SAFLOK 410®
concealed fix roofing

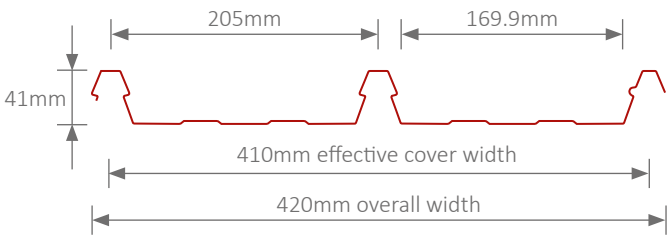
Saflok 410® is a concealed fix profile with an effective cover width of 410mm. It is an angular interlocking trapezoidal rib profile, and can be roll-formed on site.

SAMPLE SPECIFICATION

Safintra 0.50mm thick Saflok 410® Colorplus® AZ 150 interlocking roof sheeting fixed to steel internal purlins at 1700mm centres, and ridge/eaves purlins at 1500mm centres using Saflok 410® clips that must be fastened to steel purlins with Fixtite™ or Safintra approved 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, 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 of 410mm. The male rib is to include spurs to ensure a double interlocking action with adjacent sheets. The minimum rib height shall be 41mm. Two stiffening ribs are incorporated in each pan.

Female rib Male rib



MATERIAL OPTIONS

Aluminium-Zinc coated steel	Gauge (mm)
AZ 100 / 150 / 200 G550 Unpainted or pre-painted	0.47 0.50 0.53 0.55
Aluminium	**Gauge (mm)**
Unpainted or pre-painted	0.80
Rheinzink	**Gauge (mm)**
Rheinzink material	0.80
Zinc-coated steel	**Gauge (mm)**
Z200 / Z275 ISQ550 Unpainted or pre-painted	0.50 0.58

Other gauges are available on special request. All material is subject to availability.

Note 1: Saflok 410® can be curved or bullnosed to a minimum internal radius of 450mm. Reverse cranking is not possible.

Note 2: Note that when using Aluminium material on galvanized steel purlins, the use of an isolation tape or similar to prevent the bridging of the two dissimilar materials is recommended. 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.

PURLIN SPACINGS

Span tables are for Saflok 410® with light foot traffic only. It is based on 1.5kN downward load and 2kPa negative wind loading. The span table below refers to the maximum recommended spans. For further information, consult Safintra's Technical Department.

Gauge (mm)	0.47	0.50	0.53	0.55	0.80
Material	Aluminium-Zinc coated steel	Aluminium-Zinc coated steel	Aluminium-Zinc coated steel	Aluminium-Zinc coated steel	Aluminium
Roofs	**mm**	**mm**	**mm**	**mm**	**mm**
Single span	1200	1300	1500	1600	1100
End span	1400	1500	1700	1800	1300
Internal/double span	1600	1700	1900	2000	1500
Cantilever (unstiffened)	150	150	150	150	100
Cantilever (stiffened)	300	300	300	300	200
Side cladding					
End span	2000	2100	2300	2400	2100
Internal span	2200	2300	2500	2600	2300
Cantilever	150	150	150	150	100
Approximate mass (kg/m^2)	5.26	5.59	5.93	6.15	3.24

Design requirements exceeding the above may be considered in consultation with the Safintra Technical Department.
** 0.80 Aluminium-Zinc coated steel is rolled in G275.*

Saflok 410® clips are calculated at 145g per clip. You will require approximately 3 clips per m². The anchor mechanism of the Saflok 410® clip is design registered with South African Design Application No. F2017/00456*.

DRAINAGE TABLE

Peak rainfall intensity (mm/h)	Roof slope			
	1:50 (1°)	1:30 (2°)	1:20 (3°)	1:12 (5°)
150	114	162	198	256
200	86	121	148	192
250	68	97	119	153
300	57	81	99	128
350	49	69	85	110
400	43	61	74	96
500	34	48	59	77

Maximum roof sheet length (m).

Note 3: Concealed fix side cladding must be pierce fixed for prevention of sheet movement due to gravity. Pierce fix the top of the sheets. Internal pierce fixing may be necessary on longer sheets. Cladding is to be fixed in the pan of the sheet with #12x25mm Fixtite™ fasteners - Class 4 only.

**Refer to the Safintra Technical Department for more information or raise any enquiries in writing to info.safintrasa@safalgroup.com*

LENGTHS AND ROOF PITCH

Saflok 410® can be ordered in any practical length as per customer requirements. On-site rolling is recommended for lengths in excess of 13.2 metres, limited by space constraints and building design. The minimum roof pitch when using Saflok 410® is 2° on steel and 3° on timber.

Clip-in marks and oil canning might be visible on high pitched roofs or vertical applications. This visual effect might not be aesthetically pleasing in a residential application (refer to page 73).

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Fixing Guide

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 shank guard must not reach the purlin.

Into timber: The fastener must penetrate the timber by at least 30mm.

FASTENERS FOR SAFLOK 410®

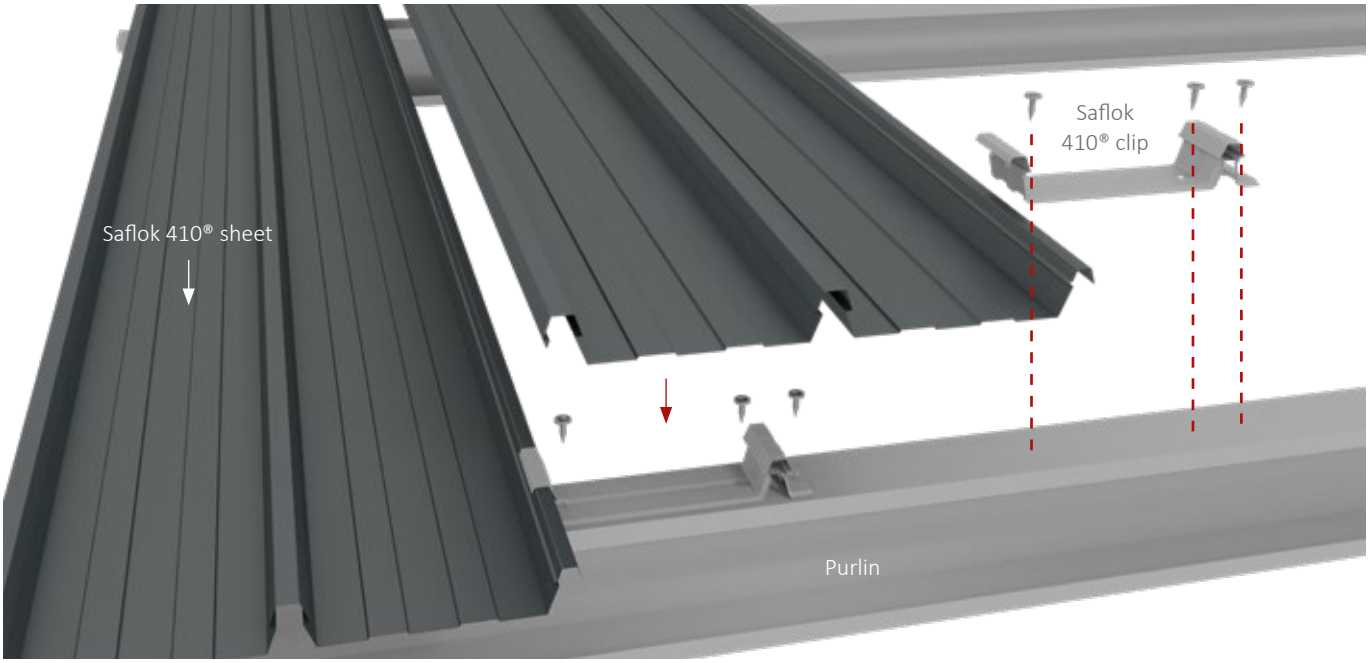
	Roof	Flashings
Steel	#10 x 22mm metal-fix wafer head	#14 x 22mm metal-fix stitching screw, hex head, tapered
Timber	#10 x 45mm timber-fix wafer head	

SAFLOK 410® CLIP

The fully interlocking **Saflok 410® Clip** incorporates one anchor to clasp the middle rib and a dual action gooseneck to positively hold down the male-female joint.

- Provides full width engagement on the gooseneck male rib joint.
- The Saflok 410® Clip demonstrates an excellent hold down capability in negative wind uplift load tests.
- Engineer-designed geometry of anchor unit for optimal performance under high wind loads and foot traffic.
- Entire clip is manufactured from 0.80mm Aluminium-Zinc coated steel for compatibility with sheeting.

Note 4: Please note that clips can be manufactured in alternative metals to ensure metal compatibility.

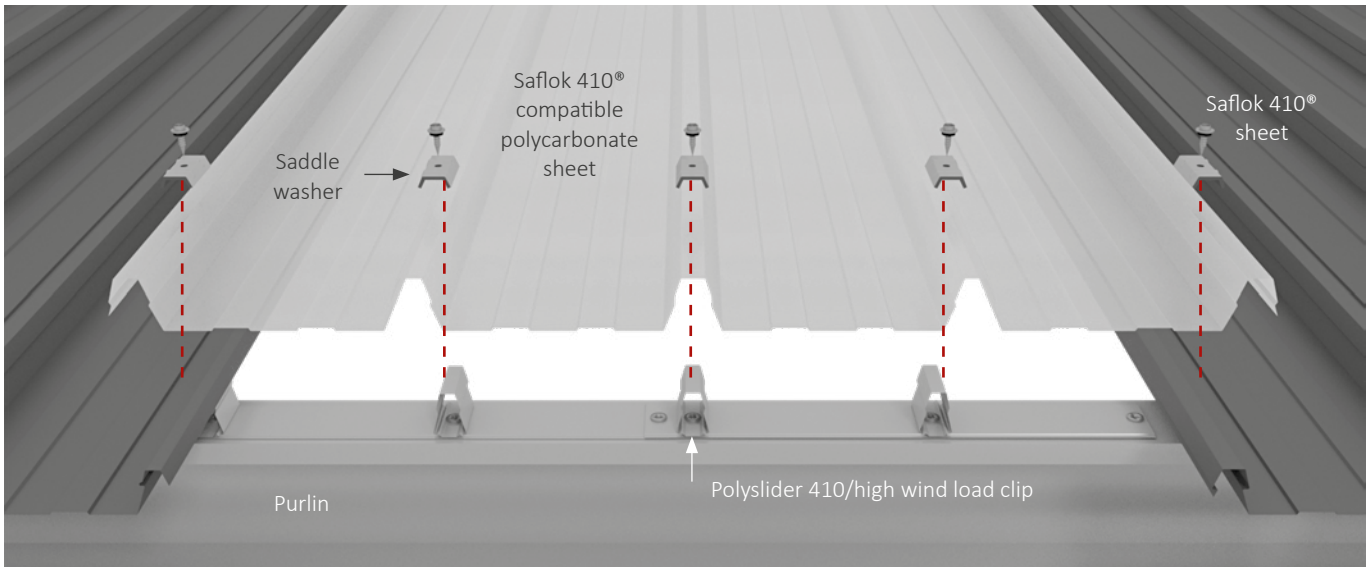


SAFLOK 410® INSTALLATION

1. Starting with the female rib first, align the first row of clips and fasten on all three fastening positions.
2. Lay the first sheet down over the clips. Starting at the eave side, clip the sheet onto the clips by first engaging the anchors and then engaging the female rib over the gooseneck and male rib.
3. Engage the gooseneck of the next row of clips over the male rib and fasten on all three fasteners. Ensure the male leading edge has adequate support (might require slight lifting of the male rib or rotation of the clip). Repeat from step 2.

Note 5: During installation, clean the roof daily by removing all swarf, pop rivets and unused fasteners or any other debris.

Specialised Fixing Accessories



POLYCARBONATE AND HIGH WIND LOAD INSTALLATION DETAILING

(High Wind Zones and Coastal Wind Belts)

Polysliders are specifically designed for polycarbonate or fibreglass sheeting and allow for a large amount of thermal expansion. This clip works in conjunction with the saddle washers which are positively fixed to the sliding bracket. This clip is also used for Saflok 410® sheeting around the perimeters and exposed areas where high wind load conditions prevail.

Overhangs are prone to a build up of wind pressure and are considered to be the weak point of any roof. All overhangs larger than 600mm need to be positively fixed with a high wind load clip or saddle washer (always allowing for thermal cycling). These include canopies, walkways, lean-to roofs, loading bays and decorative roofs.

1. Align the first row of the polyslider baseplates and fasten through the pre-drilled holes in the two positions where the slider brackets attach.
2. Connect the slider brackets to the baseplate and lay the first sheet over the slider brackets.
3. Place saddle washers over the first two ribs above the purlin, and fasten the saddle washers through the ribs into the slider brackets.
4. Place the next row of baseplates and fasten. Overlap the end fastening positions to self-align the row of baseplates. Repeat from step 2.

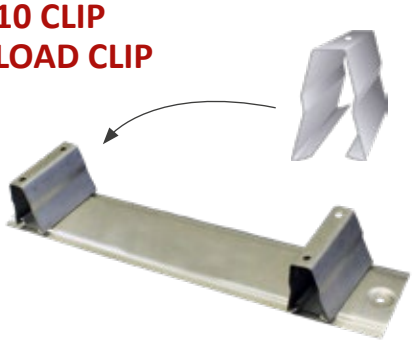
SAFLOK® SADDLE WASHER

The Saflok® saddle washer works with the polyslider to positively fix the sheeting (polycarbonate or steel) onto the polyslider clip without restricting thermal expansion. The saddle washers are cold bonded to a 3mm Ethylene Vinyl Acetate (EVA) seal, which prevents ingress of water through the fastener hole.

Note 6: The saddle washer can only be fixed from the top.

POLYSLIDER 410 CLIP - HIGH WIND LOAD CLIP

The polyslider clip consists of a baseplate and two sliding brackets.



Note 7: All polycarbonate sheet installations (including, but not limited to in-plane installations) with Safintra roofing/cladding profiles should be done in accordance to SANS 10237:2017 (Annexure E Rooflights).

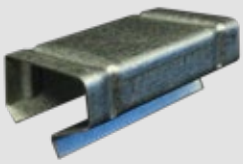
Specialised Flashing Installation

Safintra recommends the use of a flashing slider bracket for very long sheets. Refer to the adjacent table:

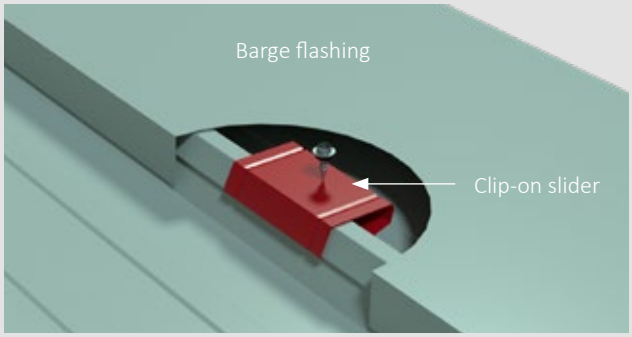
When installing bull-nosed sheeting or Aluminium sheeting, the use of flashing slider brackets is recommended for sheets with lengths in excess of 15 metres. Please consult Safintra's Technical Department for assistance.

Sheet length (m)	Transverse flashings (ridge, apex, headwall)	Longitudinal flashings (barge, sidewall)
<30	F10 bracket - Internal ribs only	F10 bracket - Every 500mm
>30	2-piece slider - Internal ribs only	Clip-on slider - Every 500mm

CLIP-ON SLIDER FOR FLASHINGS

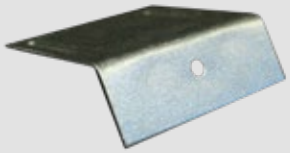


The clip-on slider clips onto the rib of the Saflok® profile to fix longitudinal flashing (barge, sidewall) to the sheeting without the need for fasteners piercing the sheet. The clip will allow for more thermal expansion than the F10 bracket. Therefore recommended for lengths exceeding 30 metres.



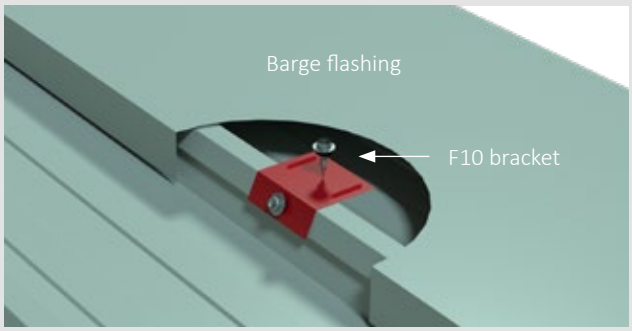
Clip-on slider bracket for longitudinal flashings on Saflok® profiles.

F10 BRACKET FOR FLASHINGS

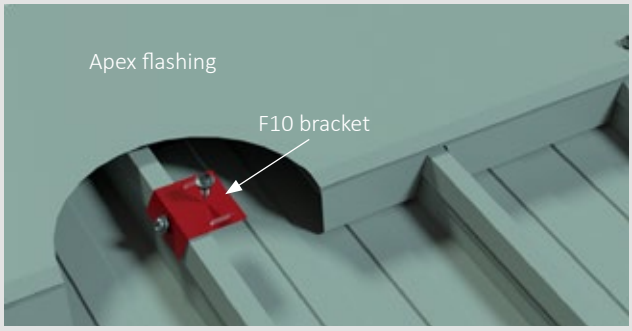


F10 brackets are used to fix flashing onto Saflok® profiles without drilling directly into the sheet. The bracket allows for minimal expansion.

Note 8: This clip is positively fixed. Care should be taken when detailing industrial length sheeting and flashings due to thermal expansion.

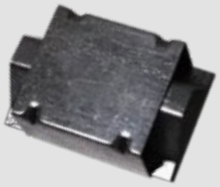


F10 bracket for longitudinal flashings on Saflok® profiles.

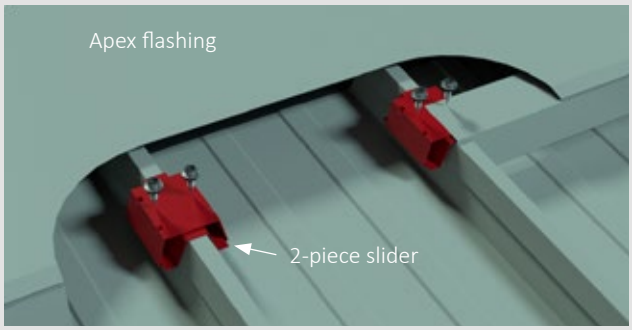


F10 bracket for transverse flashings on Saflok® profiles.

2-PIECE SLIDER FOR FLASHINGS

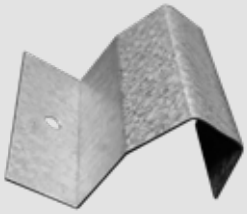


The 2-piece sliders are used to fix transverse flashings (apex, ridge, headwall) to the sheeting without drilling directly into the sheet. This bracket will allow for up to 50mm of thermal expansion.

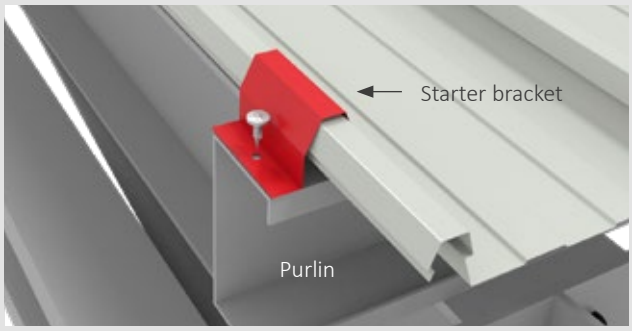


2-piece slider bracket for transverse flashings on Saflok® profiles.

SAFLOK® STARTER BRACKET



The Saflok starter bracket is used to secure the first and/or last rib of the edge sheet without restricting thermal expansion.



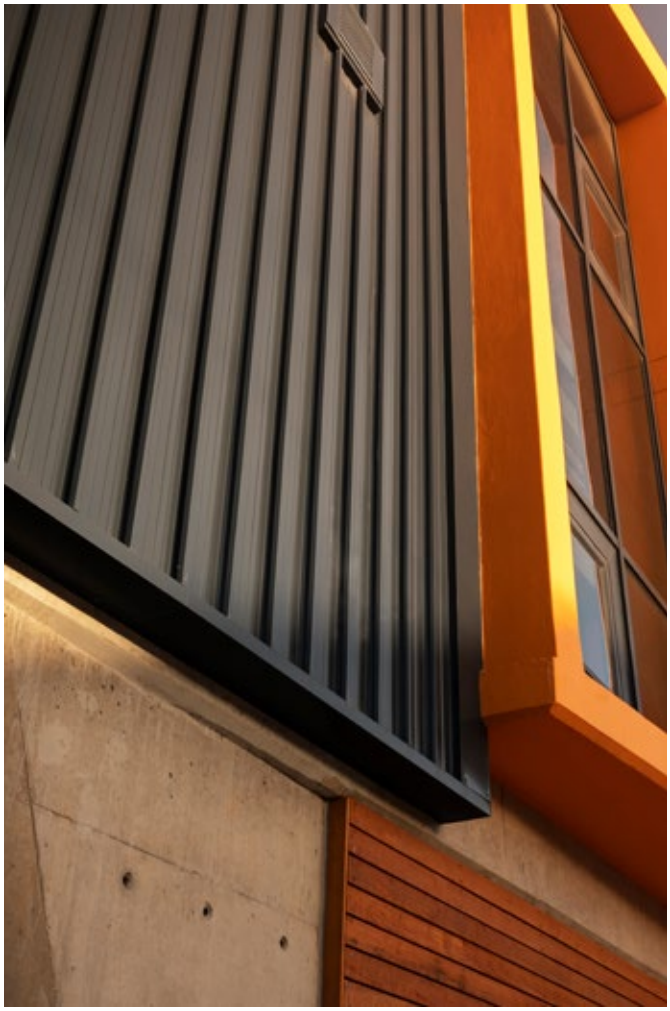
Saflok® starter bracket.

SAFLOK 410® LIPPING AND BENDING TOOL

The bending tool is used to bend the pan up on the ridge side of the sheet to create a water barrier (also known as the tanking or turning up of the sheet). The lipping tool is used on the eave side of the sheet to create a turned down lip (also known as the lipping or turning down of the sheet).

Saflok 410® bending tool application.

Saflok 410® lipping tool application.



CRANKING

Saflok 410® sheets may be cranked and bullnosed but not reverse cranked. The minimum radius is 450mm. On-site cranking is available on request.

CURVING

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

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 would damage the sheet when leaving the mill and again when bending to settle onto the roof.

DIMENSIONAL TOLERANCES

A length variation range of +10mm and -0mm, and a width tolerance of +3mm is permissible.

