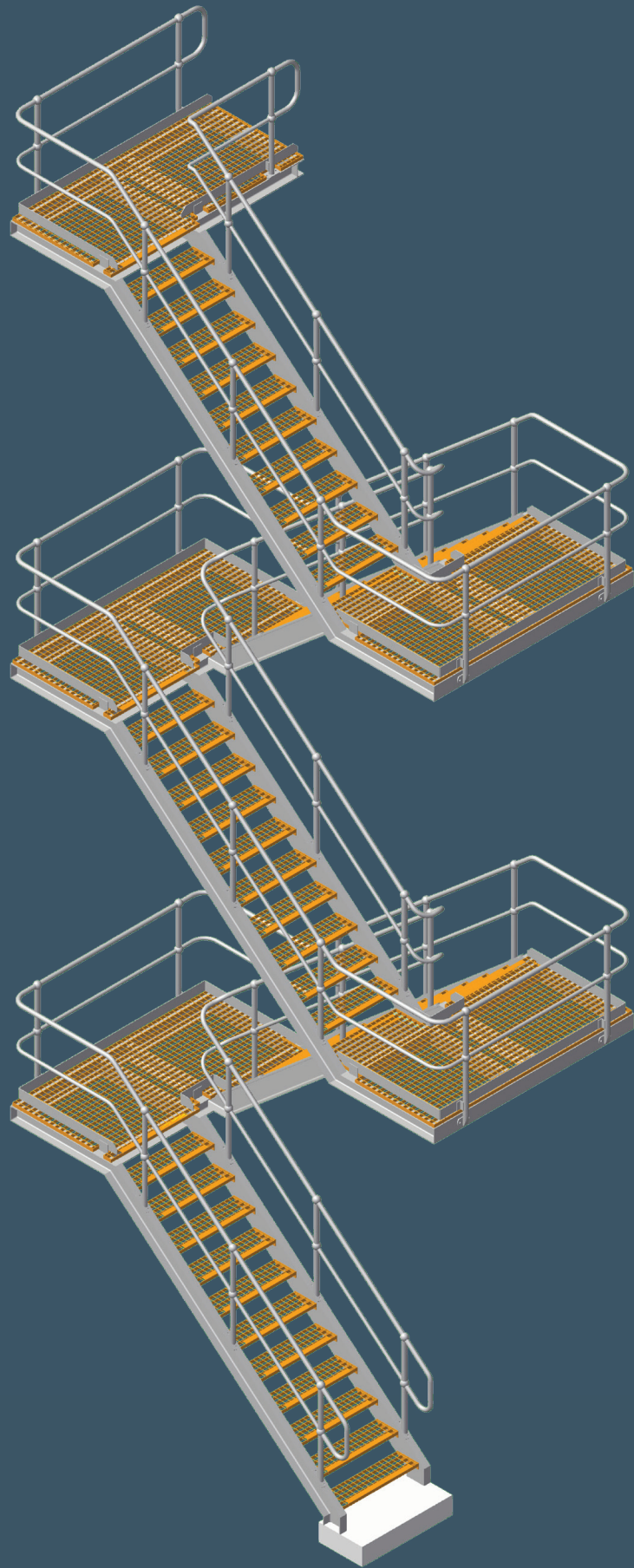


Mentis
AUSTRALIA



Grating &
Stair Treads



Isometric View
Stair Tower

Overview

Mentis Steel Grating is flat bar (Load bar) on its edge, spaced at 30, 40 or 60mm centres with a twist rod forged into the top of the flat bar at 50 or 100mm centres. Accepted internationally, forge welding is the strongest method of locking the load bars in place as each intersection is fused together with a massive amount of heat and pressure.

Mentis Grating panels are fabricated from untreated stock sheets in widths (length of twist rod) of 965 to 1005, subject to pattern choice and lengths (length of Load bar) of up to 5800mm.

Pattern choice relates to load bar pitch and twist rod pitch (eg. A = 30mm C/C x 100mm C/C).

Standard grating depth is 25 and 32mm deep, in 5mm thick bars. Other depths are also available in thicknesses of 3 or 5mm, subject to availability. Your choice would be subject to load applications.

Ordering

A typical ordering code would be as follows:

Mentis A325MPG

- A, B, C, D or F : Pattern
- Load bar depth (eg. 32)
- 5 : Load bar thickness
- M : Mild steel
- P or S : Load bar plain or serrated top edge
- G, B or U : Galv, Bitumen or Untreated

A fully dimensioned outline of grating, support steel and cutout location is required. Overall dimensions should be inclusive of banding and kickplate. When ordering fabricated grating, it is supplied in multiple pieces, unless specifically requested otherwise.

Options

Banding added to cutouts, side cuts and ends of panels is standard but can optionally be unbanded.

Cutouts can be split for installation. Notification of which cutouts need to be specifically split is a requirement.

Standard kickplate 130 x 6 and other sizes can be added as required.

10mm x 10mm square bar cleats should be added for sloping grating.

Standard Width

A - B		C - D		E - F	
bars*	mm				
34	995	26	1005	17	965
33	965	25	965	16	905
32	935	24	925	15	845
31	905	23	885	14	785
30	875	22	845	13	725
29	845	21	805	12	665
28	815	20	765	11	605
27	785	19	725	10	545
26	755	18	685	9	485
25	725	17	645	8	425
24	695	16	605	7	365
23	665	15	565	6	305
22	635	14	525	5	245
21	605	13	485	4	185
20	575	12	445	3	125
19	545	11	405	2	65
18	515	10	365		
17	485	9	325		
16	455	8	285		
15	425	7	245		
14	395	6	205		
13	365	5	165		
12	335	4	125		
11	305	3	85		
10	275	2	45		
9	245				
8	215				
7	185				
6	155				
5	125				
4	95				
3	65				
2	35				

*Bar is the total number of load bars in the corresponding width.

Sizes are measurements from the outside Load bar to outside load bar, along the twist rod.

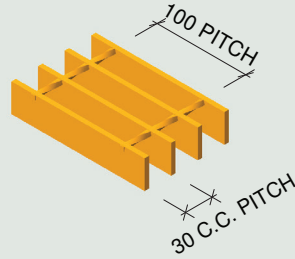
100 TWIST

50 TWIST

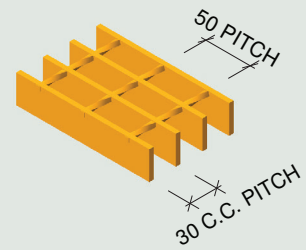
Pattern A and B both have the Load bars spaced at 30mm centres. The twist rod is spaced at 100mm centres for A Pattern and 50mm for B Pattern.

30 L/BAR

Pattern A



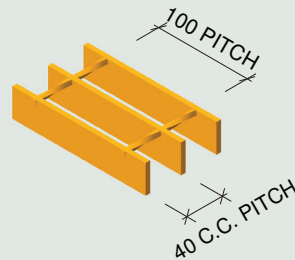
Pattern B



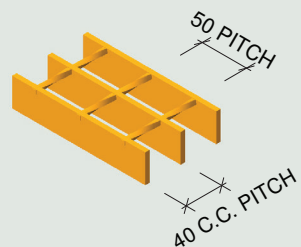
Pattern C and D both have the Load bars spaced at 40mm centres. The twist rod is spaced at 100mm centres for C Pattern and 50mm centres for D Pattern.

40 L/BAR

Pattern C



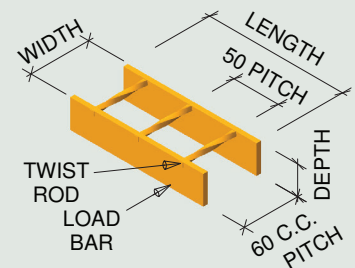
Pattern D



Pattern F has the load bar spaced at 60mm centres and the twist rod at 50mm centres. F Pattern does not meet AS 1657 requirements.

60 L/BAR

Pattern F NOT AS1657 COMPLIANT



STOCK SHEET NOMINAL SIZES

Pattern	Width
A & B	995mm
C & D	1005mm
F	965mm

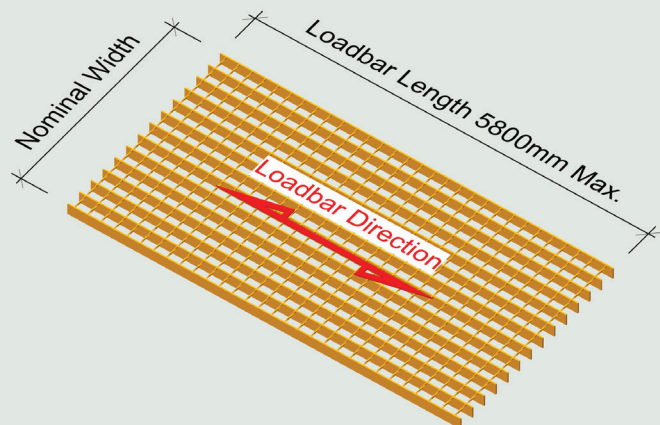


Table 2 – Non Stocked Grating Patterns

This Grating is **not** held in stock and there for may incur lead time delays. Please check with us if you require one of these Grating Patterns to discuss the options. See Table 1 for stocked Grating on previous page.

Pattern	Bar	Mass	U-kPa D-mm	CLEAR SPAN														U=4kPa D=5mm Max. Span
				450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	3300	3600	
C203MP	20x3	14.3	U	34	19	12	8	6	5	3	2							980
			D	1.8	3.2	5	7.2	9.8	12.9	20.1	29							
A203MP	20x3	18.2	U	45	25	16	11	8	6	4	3	2						1060
			D	1.8	3.2	5	7.2	9.8	12.9	20.1	29	39.4						
D253MP	25x3	19.8	U	53	30	19	13	10	7	5	3	2						1170
			D	1.4	2.6	4	5.8	7.9	10.3	16.1	23.2	31.5						
B253MP	25x3	24.7	U	70	39	25	17	13	10	6	4	3	2					1250
			D	1.4	2.6	4	5.8	7.8	10.3	16.0	23.1	31.5	41.2					
B255MP	25x5	37.8	U	115	65	42	29	21	16	10	7	5	4	3				1420
			D	1.4	2.6	4	5.8	7.8	10.3	16.0	23.1	31.5	41.1	49.6				1420
C403MP	40x3	26.1	U	135	76	49	34	25	19	12	8	6	4	3				1660
			D	0.9	1.6	2.5	3.6	4.9	6.4	10	14.5	19.7	25.7	32.6				
A403MP	40x3	33.9	U	179	100	64	44	33	25	16	11	8	6	5	4			1780
			D	0.9	1.6	2.5	3.6	4.9	6.4	10	14.5	19.7	25.7	32.6	40.2			
C405MP	40x5	41.8	U	226	127	81	56	41	31	20	14	10	8	6	5			1890
			D	0.9	1.6	2.5	3.6	4.9	6.4	10.0	14.4	19.7	25.7	32.5	40.2			
B405MP	40x5	57.4	U	298	167	107	74	52	41	26	18	13	10	8	6			2030
			D	0.9	1.6	2.5	3.6	4.9	6.4	10	14.5	19.7	25.7	32.6	40.2			
C455MP	45x5	46.7	U	286	160	102	71	52	40	25	17	13	10	7	6	5		2030
			D	0.8	1.4	2.2	3.2	4.4	5.7	8.9	12.9	17.5	22.9	29.0	35.8	43.2		
A455MP	45x5	61.4	U	377	212	135	94	67	52	33	23	17	13	10	8	6		2175
			D	0.8	1.4	2.2	3.2	4.3	5.7	8.9	12.8	17.5	22.8	28.9	35.8	43.2		
C505MP	50x5	51.6	U	353	198	127	88	64	49	31	22	16	12	9	7	6	5	2200
			D	0.7	1.3	2	2.9	3.9	5.1	8.0	11.5	15.7	20.5	26.0	32.1	38.9	46.3	
A505MP	50x5	67.9	U	465	261	167	116	85	65	41	28	21	16	12	10	8	7	2350
			D	0.7	1.3	2	2.9	3.9	5.1	8.0	11.5	15.7	20.5	26.0	32.1	38.9	46.3	
A756MP	75x6	120.2	U	1049	500	378	262	193	147	94	66	48	37	29	24	20	16	3250
			D	0.46	1	1.3	1.8	2.5	3.2	5.1	7.3	10.0	13.0	16.5	20.4	24.7	29.4	



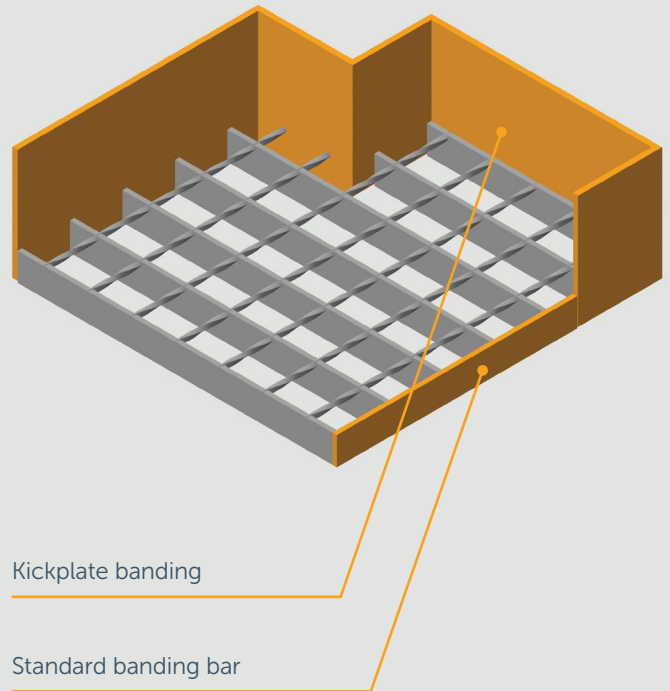
Banding

Standard banding is 5mm flat bar welded to the perimeter of all grating panels.

Banding and kickplate banding is considered within the perimeter of the panel size. They are welded to the side of the cut bars and kickplate is not welded to the top of the grating load bars.

Support Requirements

- Grating load bars must be supported.
- Support at maximum span intervals is required (subject to load).
- Supporting the end of each panel is required but supporting the sides is not.
- Panels that have more than two supports to fix the grating to can cantilever on the load bar ends to a maximum of 250mm (subject to load & fixing method).
- Panels must never cantilever in the twist rod direction.
- Banding on a cutout is not designed to support the load bars and therefore support should be provided around cutouts.
- See the Supports Requirements section on page G20 for more information.



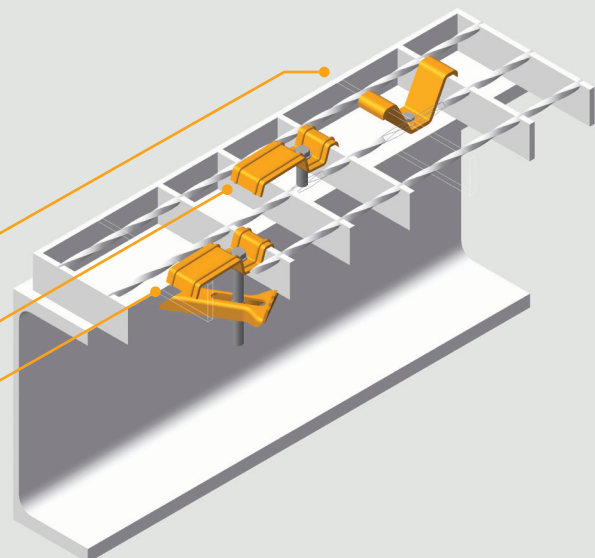
Fixing Requirements

Securing the panels if required can be with welding, MA001MG, MA002MG, or Huck fastener and clip for steel grating, as shown in the diagram.

MA005MG, MA006MG or MA007MG Huck fastener and clip

MA002MG

MA001MG

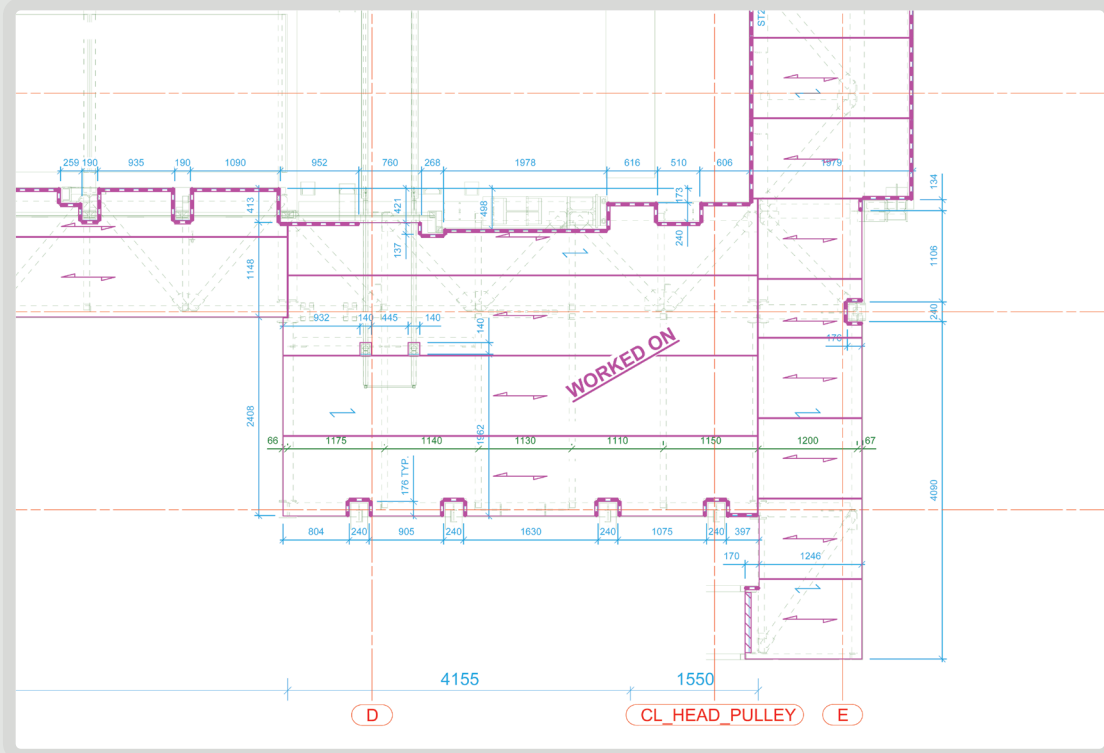


Fabrication

We supply a Grating Marking Plan which shows the general arrangement of each panel. Each panel is identified with a panel mark number, which we allocate if you do not provide. In accordance with the Australian Standards we allow a nominal 10mm gap between panels. This should also be allowed around penetrations and from the edge of supporting steel at the perimeter of the grating. We can send a marking plan for approval prior to starting fabrication.

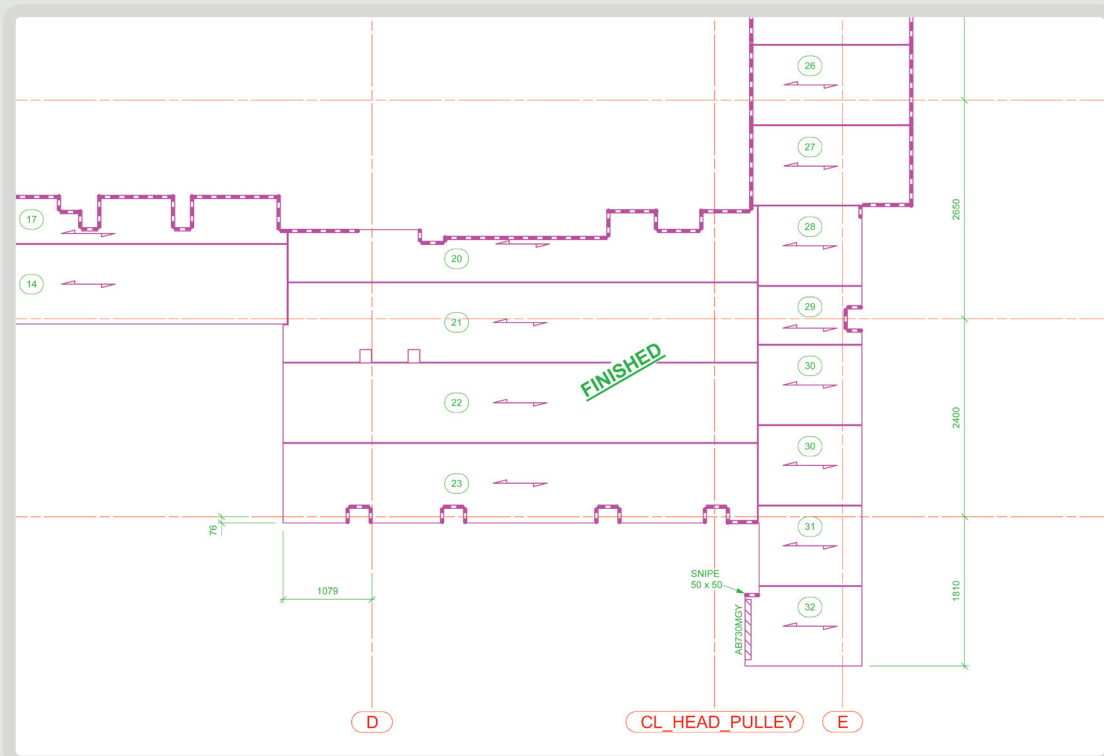
Worked On

An example of the supplied drawing worked on by our professional draftsman. The Grating is split into standard grating widths depending on support locations.



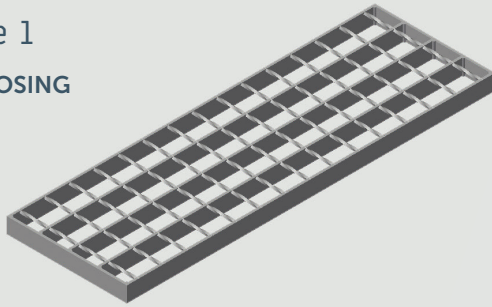
Finished

An example of the finished marking plan we supply you with mark numbers for each panel.

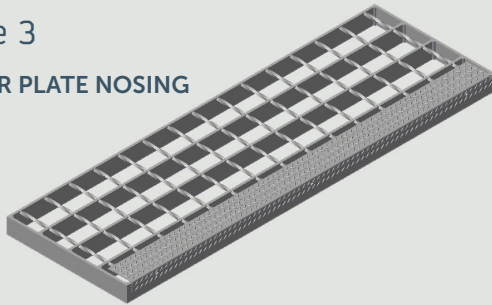


WELD IN

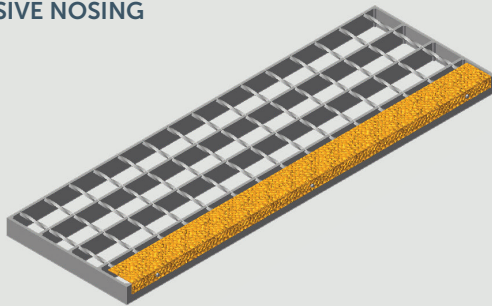
Type 1
NO NOSING



Type 3
FLOOR PLATE NOSING

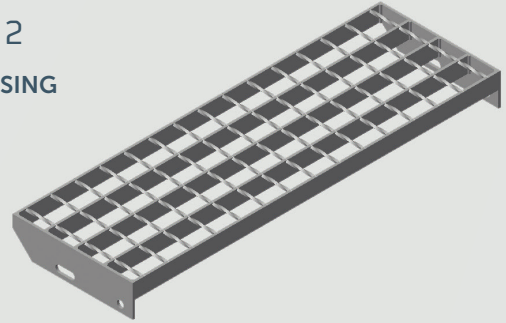


Type 5
ABRASIVE NOSING

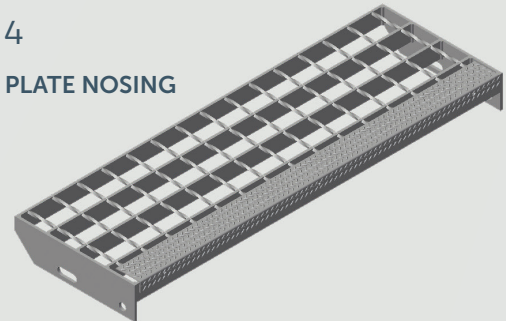


BOLT IN

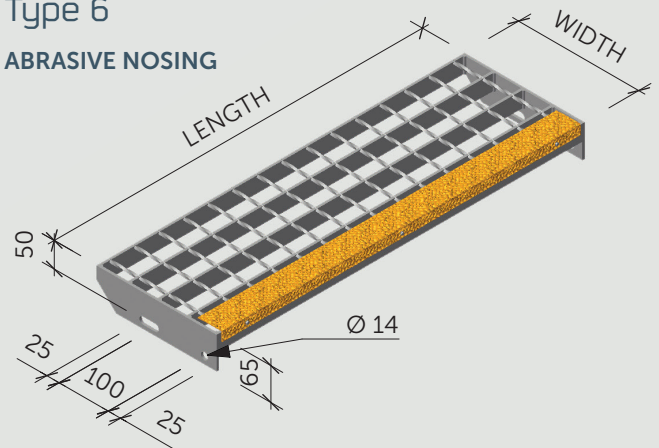
Type 2
NO NOSING



Type 4
FLOOR PLATE NOSING



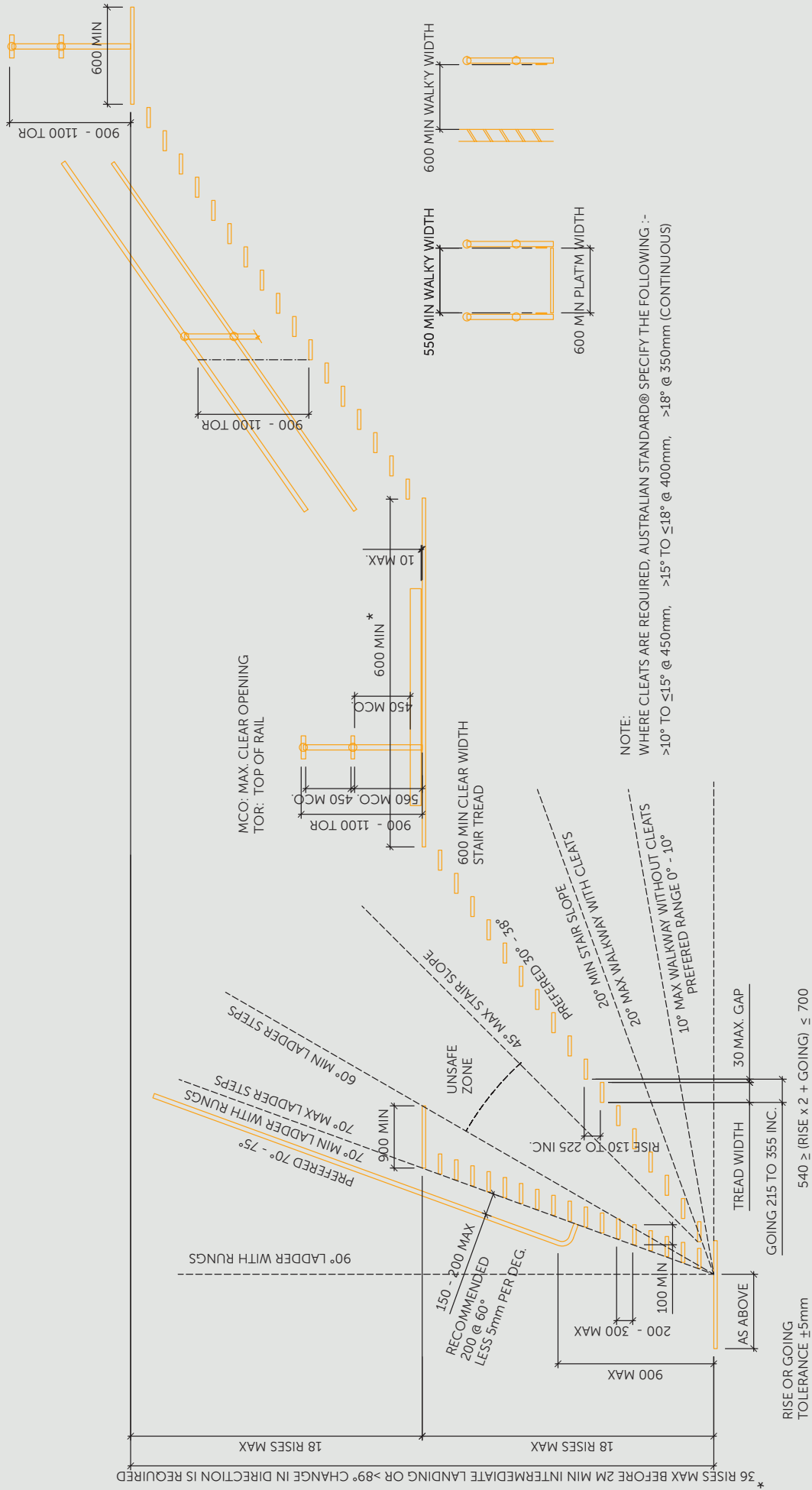
Type 6
ABRASIVE NOSING



Abrasive nosing is stocked in 580mm, 730mm, 880mm, 1030mm and 1180mm lengths. The nearest smaller length will be selected to suit your size tread.

Tread Maximum Length		
Load Bar Size	25 x 5	32 x 5
A&B Pattern	900 mm	1300 mm
C&D Pattern	750 mm	1200 mm
F Pattern	550 mm	850 mm

Tread Standard Widths							
A&B Pattern	125	155	185	215	245	275	305
C&D Pattern	125	165	-	205	245	285	325
F Pattern	125	-	185	-	245	-	305



WARNING

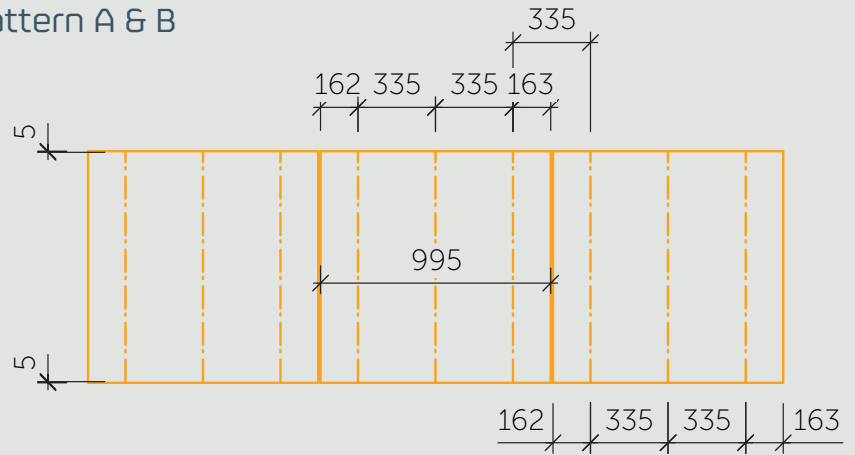
1. All information above should be verified with the Australian Standard® before use in design drawings.
2. Australian Standard® and the information above may differ from the Building Code of Australia.

Square Bar Cleats are required for sloping walkways, they are welded to the top surface of the grating to provide extra grip. The Australian Standards AS1657-2013 5.3.3 states that cleats are required for slopes between 10 and 20 degrees. Square Bar Cleats are 10mm x 10mm solid square bar which run the full width of the walkway.

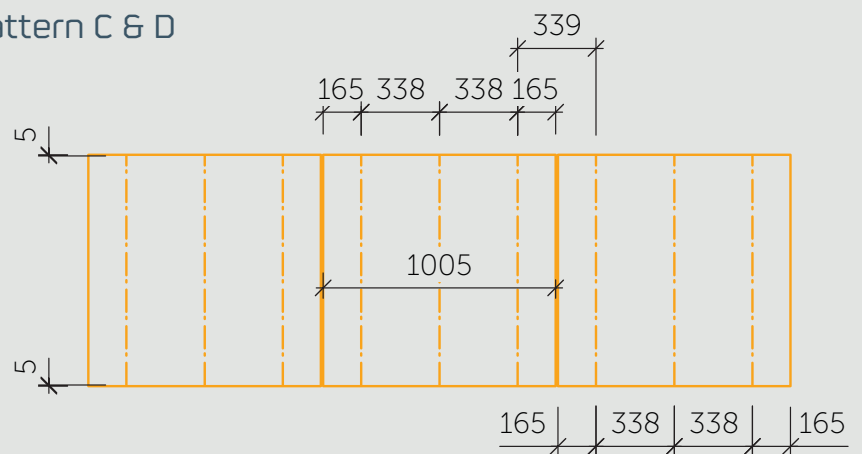
For flat walkways anti slip abrasive strips can also be used, made from the same material as the Yellow Abrasive Nosing on T5 and T6 stair treads. A flat strip of Yellow Abrasive material is bolted to the top surface of the grating, this is done after surface treatment and means the strips can be replaced if required.

If the Yellow Abrasive Strips are required, we recommend the following spacing to ensure panels are identical for efficient site installation of the grating panels.

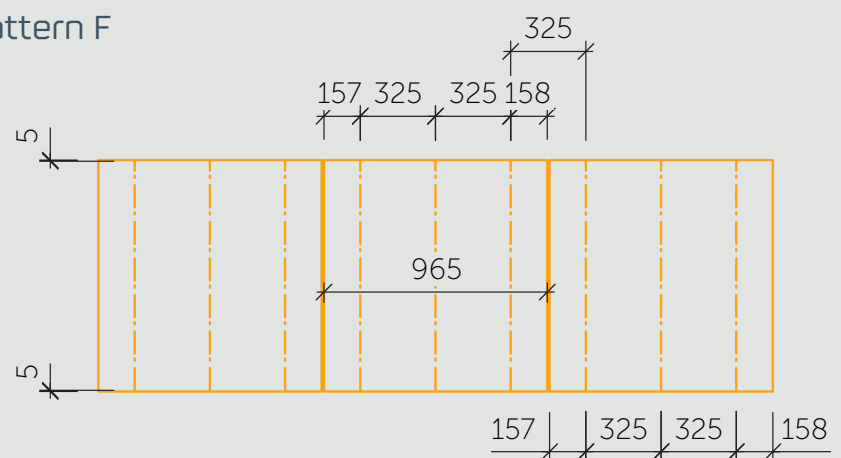
Pattern A & B



Pattern C & D



Pattern F



Floor Plate Grating

Ments Floor Plate Grating is a composite of floor plate welded to the top of grating. Any grating pattern can be combined with any floor plate thickness. We recommend F pattern grating.

Floor plate thickness	Grating	Weight / Sqm	Maximum Span
3 mm	F255MP*	45 kg	1390 mm
5 mm	F255MP*	61 kg	1390 mm
3 mm	F325MP*	50 kg	1625 mm
5 mm	F325MP*	65 kg	1625 mm

Where (*) indicates treatment. Refer to options.

How to Order Floor Plate Grating

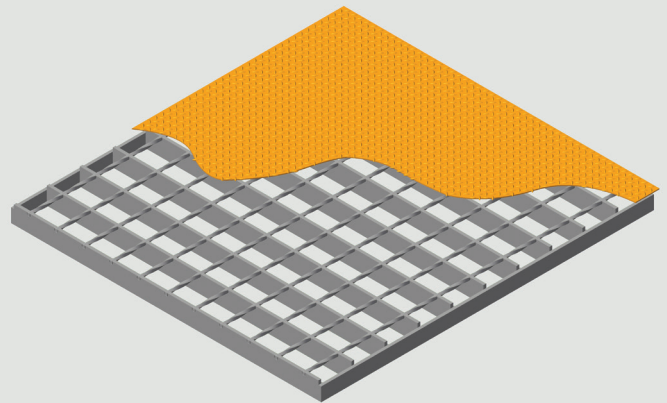
1. Choose the product type required by reference to the recommendations shown above **OR**
Choose a grating by using the pattern choices on page G3 and choose an appropriate load bar from the load deflection table.
2. Banded or unbanded.
3. Nominate the required thickness of the floorplate, 3mm or 5mm.

Examples:

Mentis FP3-F255MPG
1/1500 X 4500 span (in 1 piece)

Mentis FP5-A325MPG
2/3000 X 750 span (each in 4 pieces)

Mentis FP5-F325MPG
All as per drawing supplied.



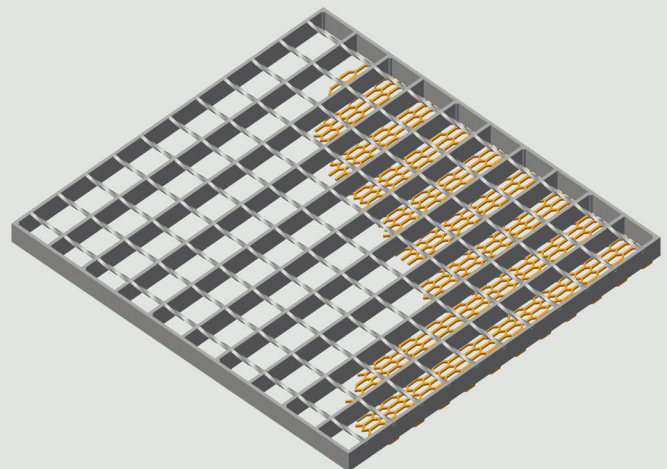
Mentex Grating

Mentis Mentex Grating is a composite of grating with a light gauge expanded metal welded to the underside to prevent tools and small objects from falling through the grating.

Complies with AS 1657-2013 paragraph 4.5.

How to Order Mentex Grating

1. Select a grating from the pattern choice on page G3 and choose an appropriate load bar from the load/deflection table..
2. Banded or unbanded.
3. Nominate "Mentis Mentex Grating" with your pattern choice on the drawing.



Mentis FRP grating is manufactured by interlacing reinforcing glass fibre strands within a polyester resin. Gratings produced using this technique yield a product having 25-35% (by total weight) of fibreglass reinforcement. All grating is manufactured from a premium grade thermosetting polyester resin, thermally cured in the mould. For fire retardant protection, the resins used are complete with antimony trioxide to obtain Class 1 Fire Rating of 25 or less as per ASTM-E-84.

Colour pigmented throughout the resin will be green. Ultraviolet inhibitors are included to meet the specifications of UL-94-VO. Products manufactured to these specifications can expect a life rating B, or 50 years before rehabilitation is required.

Panel Size	3660 x 1220 x 25mm	3660 x 1220 x 38mm
Bearing Bar	25 x 6mm	38 x 6mm
Bar Centres	38mm	38mm
Cross Bar	25 x 6mm	38 x 6mm
Cross Bar Centres	38mm	38mm
Top Surface	Grit	Grit
% Open Area	70%	70%
Weight	12.2 kg/Sqm	18.1 kg/Sqm
Max Span at 4kPa with 5mm Deflection	750mm	1050mm

1. Characteristics

- Excellent corrosion resistant properties
- Remarkable strength to weight ratio
- Requires no coating to resist attack from the chemical and natural environment
- Impact absorbing
- Maintenance free
- Lowest life cycle cost
- Low conductivity both thermally and electrically
- Non-magnetic properties (ideal for electrical applications)
- Low installation cost

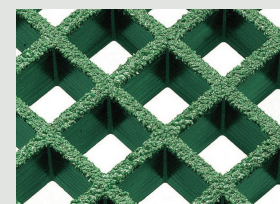
2. Areas of Application

- Shopping centers, footpaths and walkways
- Sewerage treatment plants
- Water purification plants
- Saltwater areas
- Food processing plants
- Chemical plants

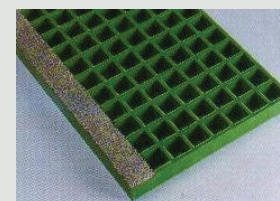
3. Product Applications

- Flooring
- Trench covers
- Pits covers
- Platforms
- Elevated walkways
- Stair treads
- Drainage grating
- Grilles and screens
- Battery and wash racks
- Machinery guards

	Span (mm)	Per metre width (kg)	Per metre width (kg)
Concentrated load at 1% deflection	300	2567	5767
	450	1141	2563
	600	642	1442
	750	411	923
	900	285	641
	1050	210	471
Concentrated load at 10:1 safety factor	1200	160	300
	300	1003	1540
	450	669	1027
	600	502	770
	750	401	616
	900	334	513
Uniform load at 1% deflection	1050	287	440
	1200	251	385
	300	13651	30837
	450	4075	9137
	600	1706	3855
	750	874	1974
Uniform load at 10:1 safety factor	900	506	1142
	1050	318	719
	1200	213	482
	300	6667	10178
	450	2963	4523
	600	1667	2544
Uniform load at 10:1 safety factor	750	1067	1628
	900	741	1130
	1050	544	831
	1200	417	636



FRP Grating



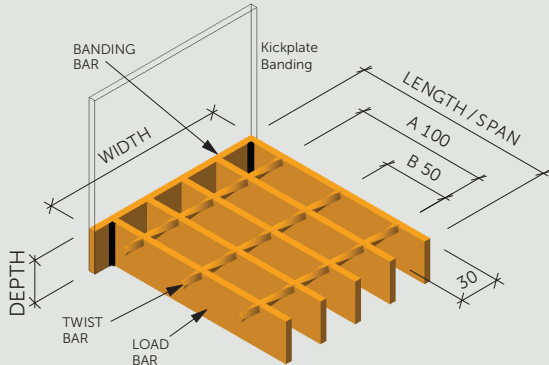
FRP Treads

FRP Treads

Treads	Max Length	Standard Width	
25 x 6mm	600mm	234, 272 or 310	<ul style="list-style-type: none"> • Black nosing is standard on all FRP treads. • FRP Treads require a support angle of 40mm min.
38 x 6mm	875mm	234, 272 or 310	

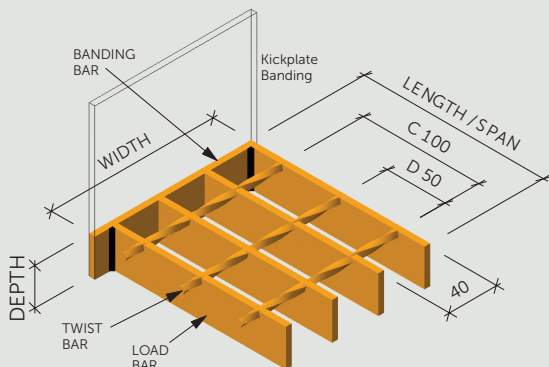
Pattern A & B Grating

Weld one side of every 4th load bar to the banding bar
ie maximum between welds is 120mm.



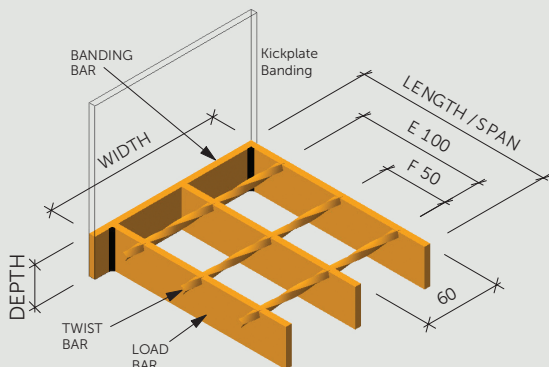
Pattern C & D Grating

Weld one side of every 3rd load bar to the banding bar
ie maximum between welds is 120mm.

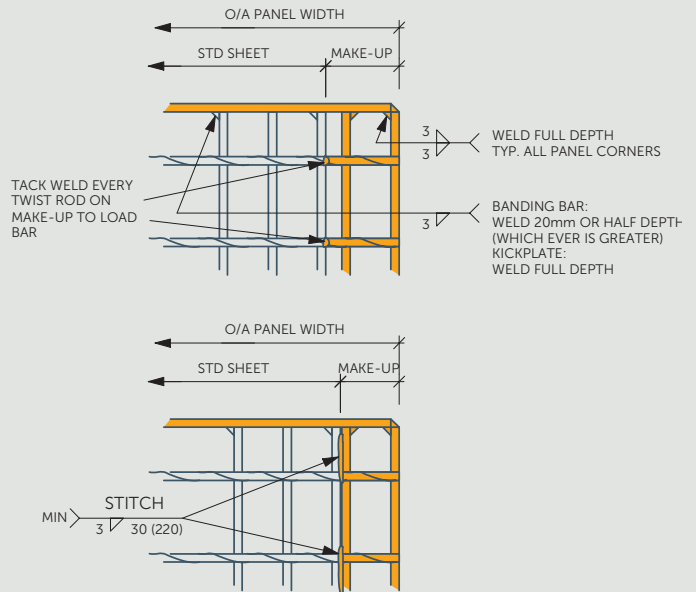


Pattern F Grating

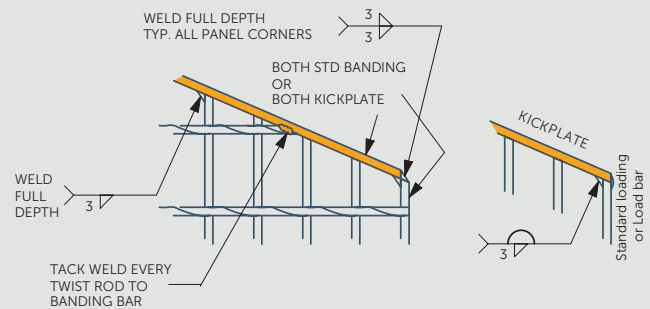
Weld one side of every 2nd load bar to the banding bar
ie maximum between welds is 120mm.




Side Joining



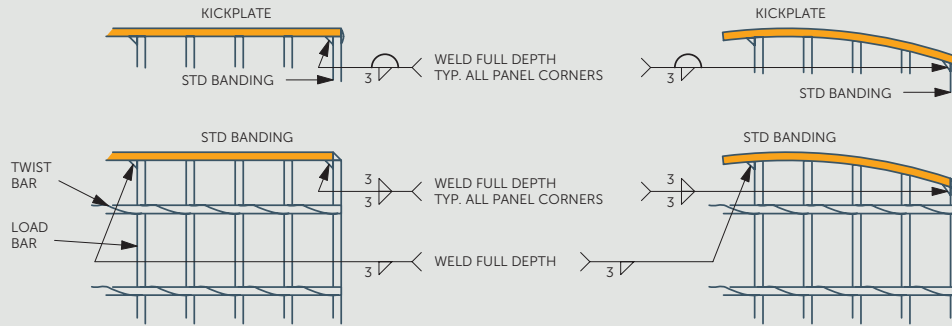
Splay Banding



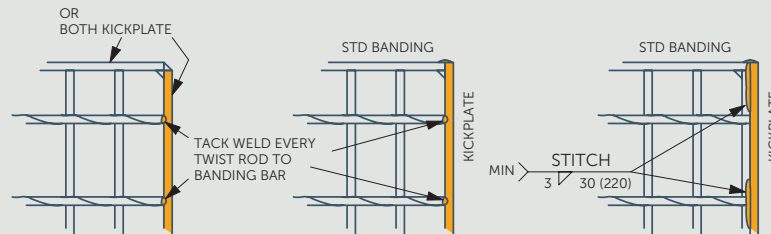
Notes:

1. These standard welding details apply unless otherwise noted (UON) on detail and/or layout drawings.
2. All rectangular penetrations and cutouts may be adjusted +25mm/-5mm to the nearest load bar when they fall within the tolerance, including penetrations and cutouts that are banded by kickplate.
3. No welds, banding or kickplate will protrude below the under side of grating UON.
4. All banding bars will be 5mm thick plain or serrated bar to match the grating.
5. All kickplate will be 6mm thick min. UON.
6. Weld size will be 3mm fillet min. UON. 
7. All circle penetrations $\text{Ø}100\text{mm}$ or less with banding similar to the grating height will be made square UON.
8. All circle penetrations $\text{Ø}200\text{mm}$ or less with kickplate will be made square UON.

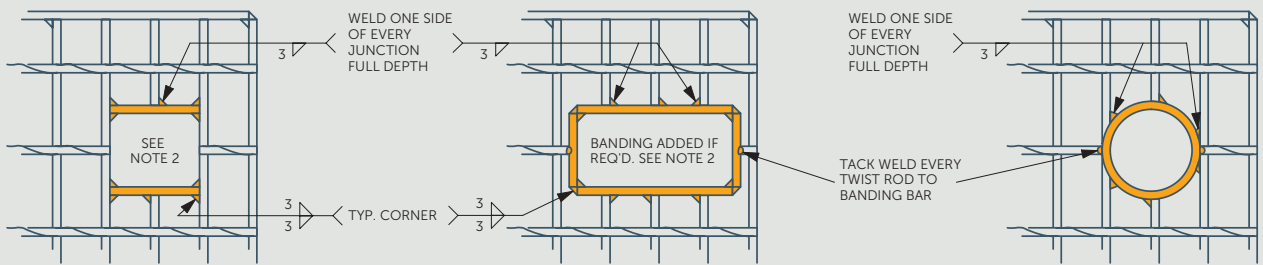
Perimeter/End Banding



Side Banding

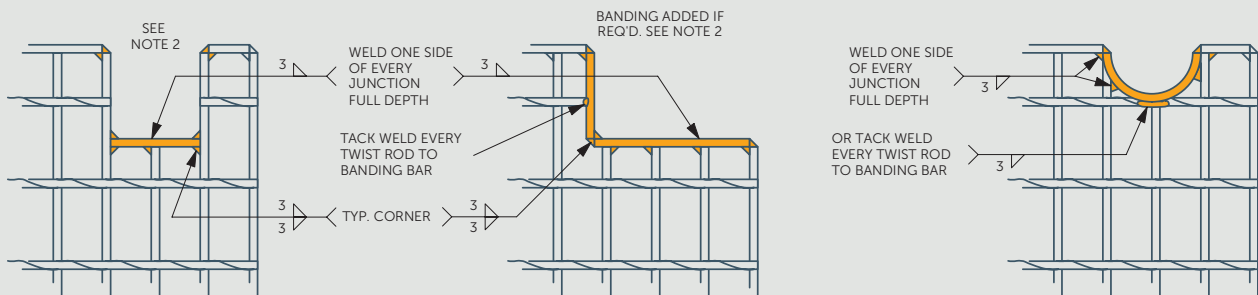


Penetrations

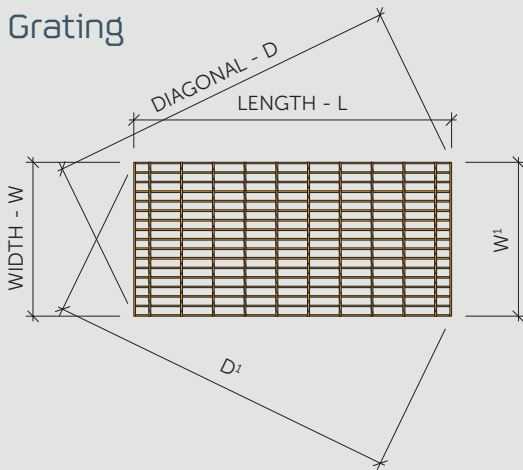


SEE NOTES 7 & 8

Cutouts

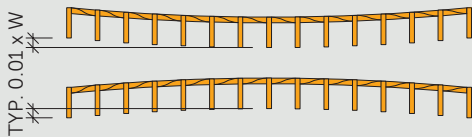


Grating

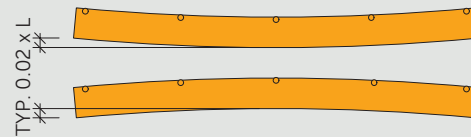


Panel Size mm	L mm	W ¹ mm	D ¹ mm
S ≤ 3000	±3	W ±3	D ±5.5
S ≥ 3000 S ≤ 6000	±L/1000	W ±3	D ±L/500

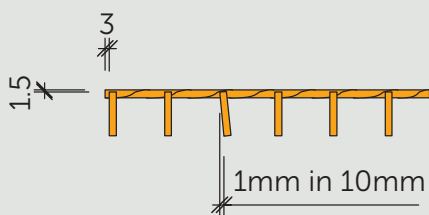
Transverse Bow



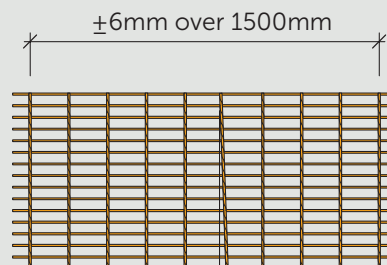
Longitudinal Bow



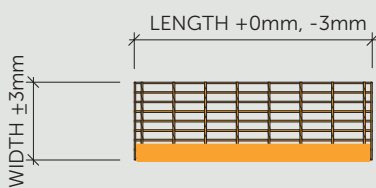
Twist Rod Location & Loadbar Lean



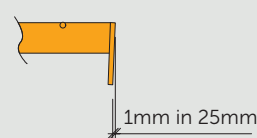
Twist Rod Alignment & Spacing



Stair Tread

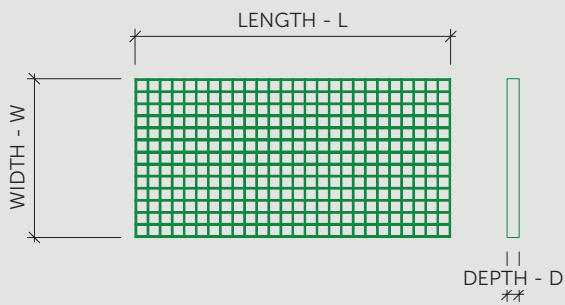


End Plate Lean



FRP Grating

W mm	L mm	D mm
2.5/1000	2.5/1000	D ±1.5

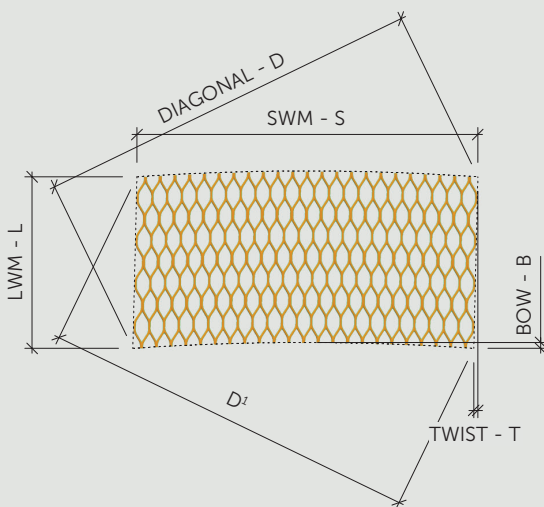


Load Bar Chart

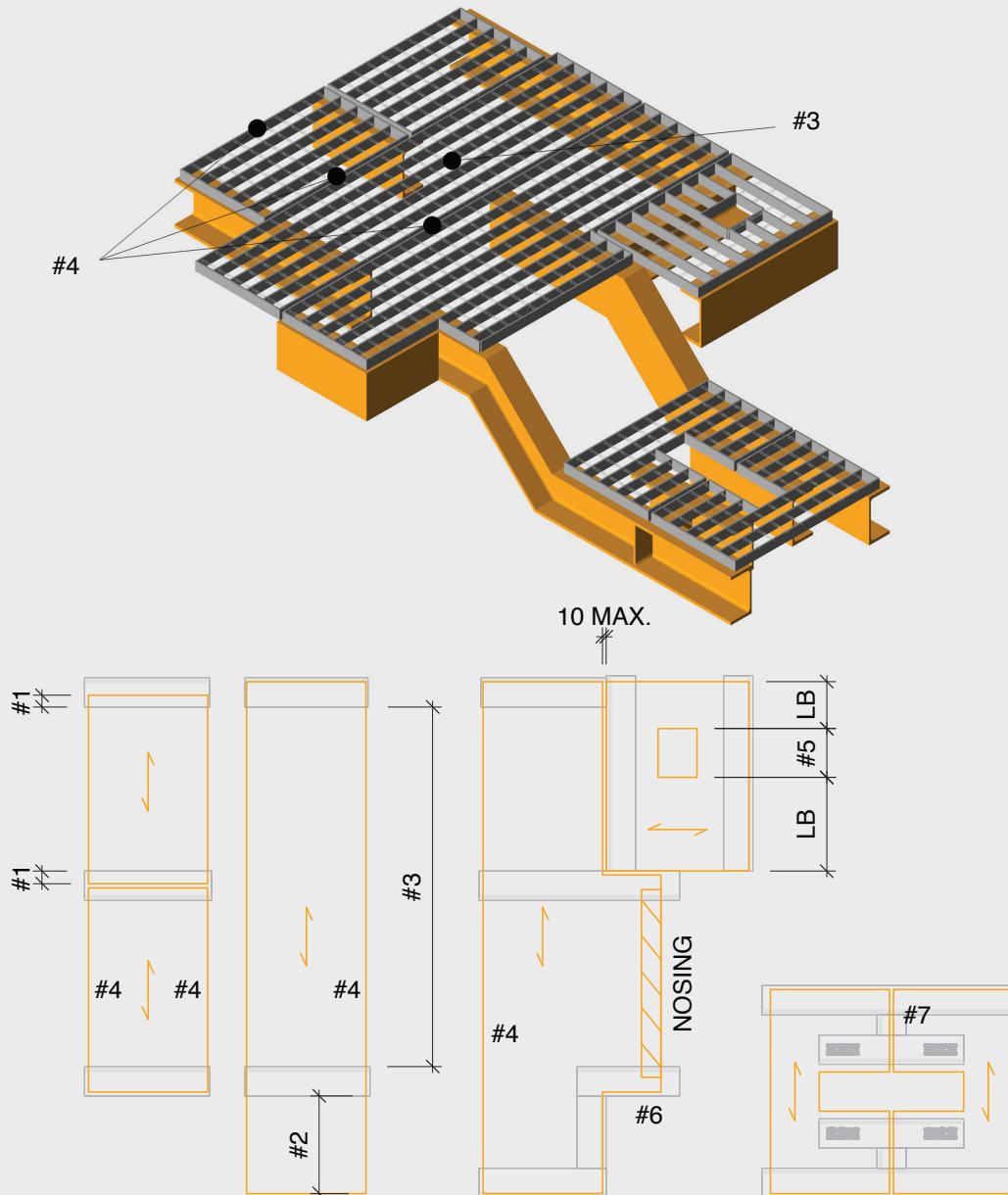
No of bars	A & B	C & D	F	G
34	995			1264
33	965			1226
32	935			1187
31	905			1149
30	875			1111
29	845			1073
28	815			1035
27	785			997
26	755	1005		959
25	725	965		921
24	695	925		883
23	665	885		845
22	635	845		806
21	605	805		768
20	575	765		730
19	545	725		692
18	515	685		654
17	485	645	965	616
16	455	605	905	578
15	425	565	845	540
14	395	525	785	502
13	365	485	725	464
12	335	445	665	425
11	305	405	605	387
10	275	365	545	349
9	245	325	485	311
8	215	285	425	273
7	185	245	365	235
6	155	205	305	197
5	125	165	245	159
4	95	125	185	121
3	65	85	125	83
2	35	45	65	44

Mentex

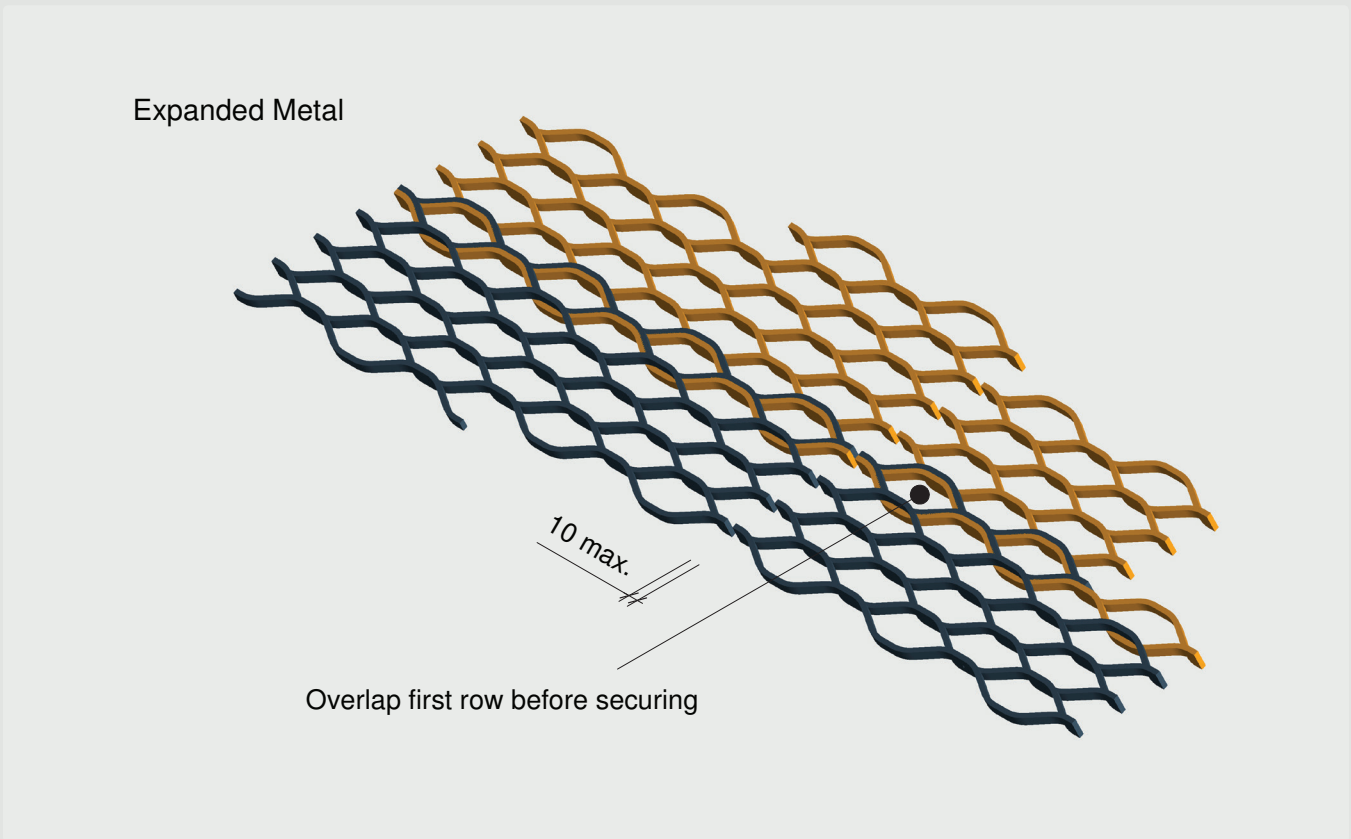
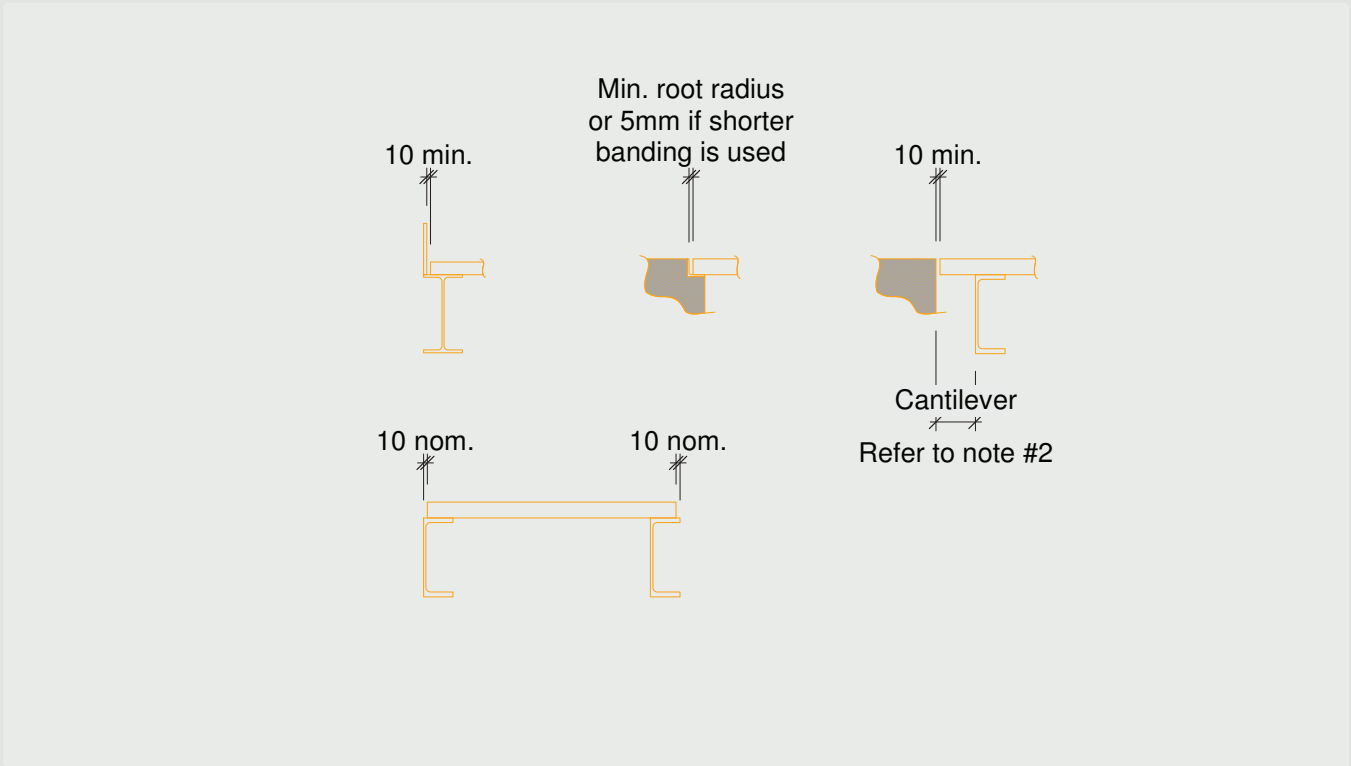
B mm	L mm	S mm	D ¹ mm	T mm
≤ 5(S/1000)	2.5/1000	D ±1.5	D+10	5/1000

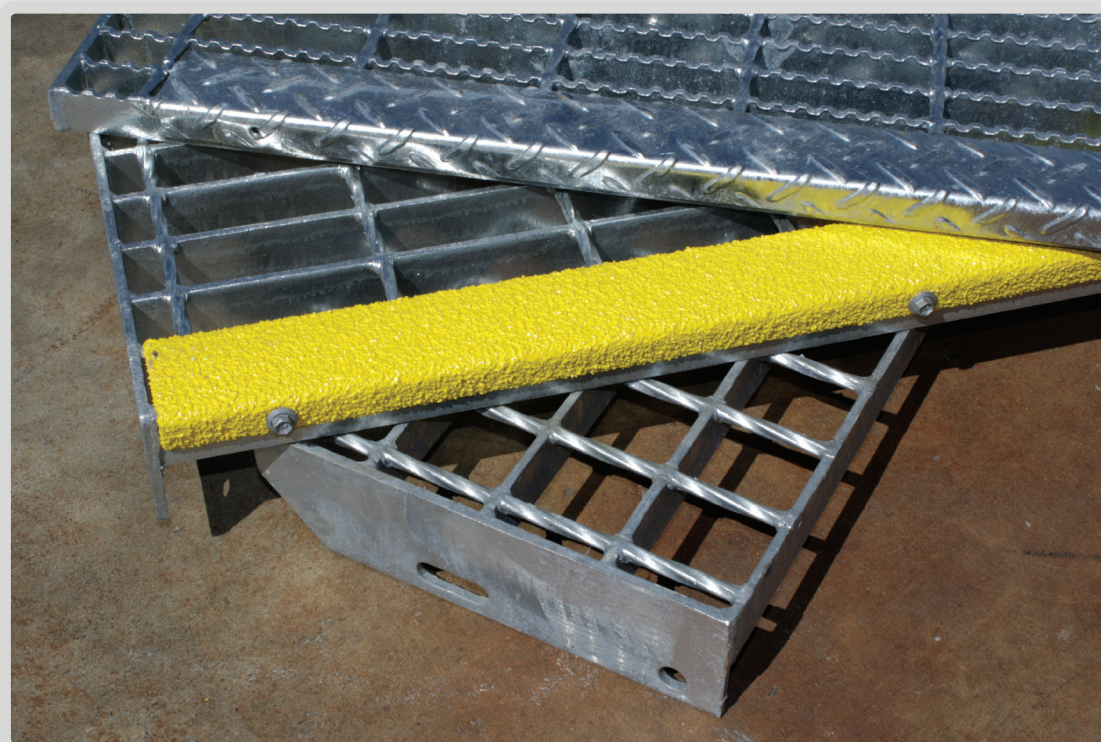


Grating

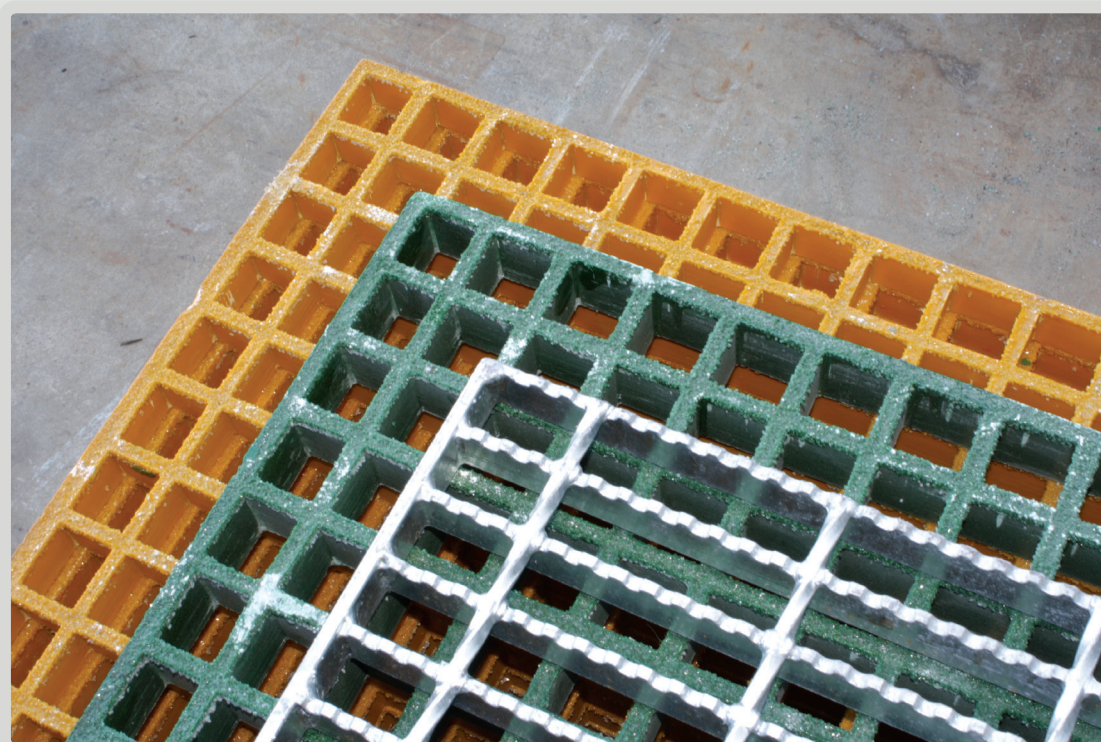


- #1. End of loadbar support - 25mm min. (for < 50mm grating) or 50mm min. (for \geq 50mm grating). We recommend 25mm min. or equal to the depth of grating whichever is greater.
- #2. Cantilever loadbars only up to 250mm. Only recommend for panels that are properly secured down by methods other than clipping. No cantilever is recommended in the twist rod direction.
- #3. Center support required for panel clear spans greater than recommended in the loadbar deflection table.
- #4. Supporting the sides of panels is superfluous.
- #5. Cutouts will be adjusted to the nearest loadbar if they fall within 25mm of the loadbar.
- #6. Support required for cutouts that don't comply to #2.
- #7. Support maybe required for cutouts when split.



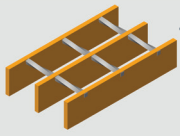


Treads



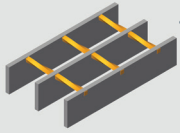
Grating

Glossary



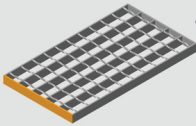
Load Bar

Vertical flat bars constituting the grating strength.



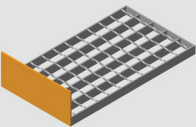
Twist Rod

Twisted square bar forged into the top of the load bars.



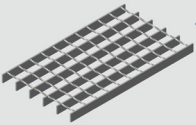
Banding

The flat bar welded to the exposed ends of load bars for safety during installation.



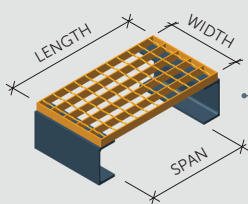
Kickplate

Flat bar typically 130 x 6 replacing banding conforming to Australian Standards minimum 100mm above top of grating.



Cut to Size Only

No end banding included.



Length

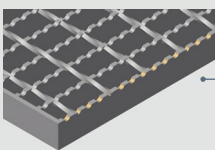
The load bar length plus the banding if required.
This is always the width no matter the orientation..

Width

The overall dimension in the twist rod direction.
This is always the width no matter the orientation.

Span

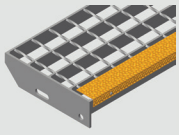
The open space between the support steel.
Used to calculate load bar deflection.



Serration

Notch top edge of load bar to increase slip resistance.

Glossary of Terms

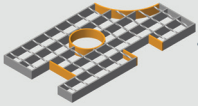


Nosings

An added strip attached to the leading edge of stair tread and landing for visual indication of an edge.

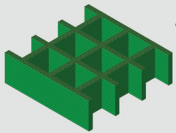
Available types:

- Abrasive (yellow)
- Floor plate (colour to match grating).



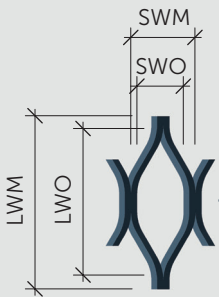
Cutouts or Penetrations

Removed sections of grating that are banded either with standard banding or kickplate banding.



Fingers

Exposed ends of FRP bar that are not cut flush with the adjacent bar.



Short Way Mesh (SWM)

The nominal distance between the knuckles in the short opening direction.

Long Way Mesh (LWM)

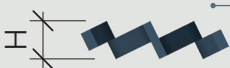
The nominal distance between the knuckles in the long opening direction.

Short Way Opening (SWO)

The open distance between the knuckles in the short direction.

Long Way Opening (LWO)

The open distance between the knuckles in the long direction.



Overall Height

From top to bottom of mesh.