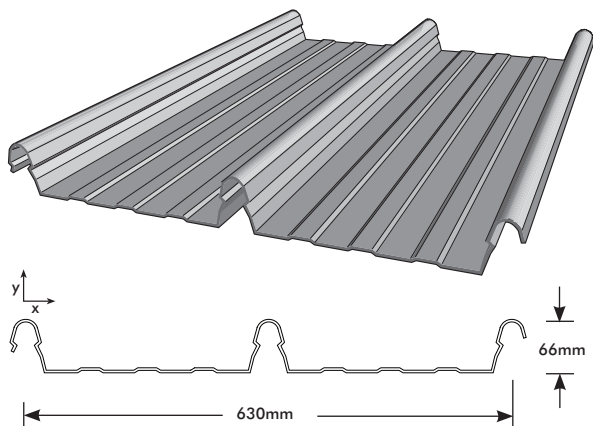


## 2.5 HiKlip® 630



**HiKlip® 630 Material Specifications**

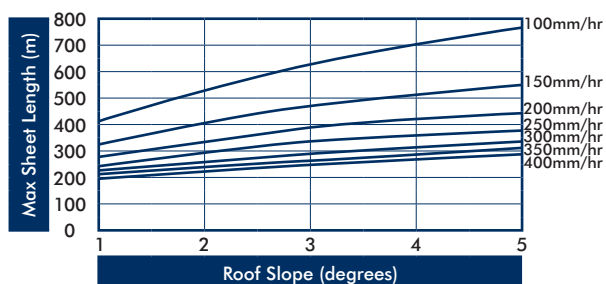
Property		0.42 BMT	0.48 BMT	Notes
Total Coated Thickness		0.47	0.53	TCT
Mass / Unit Length (kg/m)	ZINCALUME®	3.26	3.70	1000 / (m/Tonne)
	COLORBOND®	3.32	3.76	
Mass / Unit Area (kg/m <sup>2</sup> )	ZINCALUME®	5.17	5.87	1000 / (m Mass/profile width)
	COLORBOND®	5.49	6.23	
2 <sup>nd</sup> moment of area about principal axis (10 <sup>3</sup> mm <sup>4</sup> )	I <sub>x</sub>	212	242	
	I <sub>y</sub>	16650	19030	
Section modulus about principal axis (10 <sup>3</sup> mm <sup>3</sup> )	Z <sub>x</sub>	5	5	
	Z <sub>y</sub>	49	55	
Warping Constant (10 <sup>9</sup> mm <sup>6</sup> )	I <sub>w</sub>	10	11	
Torsion Constant (mm <sup>4</sup> )	J	23	35	
Minimum Yield Strength		G550		Base Steel Designation
Coating Class		AZ150		Minimum Coating g/m <sup>2</sup> of Zinc - Aluminium
Coverage (mm)		630		
Tolerance		Sheet Length ±7mm Cover Width ±4mm		
Thermal Expansion		2.9mm average per 5m at 50° C change		

**Table 2.5.A HiKlip® 630 Material Specifications**

- HiKlip 630 is manufactured to AS 1397 and AS 2728 Cat. 3. It is to be installed in accordance with AS 1445, AS 1562, and HB39.
- The sectional properties are theoretical values per sheet width. These properties are gross values only.

### Rainfall Capacity

For further information, please refer to sections 4.2 'Rainfall Intensity' and 4.3 'Water Carrying Capacity and Rainwater Run-Off'.



**Figure 2.5.A HiKlip® 630 Rainfall Capacity (mm/hr)**

### HiKlip® 630 Maximum Sheet Length (m)

Roof Slope (degrees)	Rainfall Capacity (mm/hr)						
	100	150	200	250	300	350	400
1	331	221	166	132	110	95	83
2	468	312	234	187	156	134	117
3	574	383	287	230	191	164	143
4	663	442	331	265	221	189	166
5	741	494	371	297	247	212	185

**Table 2.5.B HiKlip® 630 Maximum Sheet Length (m)**

## Non Cyclonic Load Span Tables

The allowable spans have been determined from tests carried out in accordance with the following Australian Standards (wind load available by region): AS 1562.1 :1992, "Design and installation of sheet roof and wall cladding - Metal" and AS 4040:1992, "Methods of testing sheet roof and wall cladding".

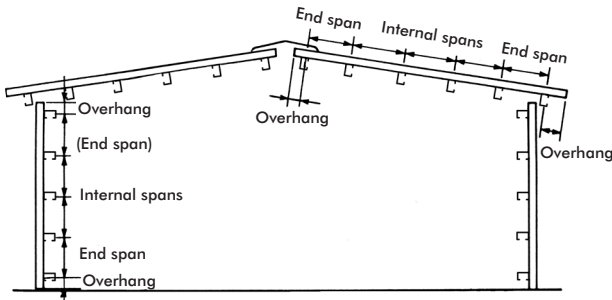


Figure 2.5.B End Spans, Internal Spans and Overhangs

## Non Cyclonic Load Spans

Maximum Recommended Span* (mm) HiKlip® 630 Non Cyclonic				
Span Type	0.42 BMT		0.48 BMT	
	Roof	Wall	Roof	Wall
Single Span	2000	2500	2400	2800
End Span	2200	3100	2700	3400
Internal Span	2600	3400	4000	3600
Unstiffened Overhang	150	150	150	150
Stiffened Overhang	500	300	500	400

Table 2.5.C HiKlip® 630 Recommended Span - Non Cyclonic

### Design Parameters\*

Region A, Terrain Category 2:

$h = 10\text{m}$        $C_{p,e} = -0.65$        $P_u = 2.25\text{kPa}$   
 $v_u = 50\text{m/s}$        $C_{p,i} = 0.2$        $P_s = 1.93\text{kPa}$   
 $K_L = 2.0$

HiKlip® 630 Wind Load Capacity - Limit State Design (kPa) Non - Cyclonic												
Span (mm)	0.42 BMT						0.48 BMT					
	Single Span		End Span		Internal Span		Single Span		End Span		Internal Span	
	Service-ability	Strength	Service-ability	Strength	Service-ability	Strength	Service-ability	Strength	Service-ability	Strength	Service-ability	Strength
1200	4.50	8.40	5.00	8.60	6.00	11.50	5.05	10.75	5.55	11.50	7.25	14.25
1500	3.70	5.50	4.10	6.75	5.00	8.60	4.15	7.70	4.50	8.25	5.95	11.20
1800	3.00	4.00	3.35	5.30	4.00	6.75	3.35	5.60	3.70	6.10	4.95	8.60
2100	2.40	3.10	2.75	4.15	3.20	5.30	2.70	4.10	3.05	4.75	4.10	6.70
2400	1.90	2.45	2.25	3.40	2.55	4.15	2.15	3.05	2.50	3.85	3.50	5.25
2700	1.50	2.00	1.85	2.80	2.05	3.40	1.70	2.35	2.05	3.25	3.00	4.20
3000	1.15	1.60	1.55	2.40	1.75	2.80	1.35	1.90	1.65	2.80	2.60	3.50
3300	0.85	1.35	1.35	2.10	1.55	2.40	1.05	1.60	1.40	2.40	2.25	3.05
3600	0.65	1.15	1.15	1.80	1.35	2.10	0.84	1.45	1.15	2.10	1.95	2.85

Table 2.5.D HiKlip® 630 Wind Load Capacity - Limit State Design (kPa) - Non Cyclonic

## Cyclonic Load Spans

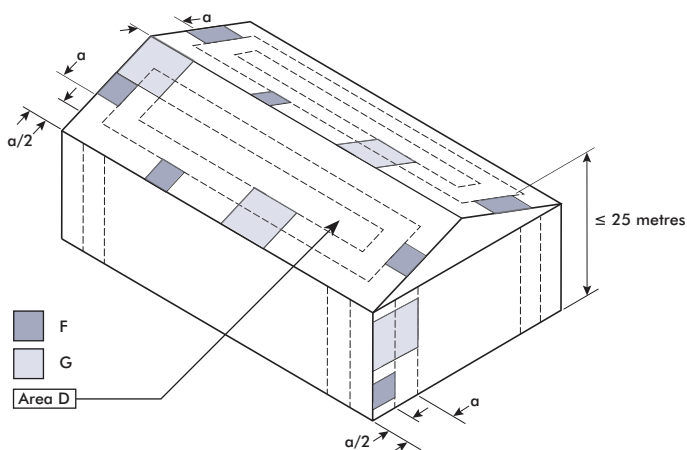
HiKlip® 630 Maximum Allowable Roof Spans* (mm) Cyclonic										
Terrain Category	For Building Height ≤ 5.0m					For Building Height > 5.0m & ≤ 10.0m				
	Roof Area Notation & Uplift (kPa)**	0.42 BMT		0.48 BMT		Roof Area Notation & Uplift (kPa)	0.42 BMT		0.48 BMT	
		End Span	Internal Span	End Span	Internal Span		End Span	Internal Span	End Span	Internal Span
1 & 2	D - 4.24	1355	1640	1500	1785	D - 4.70	1275	1570	1405	1700
	F - 5.43	1155	1455	1295	1585	F - 6.03	1050	1375	1200	1500
	G - 6.63	975	1305	1130	1420	G - 7.35	850	1215	1015	1430
2.5	D - 3.60	1470	1765	1680	1930	D - 4.21	1355	1645	1495	1800
	F - 4.61	1290	1580	1420	1720	F - 5.38	1160	1460	1300	1590
	G - 5.63	1155	1420	1260	1550	G - 5.63	980	1315	1130	1430

**Table 2.5.E HiKlip® 630 Maximum Allowable Roof Spans (mm)**

### Design Parameters\*

Max. Roof Pitch < 10°      h ≤ 25m  
 C<sub>p,e</sub> = -0.90                  C<sub>p,i</sub> = 0.70

\*\* Pressure is total ultimate value.



**Figure 2.5.C Local Pressure Factors**

**Note:** The value of 'a' is the minimum of 0.2 breadth, 0.2 width or 0.2 height.  
 Local pressure factors are not applicable at the ridge where the roof pitch is less than 10°.

HiKlip® 630 Wind Load Capacity - Limit State Design (kPa) Cyclonic								
Span (mm)	0.42 BMT				0.48 BMT			
	End Span		Internal Span		End Span		Internal Span	
	Serviceability	Strength	Serviceability	Strength	Serviceability	Strength	Serviceability	Strength
1000	3.00	6.25	-	-	3.60	8.10	-	-
1200	2.15	5.10	3.00	6.25	2.50	6.60	3.60	8.05
1500	1.55	4.20	2.15	5.10	1.70	5.40	2.50	6.60
1800	-	-	1.55	4.20	-	-	1.70	5.40

**Table 2.5.F HiKlip® 630 Wind Load Capacity - Limit State Design (kPa) - Cyclonic**

## Concealed Fastening

### Fasteners - Clip Fixing

Fasteners must be selected to match the life expectancy of the cladding material. Recommendations from fastener manufacturers should be sought.

Only fasteners complying with AS 3566:2002 and those that are compatible with the roofing material should be used for its fastening.

For Non Cyclonic regions, 3 screws shall be used per clip. For cyclonic regions, 4 screws shall be used per clip.

HiKlip® 630 Clip Fixing - Non Cyclonic		
Fixing Supports	Without Insulation	With Insulation
Steel (up to 3.0mm)	10-16x25mm Metal Tek's hexagon head screws	10-16x25mm Metal Tek's hexagon head screws
Timber Hardwood	10-12x25mm Type 17 hexagon head screws	10-12x30mm Type 17 hexagon head screws
Timber Softwood	M5.5-11x40mm Batten Zips hexagon head screws	M5.5-11x40mm Batten Zips hexagon head screws

Table 2.5.G HiKlip® 630 Clip Fixing - Non Cyclonic

HiKlip® 630 Clip Fixing - Cyclonic		
Fixing Supports	Without Insulation	With Insulation
Steel (up to 3.0mm)	12-14x20mm Metal Tek's hexagon head screws	12-14x20mm Metal Tek's hexagon head screws

Table 2.5.H HiKlip® 630 Clip Fixing - Cyclonic

**Note:** The above screws are for clip fastening only

## HiKlip® 630 Installation procedure

### Laying HiKlip® 630

#### Step 1

Fix the first of the HiKlip 630 clips perpendicular to the gutter in a straight line using the correct fasteners. Use a string line or the edge of the first sheet to ensure straightness. Care should be taken so that the overlap is facing away from the prevailing weather.

#### Step 2

Locate the first sheet above the clips ensuring that the overhang into the gutter is correct. Push downwards on the sheet until the decking is secured at every clip. Do not use excessive force.

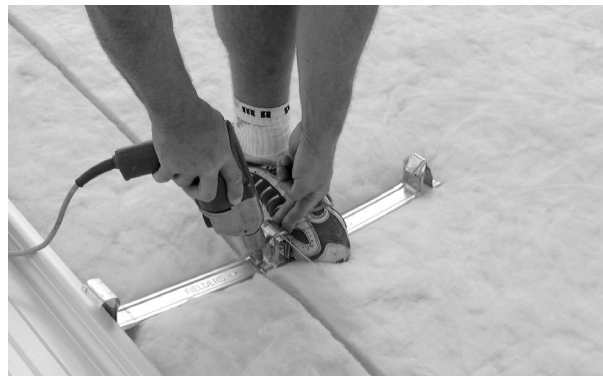


Figure 2.5.D Clips Located By Fixing Centre Screw First

#### Step 3

Lap the next HiKlip 630 clip over the top of the male rib, ensuring that the sheet being laid is parallel to the previous sheet and perpendicular to the gutter line. Fasten this first and fix the remaining two holes as previously done. Fasten all clips in this manner.

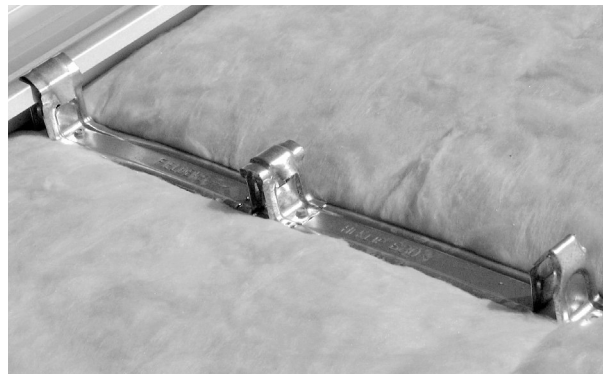


Figure 2.5.E HiKlip® Clips Over The Top Of The Male Rib

#### Step 4

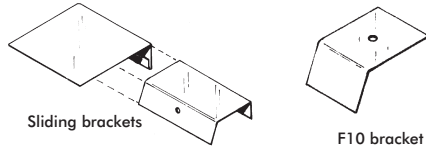
Lay the next sheet of HiKlip 630 as previously described. Checks should be carried out periodically to ensure the decking is installed squarely. This can be done by comparing the coverage at the ridge to that at the gutter line or by using a string line. At the end of the purlins, cut the deck and clip to suit.

#### Step 5

Turn up the HiKlip 630 pans at the ridge line. On lower pitches the pans should be turned down at the gutter line.

### Step 6

Flash the roof with compatible products using F10 brackets and sliding brackets as necessary to allow for thermal expansion and contraction.



### Step 7

Clean the roof daily during construction as per Fielders maintenance guide, ensuring the removal of all swarf, pop rivets and fasteners.



Figure 2.5.F Clips Located Over HiKlip® 630 Male Rib

## Concealed Fastening

### Unique double-clip action

Only HiKlip 630 features an over-and-under double clipping action on the side lap for added strength to withstand the strongest winds. And therefore, because the clips and brackets allow the sheet to move with temperature changes, you do not need step/expansion joints.

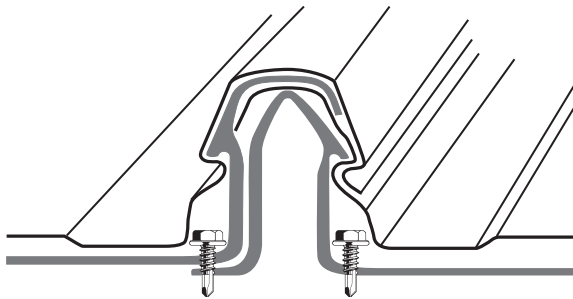


Figure 2.5.G Double-clip action ensures maximum strength

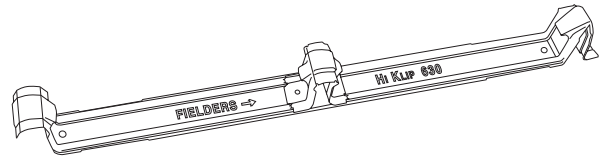


Figure 2.5.H HiKlip® Concealed Fix Clipping System

Further details are available in section 4.4 "Comparative Analysis: Concealed Fix vs. Screw Fix".

### Stagger Fix - Alternate Clipping

HiKlip 630 can be stagger fixed every second or third purlin under certain circumstances to provide an effective span of up to 4000mm particularly for internal spans. Fielders HiKlip 630 Optimiser manual provides further details on stagger fixing and the related cost savings. Please refer to your local Fielders representative to obtain a copy of the HiKlip 630 manual, specific fixing instructions and performance data.

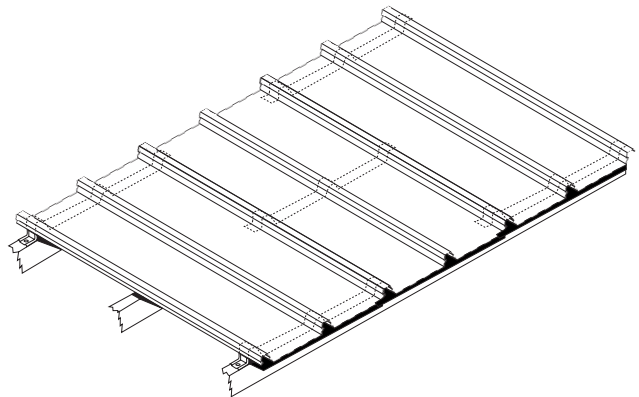


Figure 2.5.I Staggered Fixing of HiKlip® 630

### Turning of Roof Sheeting Ends

Refer to section 4.8 "Flashings, Cappings & Ends of Sheets".

### Designing Without Step Joints

For further information regarding the design of HiKlip 630 roofs without step joints, please see section 4.1 "Long Length Roofing Solutions".

### Maximum Sheet Length

See section 4.9 "Thermal Expansion and Contraction of Steel Sheeting".

### Curving HiKlip® 630

For details regarding spring curving of HiKlip 630 sheets, please see section 4.5 "Curving of Steel Decks".

HiKlip® 630 Flashings & Details			
<b>Masonry Parapet Side Wall (Low)</b>  Product Code: HK1	<b>Masonry Parapet Side Wall (High)</b>  Product Code: HK2	<b>Apron Flashings</b>  Product Code: HK3    GIRTH 330	<b>Overflashing</b>  Product Code: HK4    Girth 112
<b>Headwall Apron Flashing</b>  Product Code: HK5    Girth 350	<b>Soaker Gutter</b>  Product Code: HK6    Girth 350	<b>Soffit Corner Flashing</b>  Product Code: HK7    Girth 211	<b>Shoe Flashing</b>  Product Code: HK8
<b>Bracket</b>  Product Code: HK10	<b>Valley Gutter</b>  Product Code: HK11    Girth 340	<b>Under Over Flashing</b>  Product Code: HK12    Girth 330	<b>Mansard Roof Flashing</b>  Product Code: HK13    Girth 330
<b>Industrial Door Jamb Flashing</b>  Product Code: HK14    Girth 182	<b>Apex Capping Type 1</b>  Product Code: HK17    Girth 300	<b>Apex Capping Type 2</b>  Product Code: HK18    Girth 285	<b>Back Channel</b>  Product Code: HK19    Girth 130
<b>Barge Capping Steel Construction</b>  Product Code: HK20    Girth 300	<b>Barge Capping</b>  Product Code: HK22    Girth 300	<b>Framed Parapet Capping</b>  Product Code: HK23	<b>Two Piece Step Flashing</b>  Product Code: HK24
<b>Sliding Bracket</b>  Product Code: HK25	<ol style="list-style-type: none"> <li>★ denotes size to be determined by application. All sizes are in mm and should be used as a guide only. They should be measured on-site to determine actual size.</li> <li>S.B. denotes 'Slight Break'.</li> <li>Also refer to section 4.6 "Typical Roofing Details".</li> </ol>		

Table 2.5.1 HiKlip® 630 Flashings & Details