PRODUCT DESCRIPTION & FEATURES

Concealed-fixing, also referred to as secret fix, is designed for very low pitched roofs. Because clips under the sheet hold it down, the sheet is not punctured with fasteners, and remains completely watertight even at a very low slope. The securing clips are pre-fixed into the purlins and the sheet is mechanically snapped onto the clip. As a concealed fix sheet can also expand and contract over the clips as the temperature changes, this system is ideal for long spans on industrial, commercial and retail buildings.

SAFLOK 410 is a concealed fix sheet profile with an effective cover width of 410mm. It is an angular interlocking standing seam trapezoidal rib profile, and is usually roll formed on mobile mills on the building site.

CLIPPING SYSTEM

The SAFLOK 410 clip incorporates a dual action component to positively hold down the male-female joint on every second rib, and an anchor to clasp the inner rib. Every rib is therefore secured, making it fully interlocking.

MATERIAL OPTIONS

Aluminium - Zinc	Gauge (mm)	
AZ150 G550 Unpainted	0.50	0.55
AZ150 G550 Painted	0.50	0.55
Aluminium	**Gauge (mm)**	
Aluminium Mill Finish	0.70	0.80
Aluminium G4 Colortech	0.70	0.80

Other gauges are available on special request.

SAMPLE SPECIFICATION

Safintra 0,50mm thick SAFLOK 410 Colorplus® AZ150 interlocking roof sheeting fixed to steel internal purlins at 1800mm, and ridge/eaves purlins at 1600mm centres using SAFLOK 410 clips which must be screw fixed to steel purlins with class 3 wafer head self-tapping screws, all in accordance with manufacturer's recommendations.

The sheeting will be a double interlocking concealed fix SAFLOK 410 as manufactured by Safintra Roofing, roll-formed in continuous lengths from Aluminium or Aluminium-Zinc coated steel.

The profile shall be roll-formed with 3 ribs at centres not exceeding 205mm and a cover width not exceeding 410mm.

We do not recommend using Saflok on a roof pitch exceeding 5 degrees due to the possibility of oil canning.

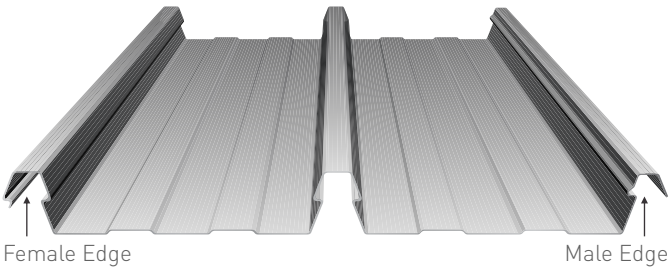
The male rib is to include spurs to ensure a double interlocking action with adjacent sheets. The minimum sheet depth shall be 41mm. Two stiffening ribs are incorporated in each pan.

LENGTHS

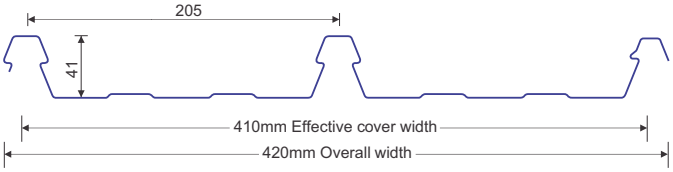
With the aid of mobile rolling mills, custom lengths can be rolled on-site. To date the longest continuous sheets in South Africa have been in the region of 130m long. Off-site rolled sheets are cut to transportable lengths (approximately 12m).

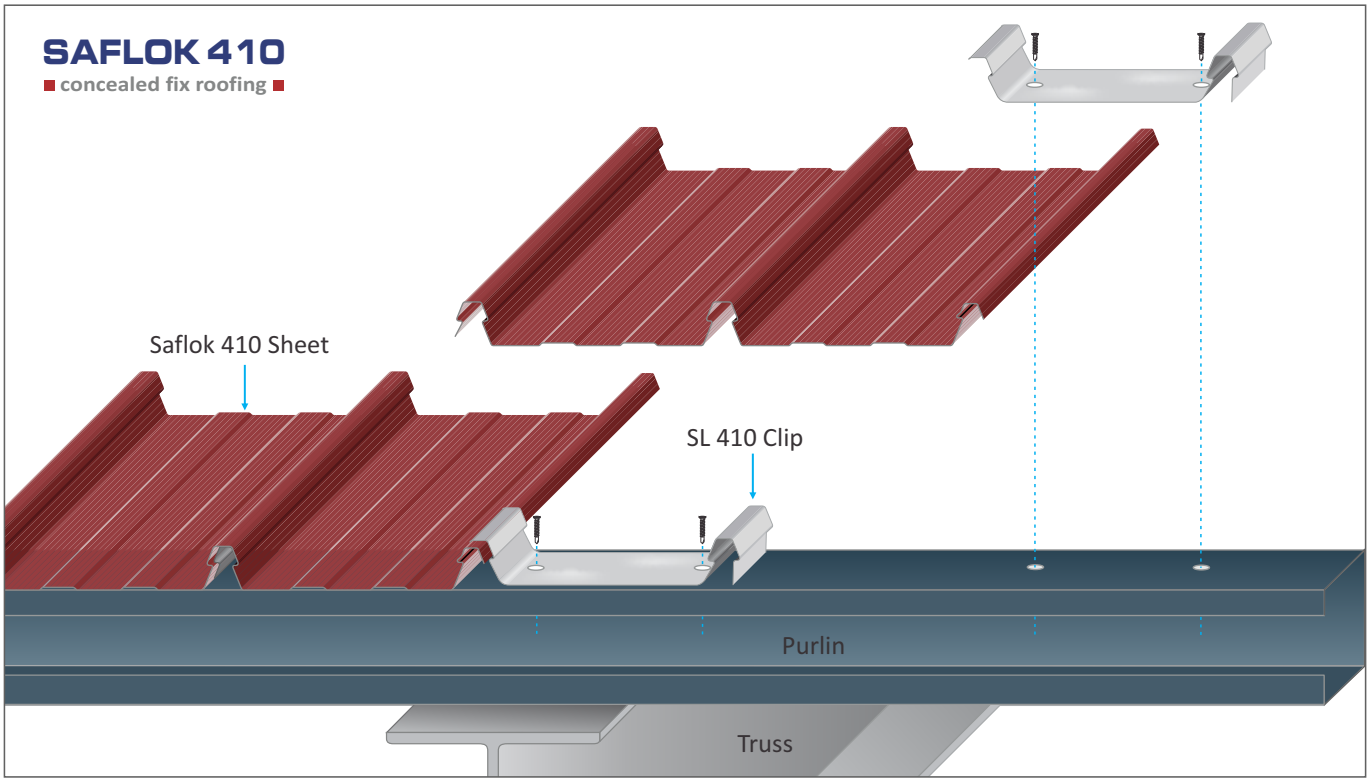
ROOF PITCH

SAFLOK 410 was designed for roof pitches from as low as 2° (1 in 50) however 3° is preferred. It can also be used on walls. When applying to very steep roof pitches you should pierce-fix through each sheet under the flashing or capping, along the top of the sheet to prevent the concealed-fixed sheeting from sliding downward in the fixing clips. Clip-in marks might be visible on high pitched roofs. This visual effect might not be aesthetically pleasing in a residential application.



Female Edge Male Edge





INSTALLATION

Saflok 410 is fastened to the purlin by means of a Saflok 410 clip. Sheets are mechanically locked onto the clips and are not perforated at all. It is essential that the male rib is directly engaged to the underside of the clip.

NEVER re-use a Saflok 410 clip.

Clips for Aluminium Material:

- An Aluminium clip is a necessity when using Aluminium Material.
- When using Saflok Aluminium material on galvanized steel purlins it is recommended to make use of an isolation tape to prevent the bridging of the two dissimilar materials. The recommended tape is a "Denso LDP 300" or similar. Should the two metals have direct contact it will ultimately result in the manifestation of galvanic corrosion, and the service life of the Aluminium will be compromised.

MATERIAL COMPATIBILITY

Lead, copper, free carbon and bare steel are not compatible with Aluminium - Zinc coated steel or Aluminium material. Don't allow any contact with those materials, nor discharge of rainwater from them onto the material. Supporting members should be coated to avoid problems with underside condensation. If there are doubts about the compatibility of other products being used, consult the technical staff at your nearest Safintra branch.

SEVERE CORROSIVE CONDITIONS

If this product is to be used in marine, severe industrial, or unusually corrosive environments, consult the technical staff at your nearest Safintra branch for guidance.

MAINTENANCE

Optimum product life will be achieved if all external surfaces are washed regularly. Areas not cleaned by natural rainfall (such as the tops of walls sheltered by eaves) should be washed down every six months. Regular maintenance and inspections, especially after severe storms, are essential.

STORAGE AND HANDLING

Keep the product dry and clear of the ground. If stacked or bundled product becomes wet, separate it, wipe it with a clean cloth to dry thoroughly. Handle materials carefully to avoid damage, don't drag materials over rough surfaces or each other, don't drag tools over material and protect from swarf.

Note:

During installation, clean the roof daily by removing all swarf, pop rivets and unused fasteners or any other debris.

PURLIN SPACINGS

Note:
It is important to reduce purlin spacings by 20% when spring curving a roof.

GAUGE	0.5mm	0.55mm	0.8mm
MATERIAL	ALUMINIUM-ZINC	ALUMINIUM-ZINC	ALUMINIUM
ROOFS	**mm**	**mm**	**mm**
Single Span	1 400	1 700	1 000
End Span	1 600	1 900	1 200
Internal/Double Span	1 800	2 100	1 700
Cantilever (Unstiffened)	150	150	100
Cantilever (Stiffened)	300	300	200
SIDE CLADDING			
Single Span	1 800	2 100	1 500
End Span	1 900	2 200	2 100
Internal Span	2 100	2 500	2 300
Cantilever	300	400	200
Approximate Mass/m²	5.4kg	6.2kg	2.9kg

Saflok 410 clips are calculated at 140g per clip - require approximately 2 clips per m².

DRAINAGE TABLE	ROOF SLOPE				
RAINFALL INTENSITY MM/HOUR	2°	3°	5°	8°	10°
250	75	90			
300	65	75	95		
400	50	55	70	80	90
500	40	45	55	65	70
Maximum roof run for roof slopes and rainfall intensities shown.					

Span tables are for SAFLOK 410 with light foot traffic only. Span tables are based on 1.5kPa downward pressure, 1.6kPa upward pressure and 0.75kPa for the side cladding, inward or outward. The span tables are maximum recommended spans based on buildings up to 10m high in Region B, Terrain Category 3. For further clarity on terrain categories, and wind speeds, please refer to the Safintra Design and Installation Manual (specifically pages 5,6 and 10,11)

ROOFS:

Cpi=+0.20, Cpe=-0.90, Kl=2.0 for single and end spans, Kl=1.5 for internal spans

WALLS:

Cpi=0.20, Cpe=-0.65, Kl=2.0 for single and end spans, Kl=1.5 for internal spans. These spacings may vary by serviceability and strength limit stated for particular projects.

LIMIT STATED WIND PRESSURES

Our Span table for light foot traffic was tested with the latest methods for modelling wind pressures. The wind pressure capacity table was tested by the CSIR, using the direct pressure-testing rig. The pressure capacities for serviceability are based on a deflection limit of (span/120) + (maximum fastener pitch/30). The pressure capacities for strength has been determined by testing the cladding to failure (ultimate capacity). These pressures are applicable when the cladding is fixed to a minimum of 2.0 mm, G550 steel.

WIND SPEED TABLE	
Wind Zone	**Purlin spacing for sheeting**
Low (32 m/s) 115km/h	As per the profile span tables
Medium (37 m/s) 133km/h	As per the profile span tables - 5%
High (44 m/s) 158km/h	As per the profile span tables - 25%, all roof perimeters secured, consult your local Safintra branch.
Severe (50 m/s) 179km/h	As per the profile span tables - 25%. Consult your local Safintra branch

SAFLOK 410 CLIP

FASTENERS

Where insulation is to be installed, you may need to increase the length of the fasteners given below, depending on the density and thickness of the insulation. When the fastener is properly tightened:

- into metal: there should be at least three threads protruding past the purlin you are fixing to, but the shankguard must not reach that purlin.
- into timber: the fastener must penetrate the timber by the same amount that the recommended fastener would do if there were no insulation.

CURVING

Natural springing occurs at 36m radius in the convex and 60m radius in the concave. It is important to reduce purlin spacings by 20% when spring curving a roof.

SEALED JOINTS

For sealed joints use fasteners or rivets and neutral-cure silicone sealant branded as suitable for use with AZ steel.

ROLLING STRAIGHT ONTO A ROOF

It is possible to roll-form straight onto a roof using a scaffold ramp. The limitations are the building height and space needed to roll. A departure angle of 10° is the maximum allowed at any time. A greater angle will damage the sheet as it leaves the mill, and again when bending to settle onto the roof. The sheeting cannot be roll formed onto a building higher than 10m.