

GRS Klip-Lok 406

Global Roofing Solutions Klip-Lok 406™ Aluminium

ROOFING LIKE NO OTHER

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GRS Klip-Lok 406



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GLOBAL ROOFING SOLUTIONS

BrownBuilt | HH Robertson



Typical Specification

Materials

The roofing shall be Klip-Lok 406 profile, roll-formed in continuous lengths and shall be Aluminium Mill finish or colour coated one side / two sides with a COLORTECH G4 coating, in 0,7mm or 0,8mm thickness. Klip-Lok 406 Aluminium shall be obtained from Global Roofing Solutions.

The Profile

The profile shall have three trapezoidal ribs at 203mm centres giving a nett cover of 406mm. The rib height shall be 41mm and provide capillary breaks. The male rib shall have spurs to ensure a positive double interlocking action at side-laps. Each pan shall incorporate two stiffener ribs.

Assembly

It is recommended that Klip-Lok 406 sheeting be laid by an approved contractor in strict accordance with the manufacturer's specifications. When using a GRS (Brownbuilt) Approved Contractor, a five year guarantee on site-workmanship and water tightness may be issued after approval by Global Roofing Solutions.

Flashing

Stop endings must be formed at the apex and the pan turned down at the eaves to form a drip. The roof sheeting shall be closed as necessary with purpose-made flashings of a design approved by the supplier. These flashings shall be notched around ribs, where necessary, and fixed to aluminium S10 clips. All these operations must be performed with special tools available from the supplier.

Site Handling

Klip-Lok 406 Aluminium sheets should be suitably supported, clear of the ground, under well ventilated cover, away from risk of damage by building operations, contact with cement, dust, lime and abrasive dust, until required to be installed.

Cleaning Up

The complete roof must be kept clean and free of any swarf and debris.

Quality Assurance

The manufacturer shall be assessed and certified as complying with ISO 9001:2015 Quality Management System.

Solar Clamp

Please refer to GRS PV Clamp brochure.

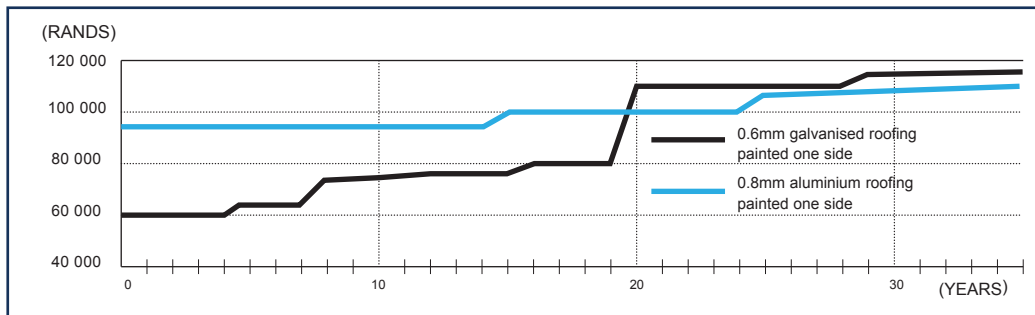


Note

A GRS / Brownbuilt installation warranty will only be honoured if the GRS KT-PV Clamp is used when installing photovoltaic panels.



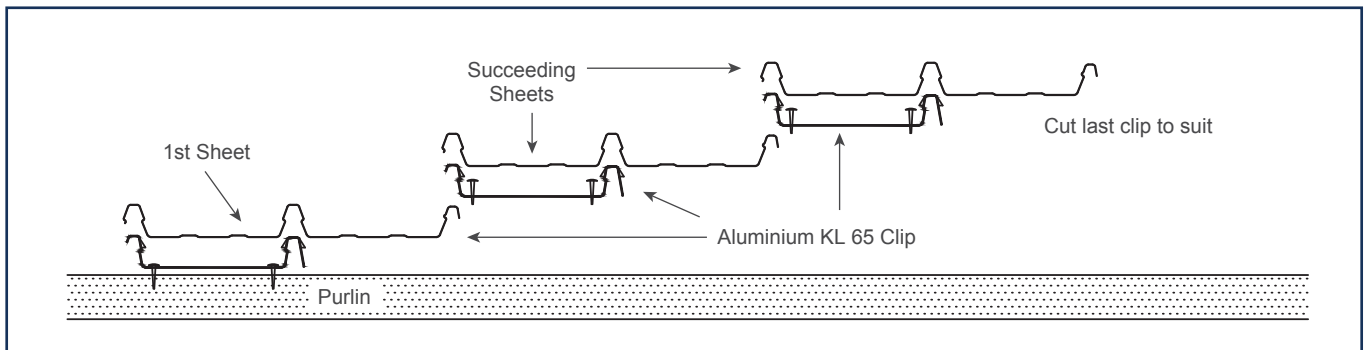
Life Cycle Cost Of Roofing



Aluminium's extended life expectancy and virtually maintenance-free characteristics makes it cost effective over the long term.

The cumulative cost chart was based on a study of a major industrial development in the Durban South area.

The Concealed Fixing Concept



Fasteners

The recommended fasteners for fixing the Aluminium KL 65 clips to steel or timber purlins are 304 stainless steel fasteners as follows:

Steel Purlins - (1mm - 4.5mm thick)

No. 10 - 16 x 22mm lg. 304 stainless steel bi-metal self-drilling wafer head PH2 screw, No. 3 drill point, ZAP Class 5.

Steel Purlins - (5mm - 12.5mm thick)

No. 12 - 24 x 38mm lg. 304 stainless steel bi-metal self-drilling wafer head PH3 screw, No. 5 drill point, ZAP Class 5.

*For extremely corrosive areas, please contact GRS.

Contact with other materials:

Aluminium in itself is exceptionally resistant to general weathering and corrosion. Contact with other dissimilar metals and materials may shorten its life. It is therefore recommended that the following steps are taken to isolate the aluminium and ensure maximum life. The sheeting must be isolated from steel purlins, in most situations, through the application of a suitable protective plastic tape. In certain, non-corrosive, situations a high quality paint or galvanising system on the steel work might be adequate. However, no reliance can be placed on the paint coating present to provide protection against galvanic corrosion.

Translucent Sheeting

Klip-Lok 406 offers various shades in the following translucent products:

Polycarbonate 812mm (double cover).

For fixing details see GRS Installation Manual.

Polycarbonate is totally inert towards aluminium, therefore there are no specific precautions to be taken when in contact with aluminium.

For 50mm insulation blanket over purlins:

No. 10 - 16 x 22mm lg. 304 stainless steel bi-metal self-drilling wafer head PH2 screw, No. 3 drill point, ZAP Class 5.

Timber Purlins

No. 10 - 11 x 45mm lg. 304 stainless steel self-drilling wafer head PH2 screw, Type 17 drill point, ZAP Class 5.

*For light steel frame purlins less than 1mm thick, please contact GRS.

Contact Material	Recommended Barrier
Aluminium (and alloys)	Not required
Stainless steel 304, 316 etc.	Not required
Zinc	Marginal / Use bituminous paint
Lead	Bituminous paint or Zinc chromate
Concrete, cement, lime	2 Coat bitumen or bituminous paint
Stone, brick	Aluminium, rubber bitumen-based paint, aluminised bituminous or protective plastic tape
Softwood	Aluminium, rubber, bitumen-based paint, or protective plastic tape
Hardboard	Compatible sealer, building paper or bituminous felt
Some insulation products, felt etc.	Bituminous paint, bituminous paper or felt
Glass Fibre insulation	Bituminous paint
Polycarbonate	Not required
Plaster	Bituminous paint
Sealant, caulking compounds, adhesives	Not required

KL 65 clip



Additional Applications

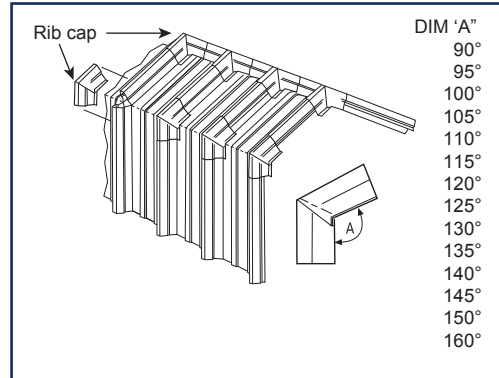
Sheet Lengths

Klip-Lok 406 Aluminium is available, ex-factory, in sheet lengths limited only by transport restrictions; normal loads 12.5m and abnormal loads 18.6m. Longer lengths can be milled on site, eliminating end laps which are not recommended.

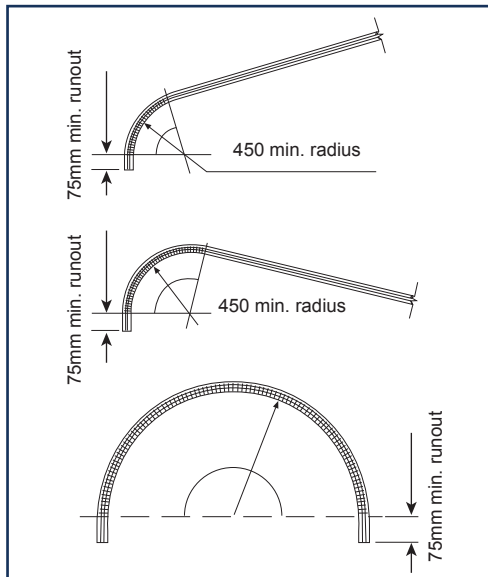
End lapping negates the concealed fix concept and no water tightness guarantee can be given.

End lapping reduces the life expectancy of the roof, due to corrosion.

Rib Cap Detail



Bullnosing and Cranking



Note

Reverse cranking is not possible.

Note

Consideration for road transport has to be taken into account.

Refer to the GRS Installation Manual for detailed dimensions and fixing instructions.

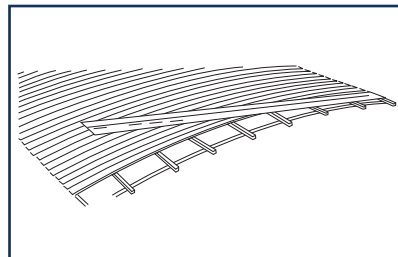
Site cranking for milled sheets is available on application.

Curving

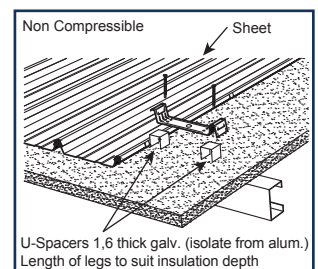
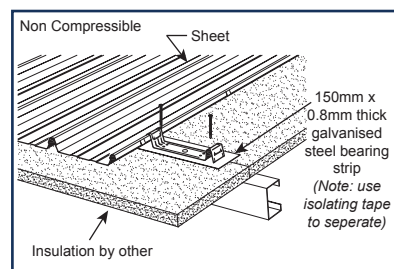
Klip-Lok 406 can be crank curved (convex only) to any radius over 800mm by increasing the distance between the "cranking" indentations across the sheet.

Springing

Klip-Lok 406 can be sprung to a minimum radius of 36m convex or 40m concave, with internal spans for purlins at 1.5m max.

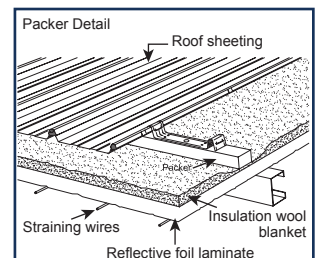


Insulation

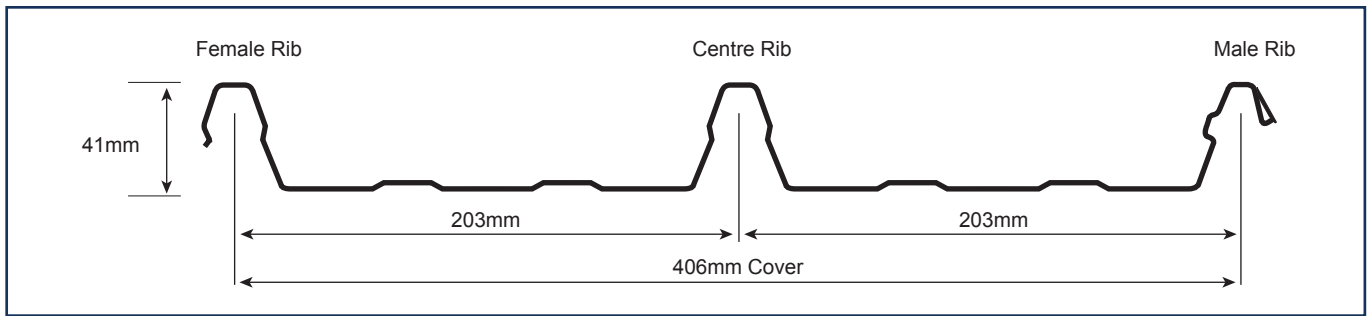


Note

Refer to installation manual for correct application for type of insulation, dependant on purlin centers, sheet lengths and torque setting of power tool used.



Profile: Klip-Lok 406™ Aluminium



Load Span Table

The recommended purlin support centres are based on the following design criteria and obtained through testing:

Ultimate Superimposed Distributed Load		Ultimate Uplift Load
ROOFS	1.50 kN/m ²	1.60 kN/m ²
WALLS	0.75 kN/m ²	

Note

At 1° slope, all roof supports must be in the same plane as slight variations can result in a zero or negative fall. This may even occur after completion of the building over time. Where possible it is wise to design for a minimum of 2° slope to ensure a positive fall.

Drainage Table

Maximum roof run (in metres) for roof slopes and rainfall intensities shown. These figures are based on unrestricted, free flow of water.

Roof Slope	Rainfall Intensity mm/h			
	250	300	400	500
1 in 50 (1°)	64	53	40	32
1 in 30 (2°)	80	66	50	40
1 in 20 (3°)	94	78	58	46
1 in 12 (5°)		95	70	56
1 in 7.5 (7.5°)			83	66
1 in 6 (10°)			91	73

Maximum Allowable Support Spacings		
	0.7mm	0.8mm
Roofs		
Single Span	1.200m	1.400m
End Span	1.500m	1.900m
Internal Span	1.800m	2.200m
Cantilever	0.100m	0.180m
Cantilever (gutter attached)	0.300m	0.400m
Walls		
Single Span	1.400m	1.600m
End Span	1.800m	2.200m
Internal Span	2.100m	2.400m
Cantilever	0.150m	0.300m
Normal Mass kg/m ²	2.77	3.17

Note

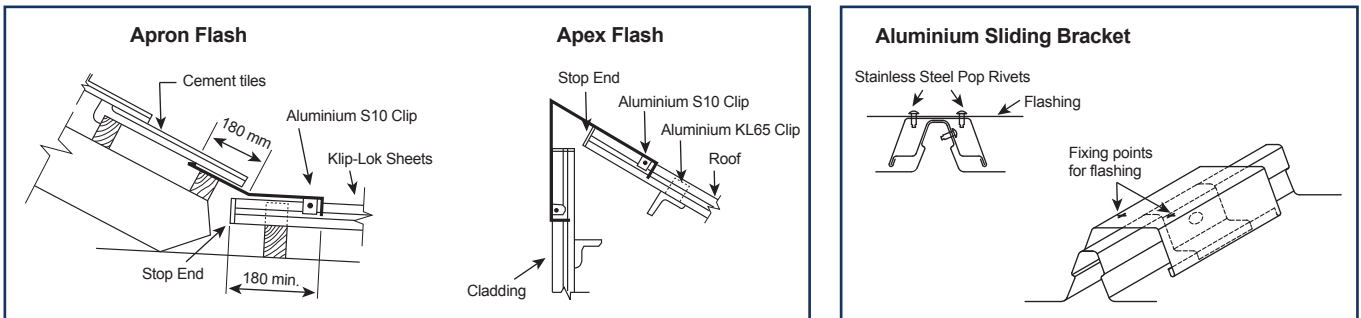
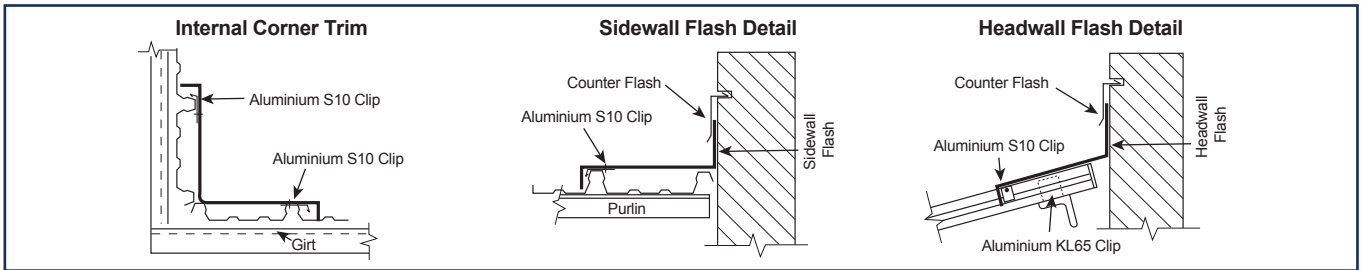
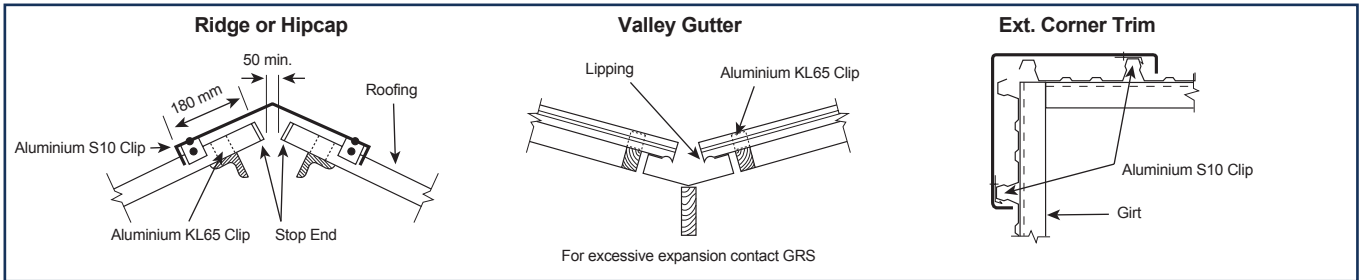
The grade of aluminium has been specially developed for Global Roofing Solutions to give increased properties, which are achieved with higher additions of magnesium during casting. This increases solid solution strengthening.

Thermal Expansion and Contraction

The thermal expansion of aluminium necessitates the use of sliding brackets on sheet lengths of 20m and longer.

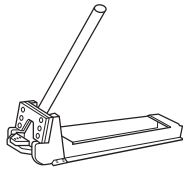
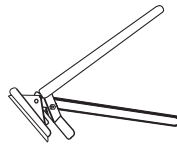
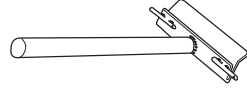
Popular Flashings

Available in 0.7mm or 0.8mm thick in mill finish or colour coated.



** When sheet lengths are over 20m flashings must be fixed to sheets using sliding brackets.*

Tools

<p>Notching Tool Used to notch out sheet ribs profile in the flanges of flashings to fit over sheet ribs.</p> 	<p>Turn-up Tool Used to stop end sheets upward at the top of the roof slope to prevent water blown up and over sheet end.</p> 	<p>Turn-down Tool Used to lip sheets downward at the eaves to prevent water flowing back on the underside of the sheets.</p> 
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Please visit our website or contact GRS for standard flashing details

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