Uniclass
L5221:P41
CI/SfB
(-4) Nh2
November 2021

TATA STEEL

TATA

Trisomet®

External roof and wall panel system

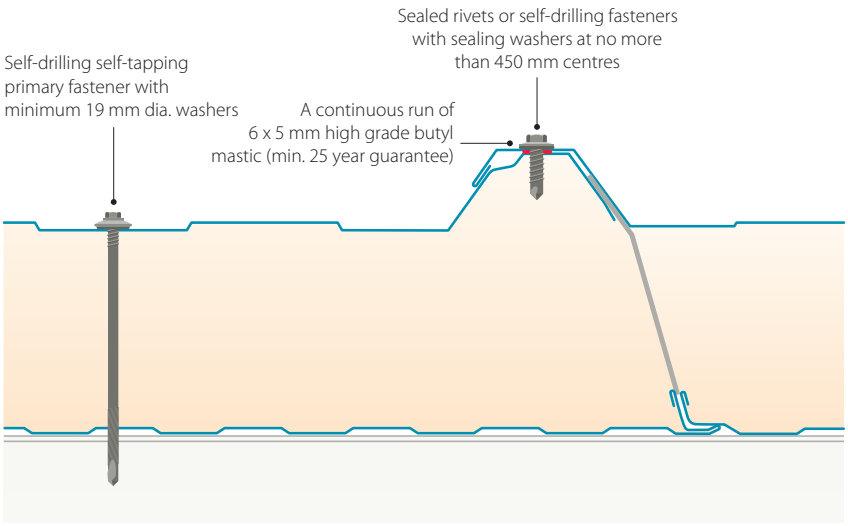


Construction details – roof

The details within this section are recommendations and have been designed to give practical solutions to minimise thermal bridging and air loss at junctions. For each junction detail, Ψ values (Psi) and f values have been calculated in accordance with BS EN ISO 10211 and recommendations within MCRMA technical paper 18.

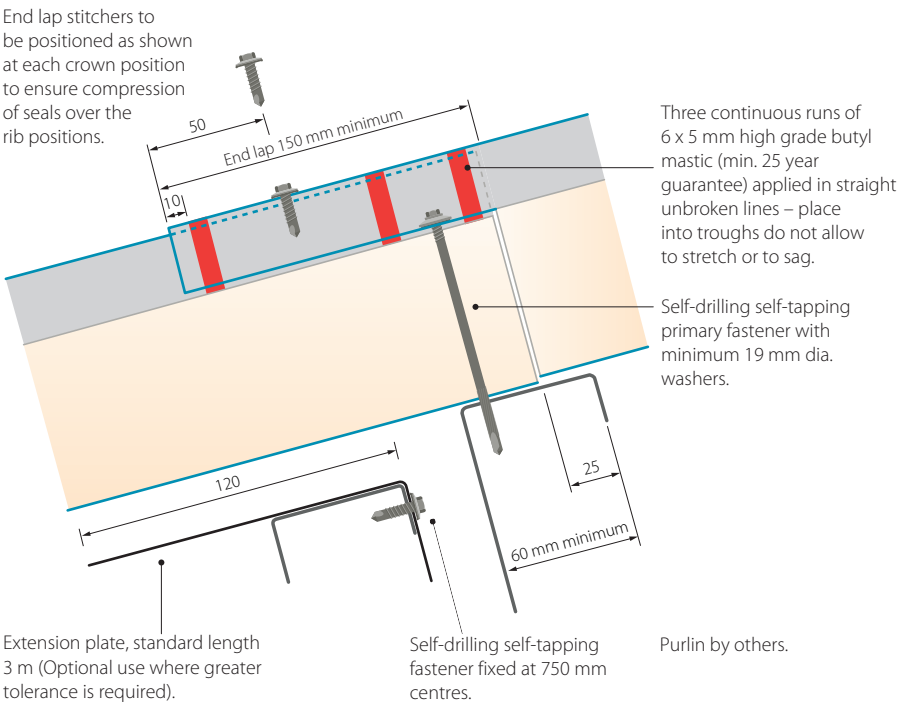
NB. All support steelwork by others.

Side lap



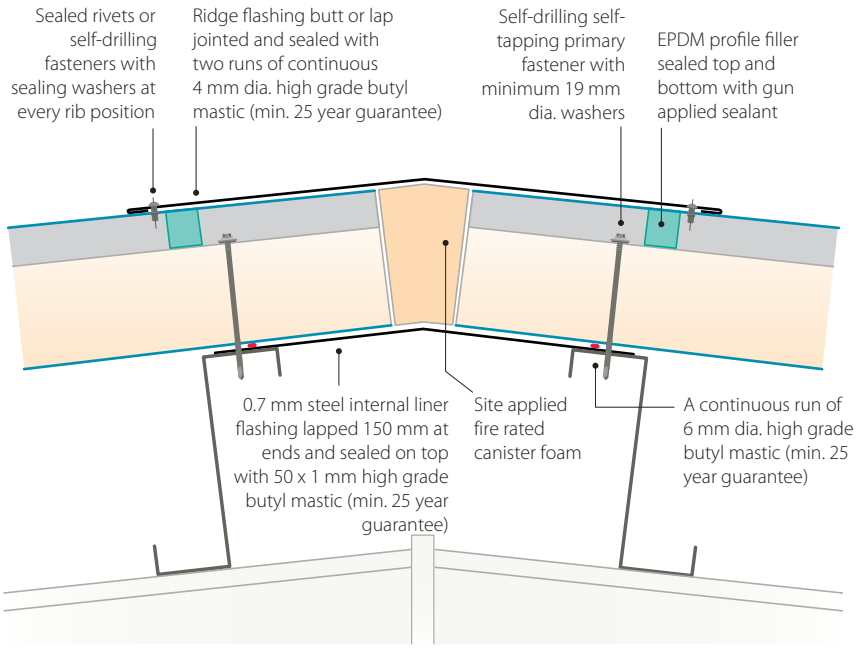
Side lap
The side lap joint design enables panels to be dropped-in place when side lapping, this provides fast and efficient installation.

End lap



End lap
Three primary fasteners should be used at the end lap. Fasteners are positioned in the centre of each trough. Tail stitchers should be used at every crown 50 mm from the end of the lap. Care must be taken to ensure the correct land on the purlin so that both panels edges are supported and the fastener is able to be positioned through both panels as shown.

Ridge

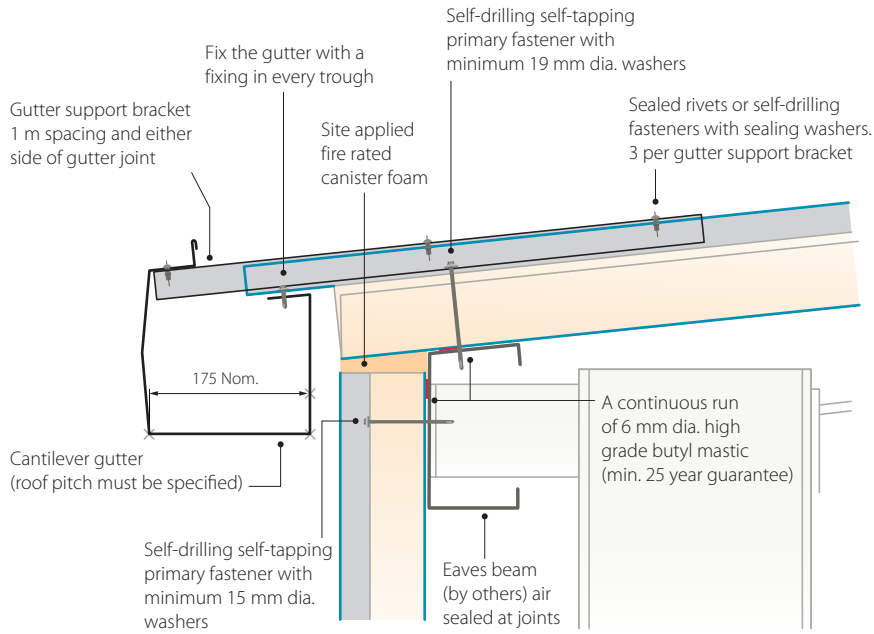


Ridge
Fillers should be positioned back from the edge of the ridge flashing by approximately 80 mm to avoid the risk of bird attack.

Psi value (W/mK)	f factor
0.009	0.975

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Eaves



Eaves
The Cantilever Gutter System is manufactured to suit the pitch of the roof and downpipes can be positioned as required.

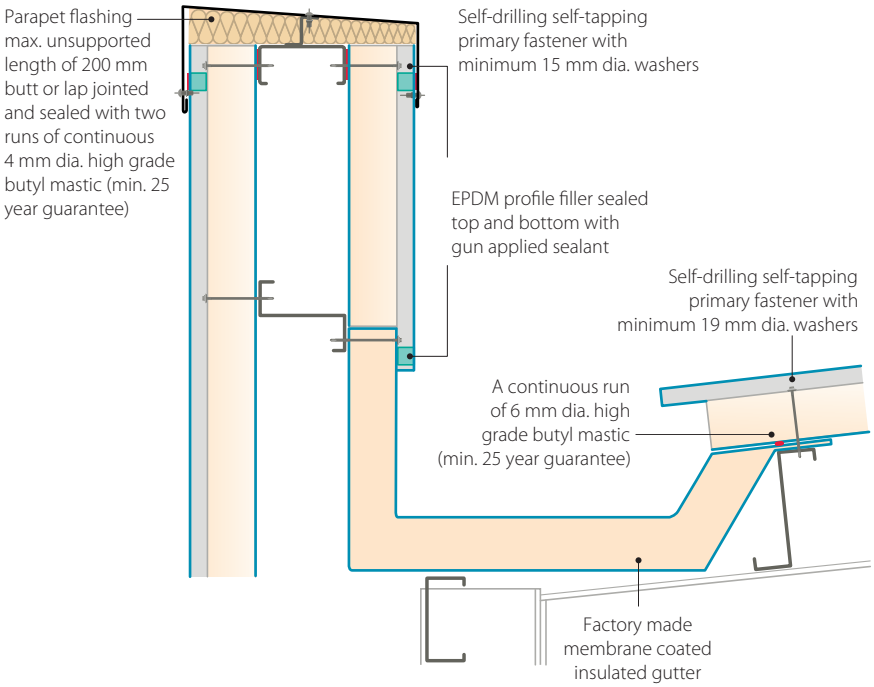
For further information on the Cantilever Gutter System and assistance with rainflow calculations please contact the Technical Department:
T: +44 (0) 1244 892199.

Psi value (W/mK)	f factor
0.222	0.903

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – roof
continued

Parapet

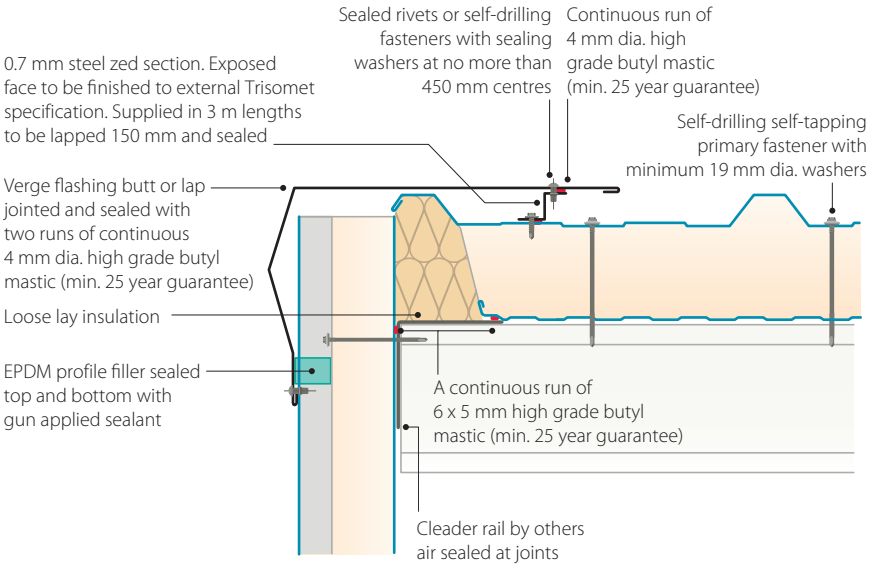


Parapet
The parapet height should be a minimum of 950 mm from roof level to be considered as sufficient edge protection as recommended by the HSE.

Psi value (W/mK)	f factor
1.365	0.615

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Verge start

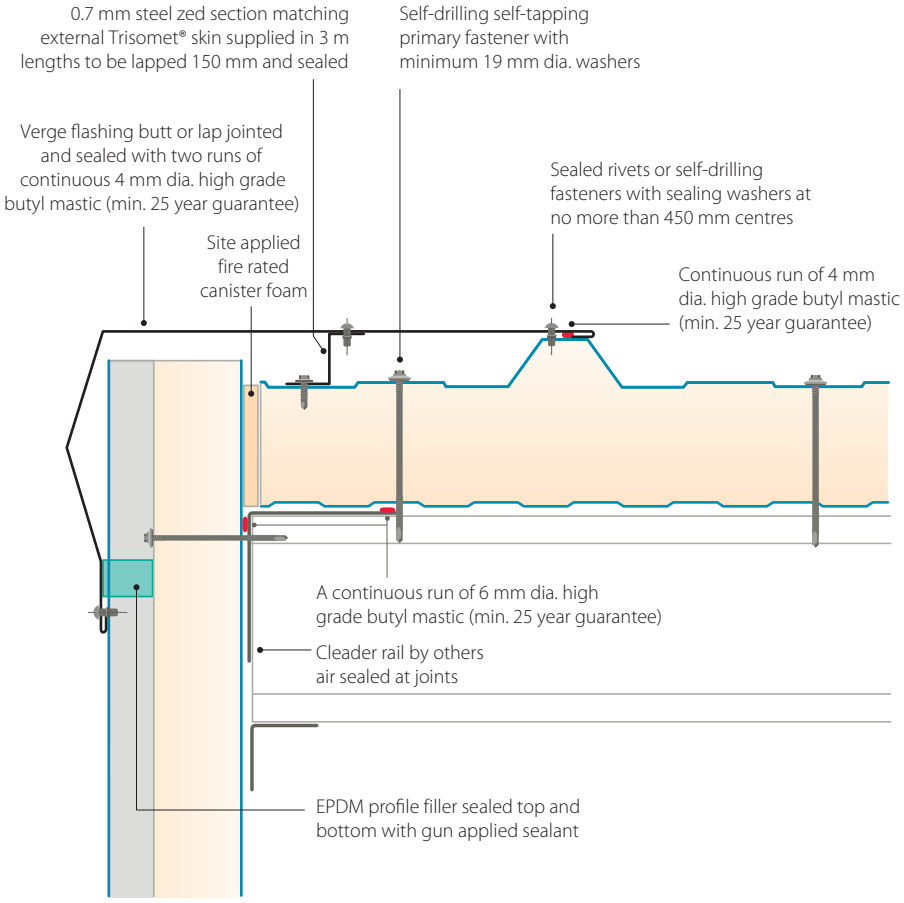


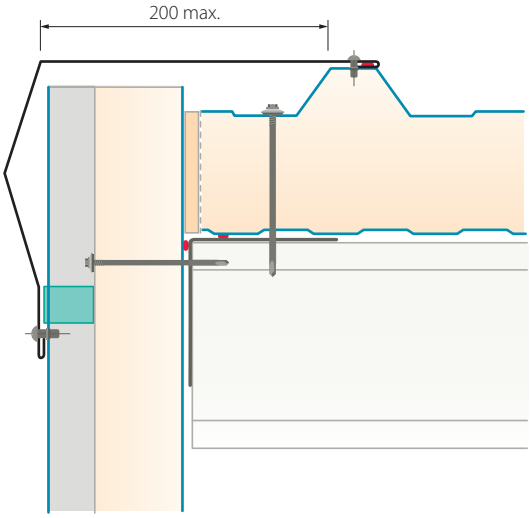
Verge start
The Z section used to support the Verge Flashing is made from the same Colorcoat® material as the external face of the panel, so that it matches the durability performance of the roof.

Psi value (W/mK)	f factor
0.062	0.948

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Verge end





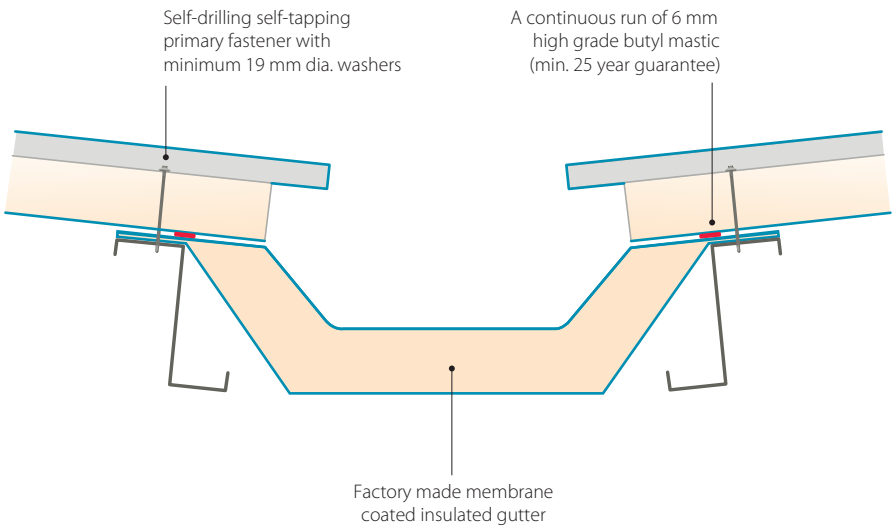
Verge end
It is recommended that single skin flashing have a maximum unsupported leg length of 200 mm to maintain the strength for a flat appearance.

Psi value (W/mK)	f factor
0.098	0.948

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – roof
continued

Valley gutter

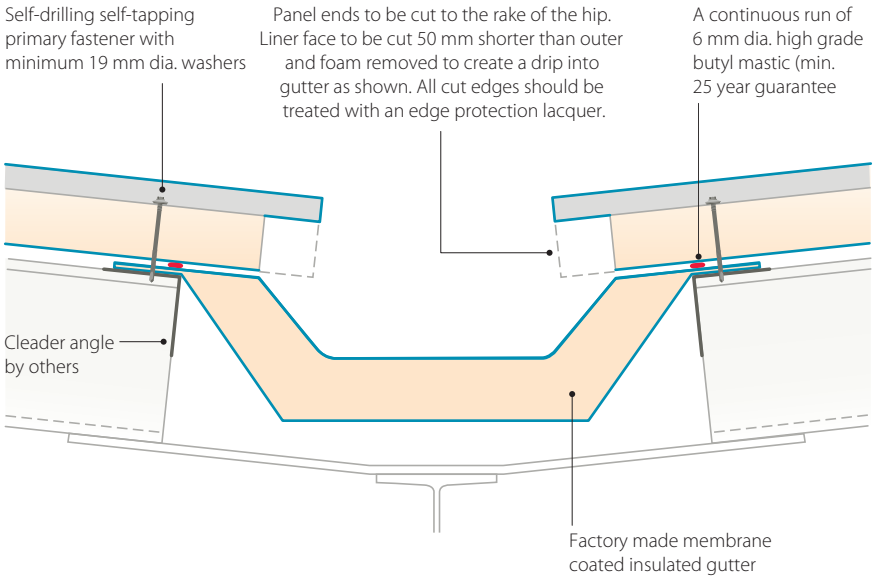


Valley gutter
Ensure a full design is carried out in accordance with BS EN 12056-3:2000 and all manufactures recommendations are followed to ensure correct detailing at this important junction.

Psi value (W/mK)	f factor
0.736	0.559

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Valley hip

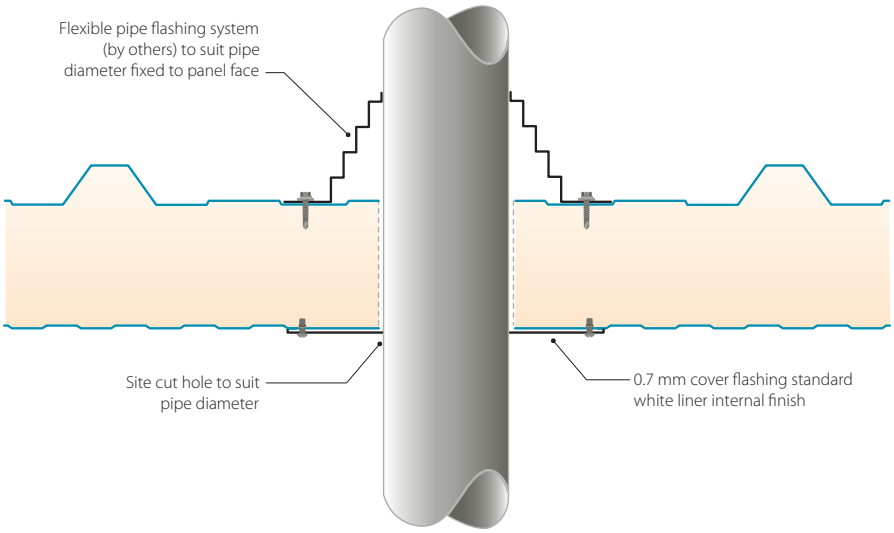


Valley hip
The cut back to the panel end is created to avoid water running down the face of the panel and generating the risk of tracking into the panel side lap.

Psi value (W/mK)	f factor
0.736	0.559

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

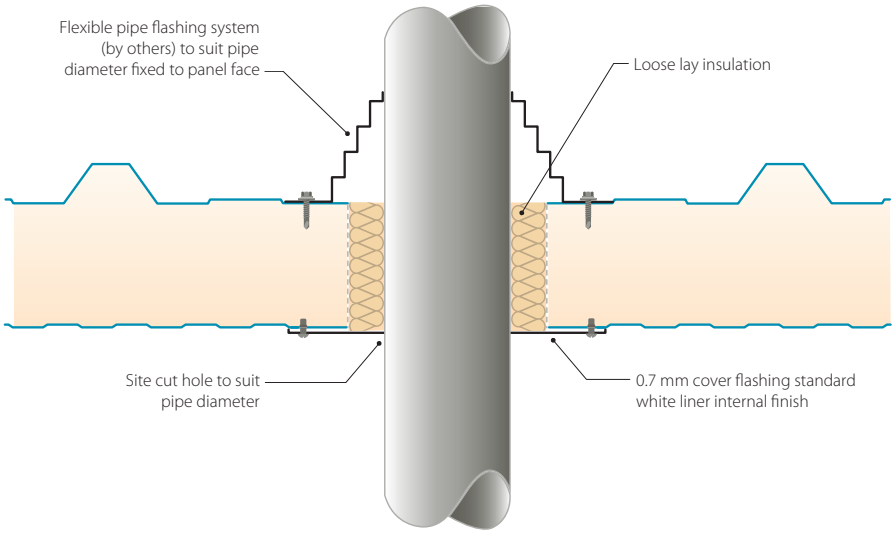
Standard pipe seal (Dektite)



Standard pipe seal and hot pipe seal (Dektite)
The pipe flashings are available in various specifications to facilitate different opening sizes and temperature ranges. Further details on these specifications and for order placement please contact our Platinum Plus® system guarantee approved suppliers, who are:

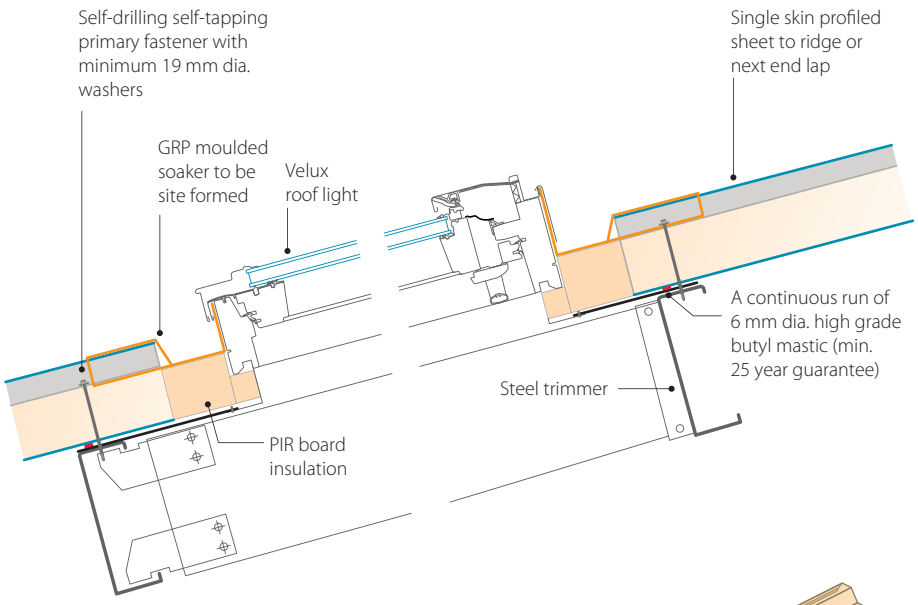
SFS intec Ltd, T: +44 (0) 113 208 5500
or EJOT UK, T: +44 (0) 1977 687040.

Hot pipe seal (Dektite)



Construction details – roof
continued

Velux roof light



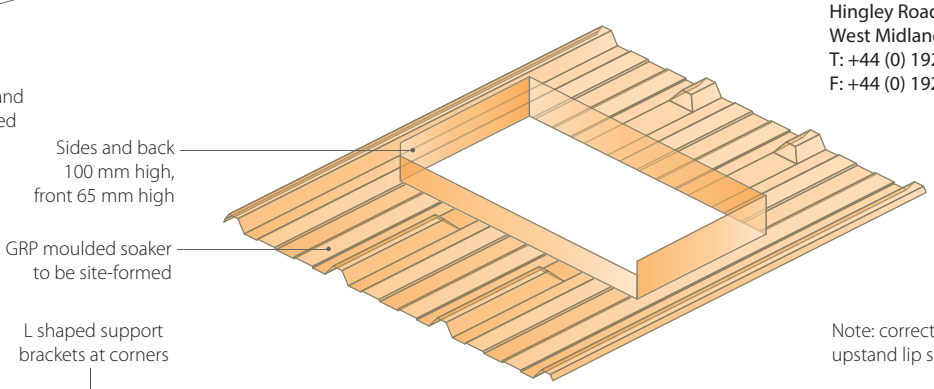
Velux roof light
The detail shown indicates a Velux system. These systems will require specialist advice for installation and maintenance. Therefore Tata Steel recommend that this specialist advice be obtained from Velux, details below.

Velux
T: +44 (0) 1592 778 297
E: velux-gb@velux.com
www.velux.com

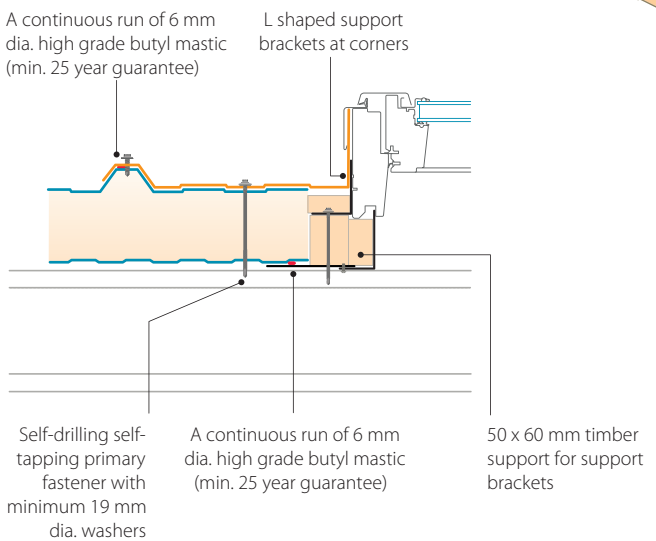
Recommended companies for GRP moulding
M R Site Services
Unit 6, Worcester Trading Estate
Blackpole, Worcester
Worcestershire, WR3 8HR
T: +44 (0) 1905 755055
F: +44 (0) 1905 755053

Jones and Woolman
Unit 6, Hayes Trading Estate
Hingley Road, Halesowen
West Midlands, B63 2RR
T: +44 (0) 1922 712111
F: +44 (0) 1922 712539

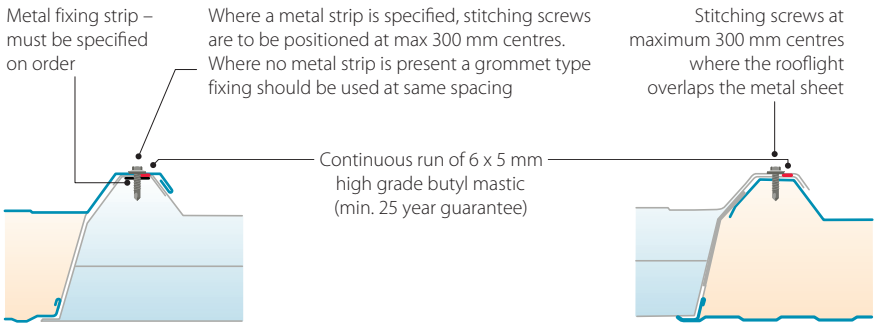
Note: correct, width, length and upstand lip should be specified



Note: correct width, length and upstand lip should be specified

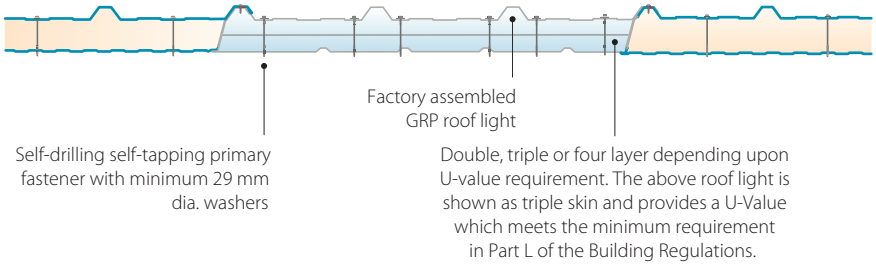


Roof light side lap



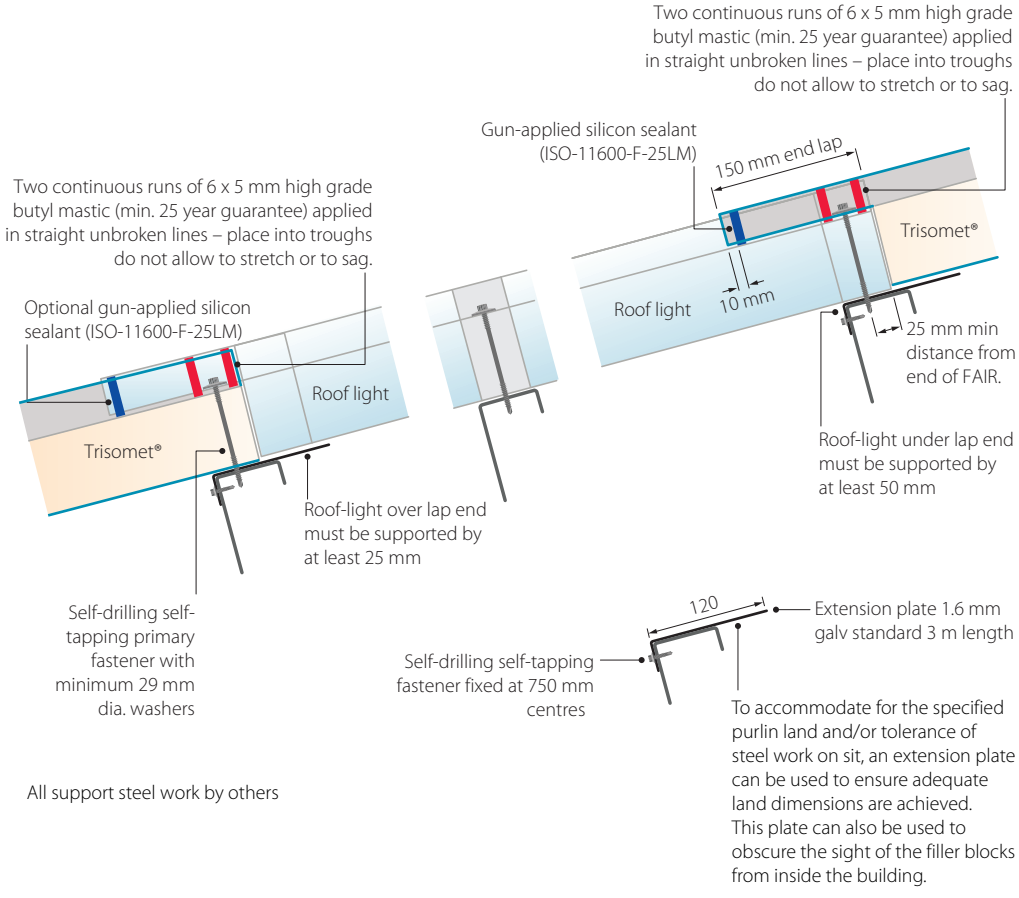
In order to achieve a 2.2 W/m²K. U-value and comply with the current building regulations for heated buildings a minimum of a triple skin roof light construction should be specified. The central core can be adapted to provide the level of insulation required. U-values as low as 1.0 W/m²K can be achieved.

Fixing arrangement at all support positions



Note: it is not recommended to lap roof lights in series as this may cause misalignment due to varying tolerance between the panel and roof light units.

Roof light end lap



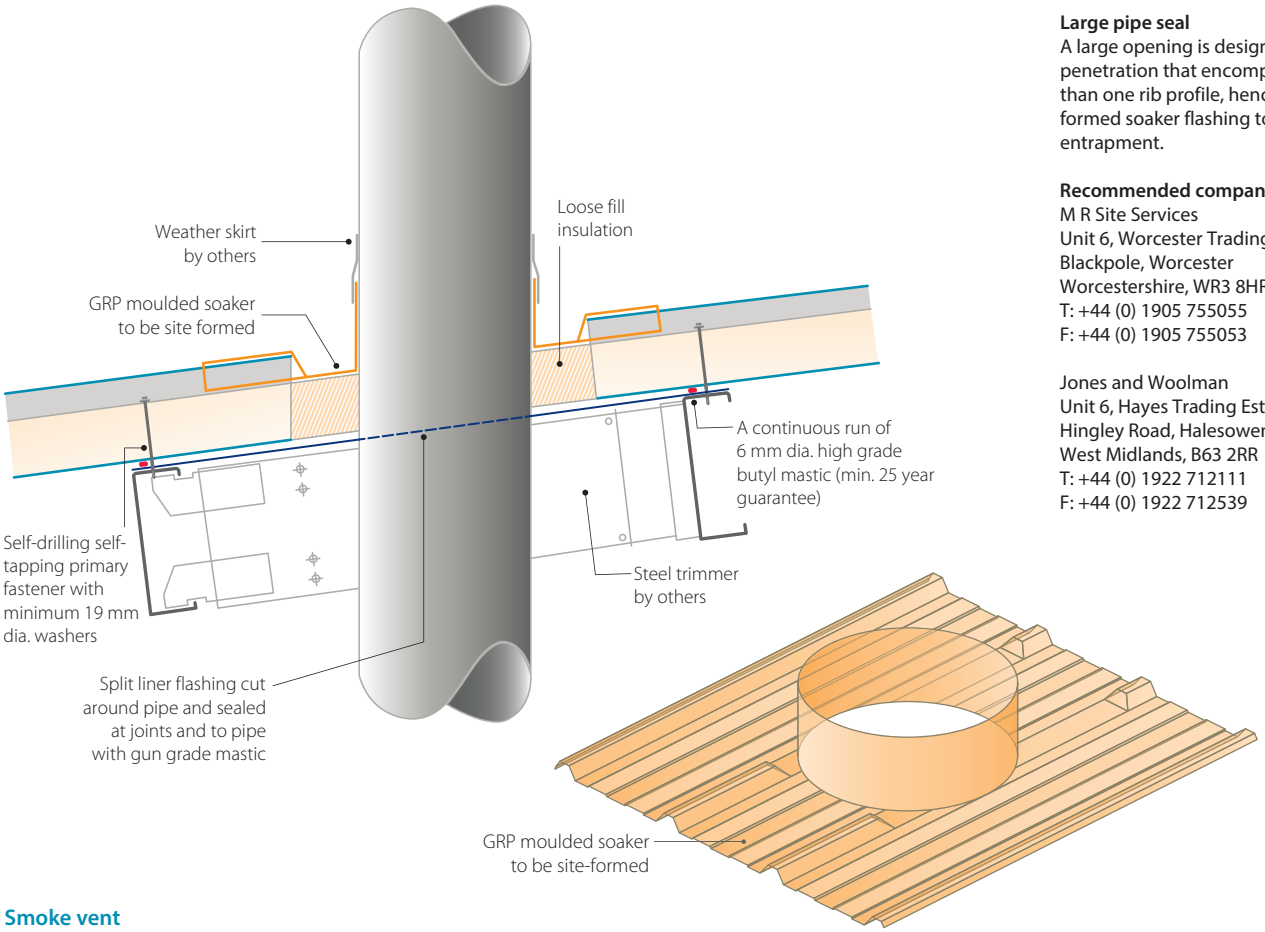
Roof light end lap
When ordering roof lights accurate purlin positions must be provided so fillers can be correctly positioned within the roof light construction.

All support steel work by others

To accommodate for the specified purlin land and/or tolerance of steel work on sit, an extension plate can be used to ensure adequate land dimensions are achieved. This plate can also be used to obscure the sight of the filler blocks from inside the building.

Construction details – roof
continued

Large pipe seal

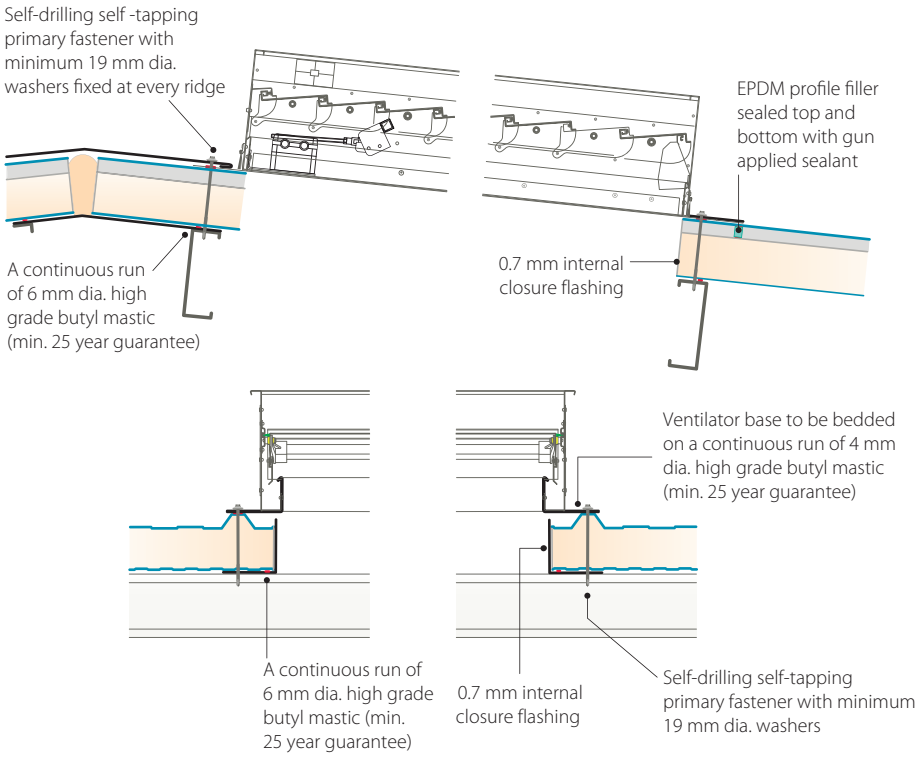


Large pipe seal
A large opening is designated by a penetration that encompasses more than one rib profile, hence requiring a formed soaker flashing to avoid water entrapment.

Recommended companies for GRP moulding
M R Site Services
Unit 6, Worcester Trading Estate
Blackpole, Worcester
Worcestershire, WR3 8HR
T: +44 (0) 1905 755055
F: +44 (0) 1905 755053

Jones and Woolman
Unit 6, Hayes Trading Estate
Hingley Road, Halesowen
West Midlands, B63 2RR
T: +44 (0) 1922 712111
F: +44 (0) 1922 712539

Smoke vent

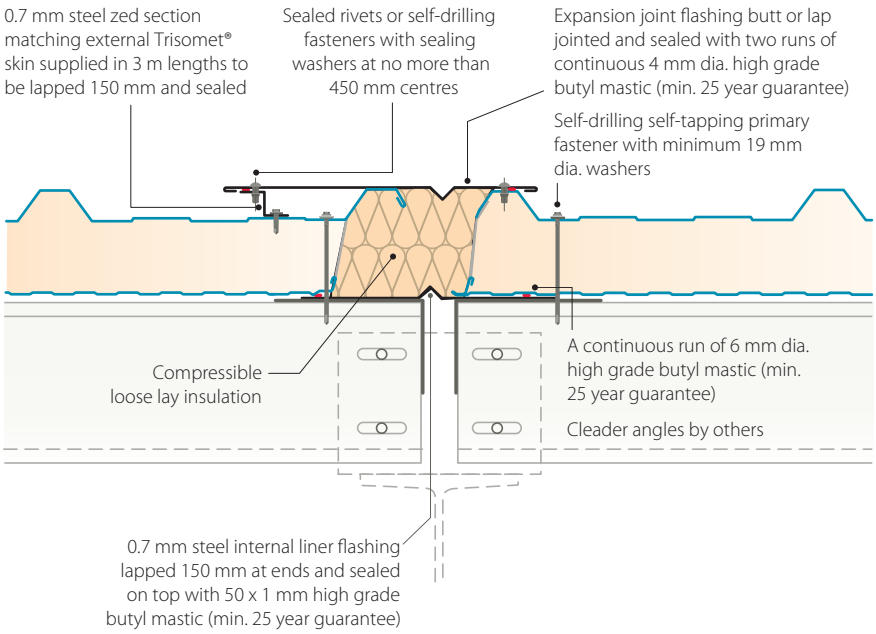


Smoke vent
The detail shown indicates a Colt International system. These systems will require specialist advice for installation and maintenance. Therefore Tata Steel recommend that this specialist advice be obtained from Colt, details below.

Colt International Ltd
T: +44 (0) 2392 451111
E: info@coltgroup.com
www.coltinfo.co.uk

All support steelwork by others

Expansion joint

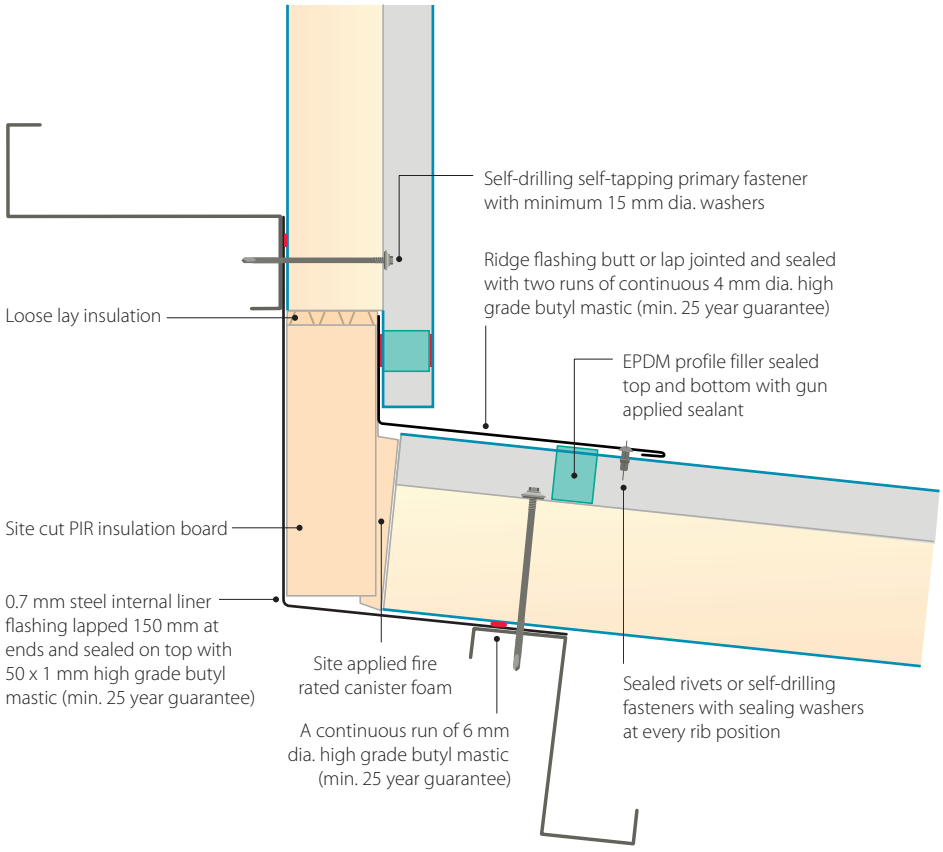


Expansion joint
The 'V' formed flashing allows movement at this junction.

Psi value (W/mK)	f factor
0.024	0.972

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Roof to wall junction



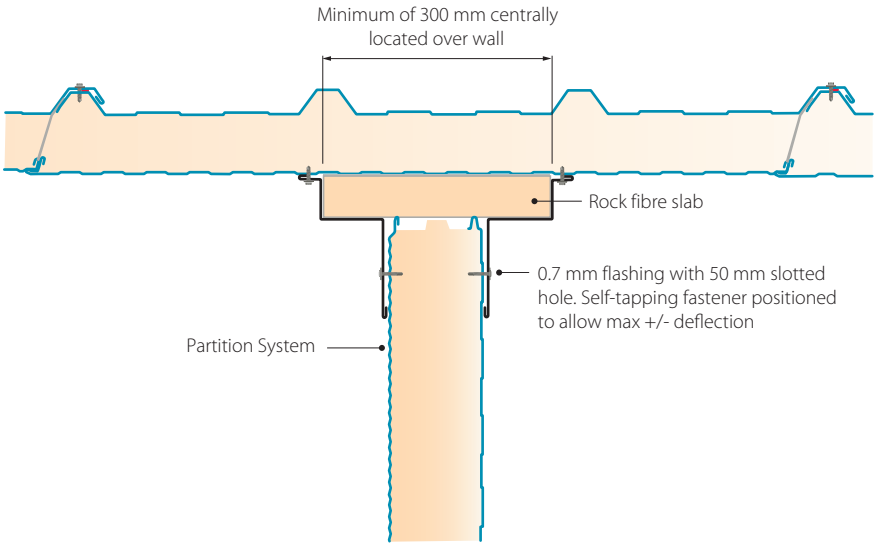
Roof to wall junction
The PIR board is used to provide a comparative level of thermal performance around the junction. The thickness of this board should be selected to match the core thickness of the wall panel. The loose lay insulation is used to the top of the PIR board to allow tolerance when installing the wall panel.

Psi value (W/mK)	f factor
0.019	0.975

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – roof
continued

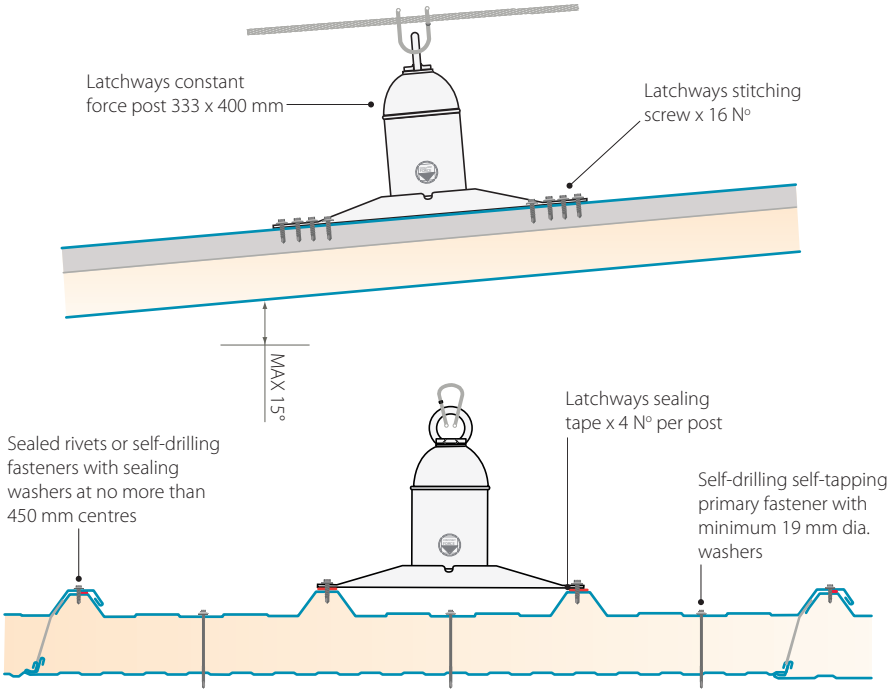
Junction with internal partition with underside of roof



Junction with internal partition with underside of roof
This detail is supported in Approved Document B of the Building Regulations where the following is quoted in Clause 8.3 of Section 8 'Compartmentation'.

Note: 'Double-skinned insulated roof sheeting with a thermoplastic core should incorporate a band of material of limited combustibility at least 300mm wide centred over the wall'.

Roof safety system



Roof safety system
The detail shown indicates a Latchways system, however an alternative system is also available from QBM. These systems will require specialist roof layout design and installation, together with a maintenance and inspection programme. Therefore Tata Steel recommend that this specialist advice be obtained from one of two companies below.

Latchways
T: +44 (0) 1380 732700
E: hayley.potter@latchways.com
www.latchways.com

QBM
T: +44 (0) 1924 440237
E: technical@qbmdistributors.co.uk
www.qbmdistributors.co.uk

Jaffabox Ltd, Bickenhill, Birmingham

The 40,000 sq. ft. multi-million pound factory extension for cardboard box manufacturers Jaffabox Ltd in Bickenhill, Birmingham has enhanced the award winning company's manufacturing capabilities and increased warehousing capacity in order to expand their "just in time" stockholding facilities offered to customers.

The extension features a complete building envelope solution by Tata Steel, installed by Multi-Fab Construction Ltd, who acted as main contractor and were also responsible for structural steelwork on the project.

The building features over 5000 m^2 of Trisomet® insulated roof panels and over 1000 m^2 of Trimapanel® system architectural wall panels, both in Colorcoat HPS200 Ultra® in Goosewing Grey.





Featuring a straightforward side-lapping detail, the Trisomet® afforded faster installation and a broad-pan trapezoidal pre-finished steel external profile, providing optimised water drainage, strength and walkability.

Trisomet® system's autohesively-bonded polyisocyanurate (PIR) insulation provides exceptional thermal performance from a relatively shallow foam core, enhanced environmental benefits, together with fire performance approved by the Loss Prevention Certification Board (LPCB).

"The client is very pleased with the finished building. Tata Steel were very helpful, delivering products of excellent quality exactly when we needed them."

Commented Steve Tomlinson, Managing Director of Multi-Fab Construction Ltd, reflecting on the project.

Client: Jaffabox Ltd.

Steelwork contractor: Multi-Fab Construction Ltd.

Installation contractor: Multi-Fab Construction Ltd.

System manufacturer: Tata Steel

Cladding systems: Trisomet®, Trimapanel®

Colorcoat® product: Colorcoat HPS200 Ultra®



Wall applications

Model specification

NBS Plus

120 **Insulated steel faced wall panel: Tata Steel, LPCB approved Trisomet®.** Cladding systems in England and Wales to be designed and installed to meet the Building Regulations 2000, Approved Document L2 2013.

Cladding systems in Scotland to be designed and installed to meet the Building Standards (Scotland) Regulations **Technical Handbook:** Section 6 Energy.

- **Support structure:** Cladding rails.
- **Bearing width (minimum):** 60 mm.
- **Manufacturer:** Tata Steel, Shotton, Deeside, Flintshire, CH5 2NH. Technical Department T: +44 (0) 1244 892199.
- **Product reference:** Trisomet®.
- **Fire:** LPS1181 Grade EXT-B Certificate No. 460a/29. Fire resistance rating of up to 30 minutes insulation and 4 hours integrity in accordance with BS 476 Part 22 (external stitching screws required at 300mm centres for this classification). The internal surface of the panel also complies with a Class B s2 d0 rating in accordance with BS EN 13501-1.
- **British Board of Agrément (BBA):** Colorcoat® to BBA Certificate No. 91/2717.
- **External facing material:** Colorcoat HPS200 Ultra® or Colorcoat Prisma® pre-finished steel using Galvalloy® metallic coating, 0.5 mm nominal thickness, based on a zinc (95 %): aluminium (5 %) eutectic alloy that conforms to EN 10346:2009.
- **External profile:** 32 mm high trapezoidal profile with a 333 mm pitch.
- **Colour:** Colorcoat HPS200 Ultra® or Colorcoat Prisma® range of colours.
- **Internal facing material:** Colorcoat® High Reflect or Colorcoat® PE 15 pre-finished steel using hot-dip galvanised steel EN 10346:2009 substrate.
- **Internal profile:** Lightly planked.
- **Core insulation:** PIR closed cell foam (CFC and HCFC free, zero ODP and GWP < 5) to specification used in LPCB approval.
- **Cover width:** 1,000 mm.
- **Panel thickness:** 40, 60, 80, 100, 120 or 135 mm.
- **Primary fasteners:** Austenitic stainless steel self-drilling fasteners with thread-free zone and 15 mm sealing washers from: EJOT UK Limited, T: +44 (0) 1977 687040 or SFS intec Ltd, T: +44 (0) 113 208 5500.
- **Fastener location:** Fix-through profile trough.
- **Number and location of fasteners:** At all support positions, locate one fastener in the centre of every trough (ie, three fasteners per support)
- **End-lap size (minimum):** 100 mm vertical, 50 mm horizontal.
- **End-laps:** Stitching not required.
- **Side laps to be stitched at 600 mm centres:** Austenitic stainless steel self-drilling fasteners with 14 mm sealing washers from: EJOT UK Limited, T: +44 (0) 1977 687040 or SFS intec Ltd, T: +44 (0) 113 208 5500.
- **U-value:** 0.46 W/m^{2}K for 40 mm panel; 0.33 W/m^{2}K for 60 mm panel; 0.25 W/m^{2}K for 80 mm panel; 0.20 W/m^{2}K for 100 mm panel; 0.16 W/m^{2}K for 120 mm panel or 0.15 W/m^{2}K for 135 mm panel.

General requirements

170 **Design**
Wall cladding to be designed to comply with design and installation guidance in the Tata Steel literature.

172 **Thermal bridging:**
To reduce thermal bridging follow the construction details found in the Tata Steel literature.

300 **Profile fillers:**
- **Material:** EPDM.
- **Colour:** Black.
- **Thickness:** 25 mm.
- **Fixing:** Compression fix between sheets and flashings/supports. Seal into place as top and bottom with gun grade butyl mastic.

480 **Flashing and trim details**
- **System type:** Use Tata Steel construction details to reduce thermal bridging.
- **Material and finish:** To match outer sheet, 0.7mm minimum gauge.
- **Manufacturer:** Tata Steel, T: +44 (0) 1244 892199.



- **Lap joint treatment:** End joints to be lapped by 150 mm and sealed, unless specified otherwise. Where possible, arrange with laps away from the prevailing wind. Where butt joints are required, butt joint and seal flashings or trims on 150 mm wide butt straps made from sheet of the same material and finish.
- **Method of fixing:** Fix to cladding with sealed rivets or integral nylon colour-headed austenitic stainless steel self-drilling fasteners at 450 mm minimum centres, supplied by:
  EJOT UK Limited,
  T: +44 (0) 1977 687040 or
  SFS intec Ltd,
  T: +44 (0) 113 208 5500.
- **Design:** Maximum unstiffened leg on flashing to be 200 mm. Visible free edges to be finished with a stiffened edge or welt.

550 Sealing laps on external sheets when laid vertically

- **Sealant tape:** 6 x 5 mm high grade butyl mastic (25 year guarantee) supplied by:
  Premier Sealants (White strip),
  T: +44 (0) 1724 864100
  EJOT UK Limited (Blue Strip),
  T: +44 (0) 1977 687040
  SFS intec Ltd, (Pink Strip),
  T: +44 (0) 113 208 5500.
- **Position:** Position sealant in straight, unbroken lines across the profile. Place into troughs. Do not allow to stretch or to sag into position.
- **Seal quality:** Ensure continuity and effectiveness of seal, especially at corner of sheets.
- **End-lap sealant-tape positions:** Two lines of butyl mastic (min. 25 year guarantee) should be placed between sheets 10 mm from the sheet ends at the top and bottom of the lap.
- **Side laps:** A continuous run of 6 x 5 mm diameter high grade butyl mastic (min. 25 year guarantee) on weather side of stitching fastener.

Sealing laps on external sheets when laid horizontally

- **Sealant tape:** Gun grade silicon sealant supplied by:
  Premier Sealants (White strip),
  T: +44 (0) 1724 864100
  EJOT UK Limited (Blue Strip),
  T: +44 (0) 1977 687040
  SFS intec Ltd, (Pink Strip),
  T: +44 (0) 113 208 5500.
- **Position:** Position sealant in straight, unbroken lines across the profile. Place into troughs.
- **Seal quality:** Ensure continuity and effectiveness of seal, especially at corner of sheets.
- **End lap sealant-tape positions:** Two lines sealant should be placed between sheets 10 mm from the sheet ends at the top and bottom of the lap.
- **Side laps:** A continuous run of 6 x 5 mm diameter high grade butyl mastic (25 year guarantee) on weather side of stitching fastener.

554 Air sealing

The panel edges at base, eaves and corners must be seated onto a 6 mm diameter bead of high grade butyl mastic (25 year guarantee) supplied by:
EJOT UK Limited,
T: +44 (0) 1977 687040 or
SFS intec Ltd,
T: +44 (0) 113 208 5500.

The metal lining layer must be reasonably air-tight so that the air permeability does not exceed 10 $m^3/h/m^2$ at an applied pressure of 50 Pa in accordance with the Building Regulations 2000, Approved Document L2 2013. Under laboratory testing sealed panels show evidence of air leakage as low as 0.46 $m^3/h/m^2$.

A reasonable practical expectation for a finished system would be 3 to 5 $m^3/h/m^2$. Ensure internal flashings are fully sealed to ensure continuity and effectiveness of seal, especially at corners of sheets such as at roof/wall junctions and at all penetrations of pipes, ducts, etc.

Platinum Plus® system guarantee

A Platinum® system guarantee specification needs to be registered prior to tender package being distributed.

Obtaining a 25 year Platinum Plus® guarantee could not be simpler; simply request the guarantee from Tata Steel.

Tata Steel acts as the one point of contact from beginning to end. We will provide you with a detailed NBS specification, warranties for all specified elements and full support for the duration of the guarantee period.

Technical Department

For further information or to register your Platinum Plus® system guarantee specification please telephone the Technical Department T: +44 (0) 1244 892199.

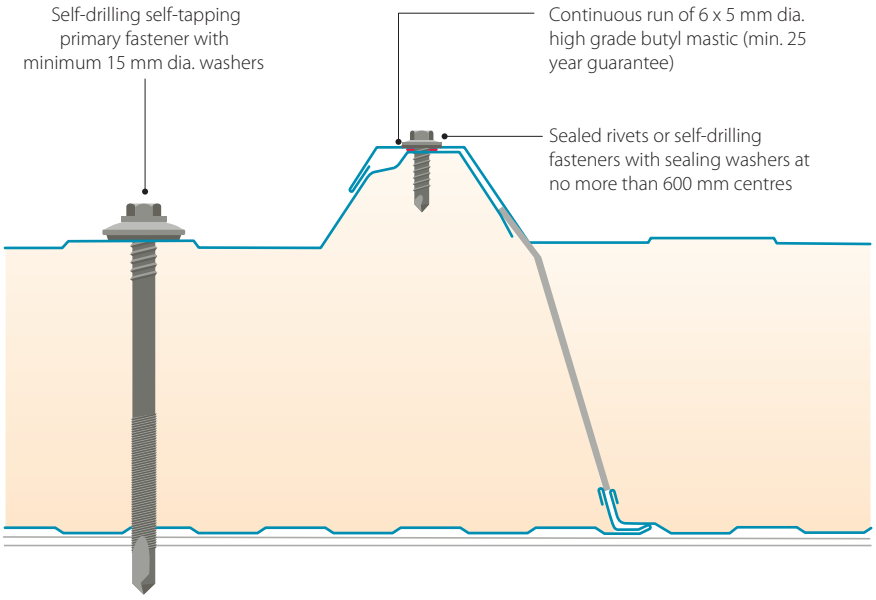
PLATINUM PLUS® SYSTEM GUARANTEE

Construction details – wall

The details within this section are recommendations and have been designed to give practical solutions to minimise thermal bridging and air loss at junctions. For each junction detail, Ψ values (Psi) and f values have been calculated in accordance with BS EN ISO 10211 and recommendations within MCRMA technical paper 18.

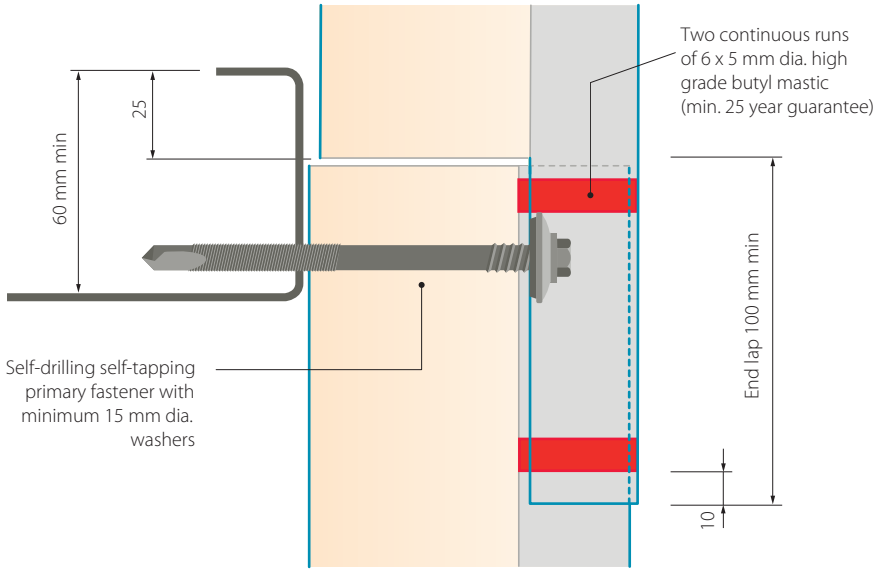
Vertical details

Side lap



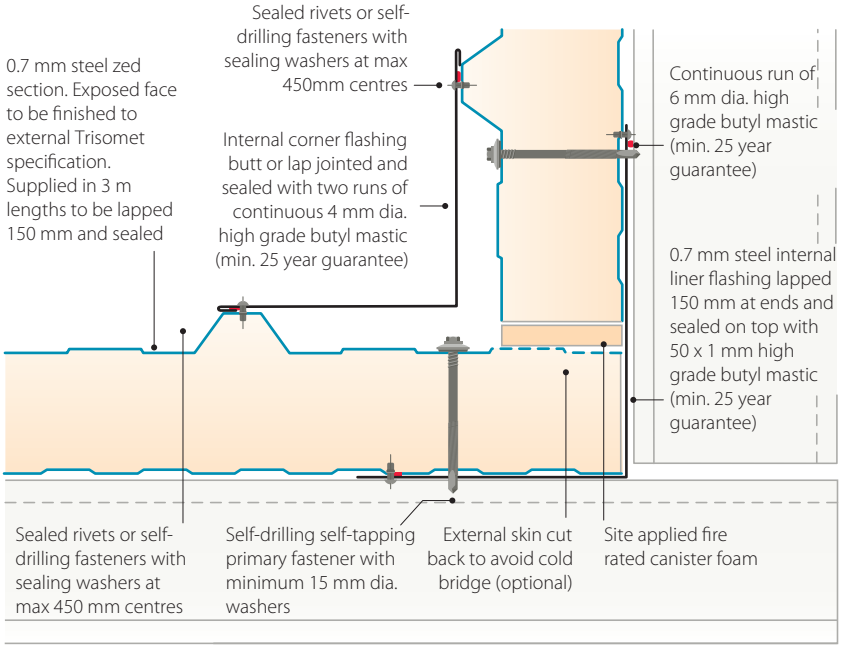
Side lap
The new side lap joint design enables panels to be lapped simply providing fast and efficient installation.

End lap



End lap
Three fasteners should be used at the end lap. Fasteners are positioned in the centre of every trough.

Internal corner

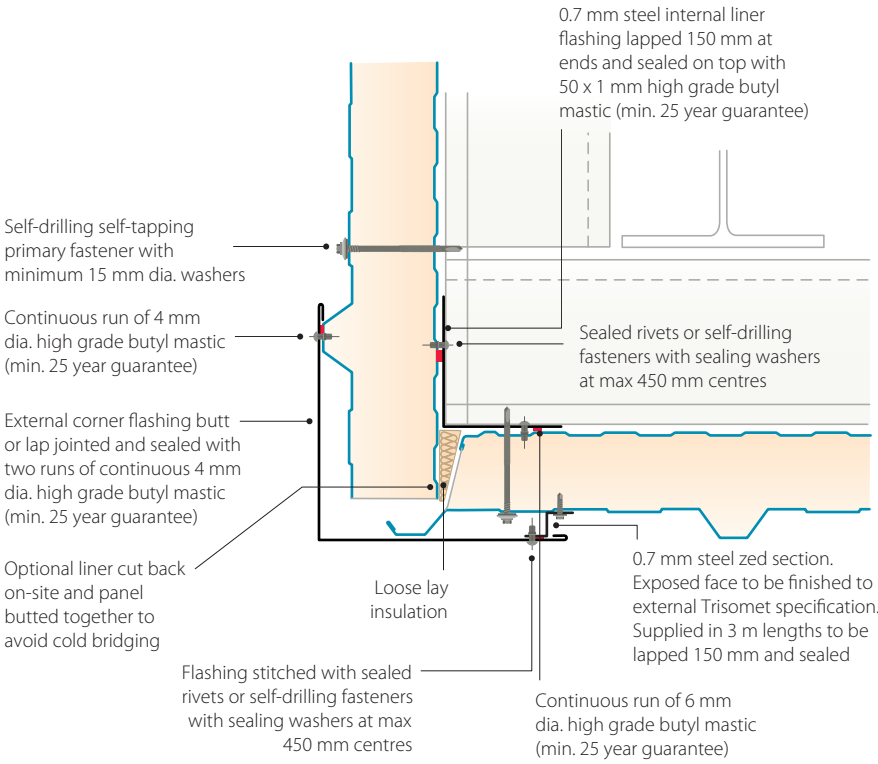


Internal corner
Thermal performance can be enhanced by the on-site removal of the panel outer skin, within the corner junction, therefore reducing the risk of cold bridging. The outer skin can be easily removed by running a circular saw through the steel approximately 100 mm from the panel edge and then peeling the cut strip away.

Psi value (W/mK)	f factor
With liner cut back	
0.041	0.957
Without liner cut back	
0.092	0.939

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

External corner



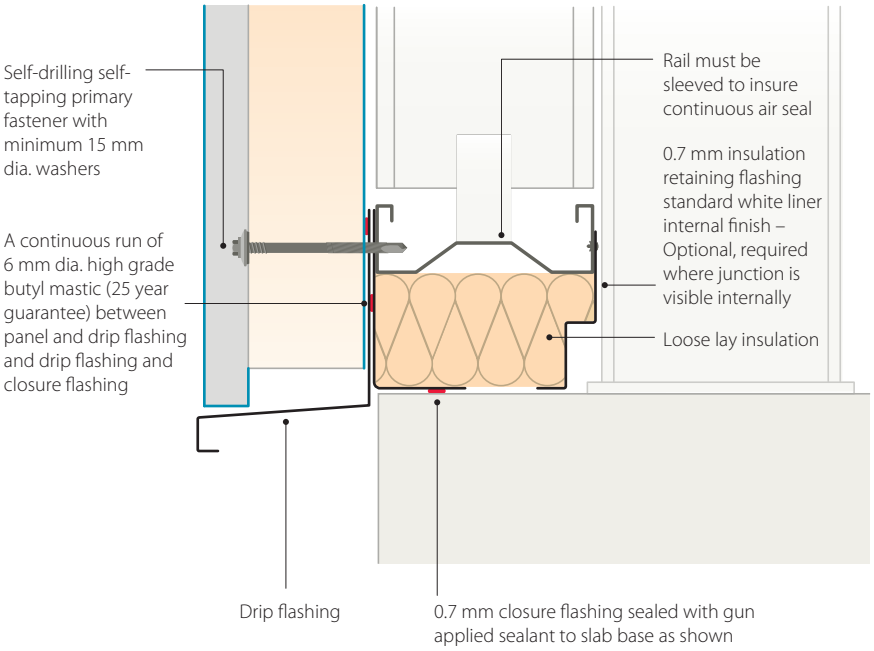
External corner
Thermal performance can be enhanced by the on-site removal of the panel liner, within the corner junction, therefore reducing the risk of cold bridging. The liner can be easily removed by running a circular saw through the steel approximately 100mm from the panel edge and then peeling the cut strip away.

Psi value (W/mK)	f factor
With liner cut back	
0.019	0.940
Without liner cut back	
0.092	0.939

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – wall
continued

Drip detail base

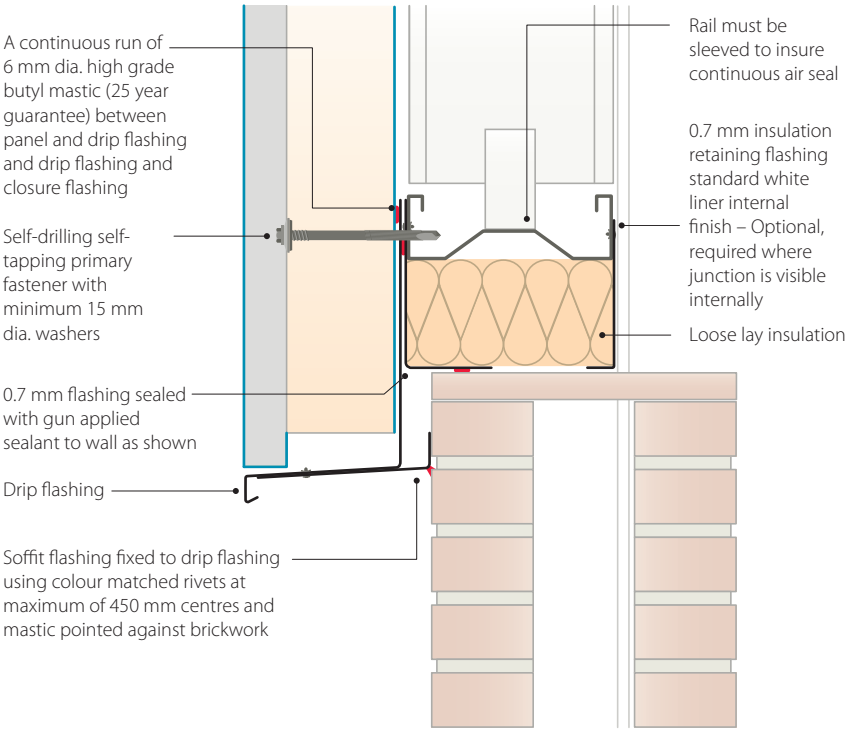


Drip detail base
Loose laid mineral fibre quilt insulation is used below bottom cladding rail to reduce cold bridging at slab base.

Psi value (W/mK)	f factor
0.275	0.687

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Drip detail dado wall

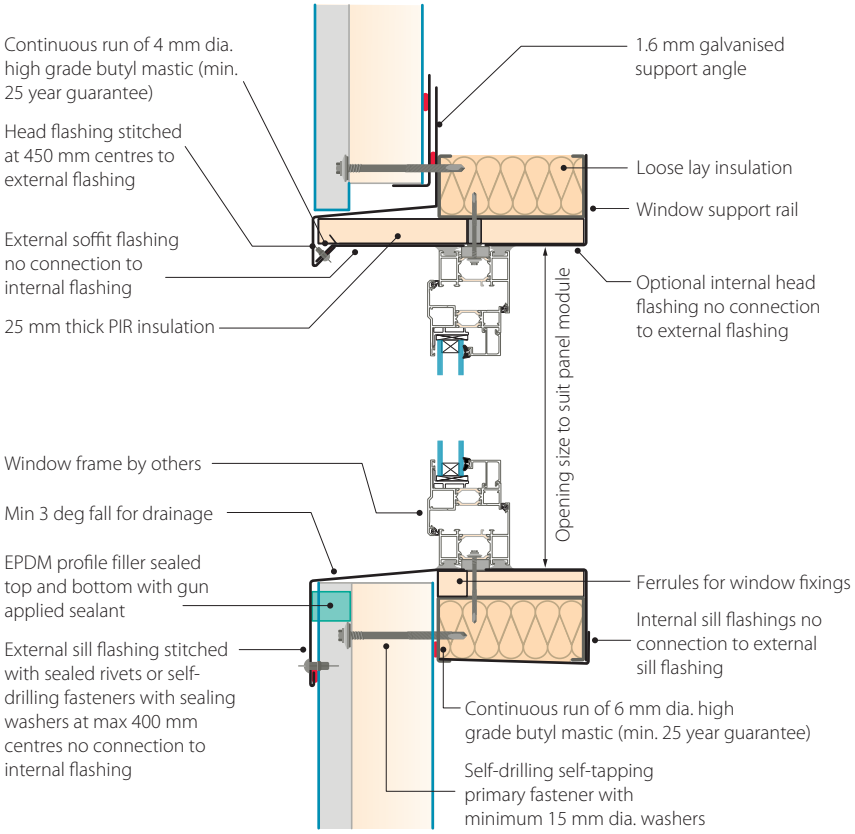


Drip detail dado wall
A 1.6 mm galvanised steel support angle is fixed to the wall, level with the base of the panel, in order to facilitate installation and to ensure the panel is level before fixing.

Psi value (W/mK)	f factor
0.062	0.948

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Window/door head



Window/door head
This window flashing detail has been designed so that it can accommodate any proprietary window.

Psi value (W/mK)	f factor
0.614	0.735

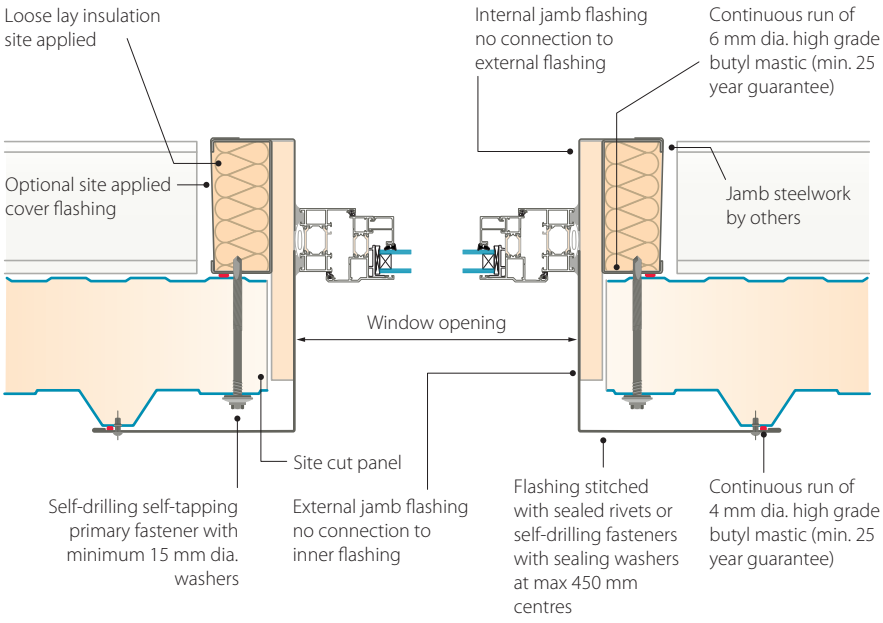
Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Window sill

Psi value (W/mK)	f factor
0.613	0.878

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

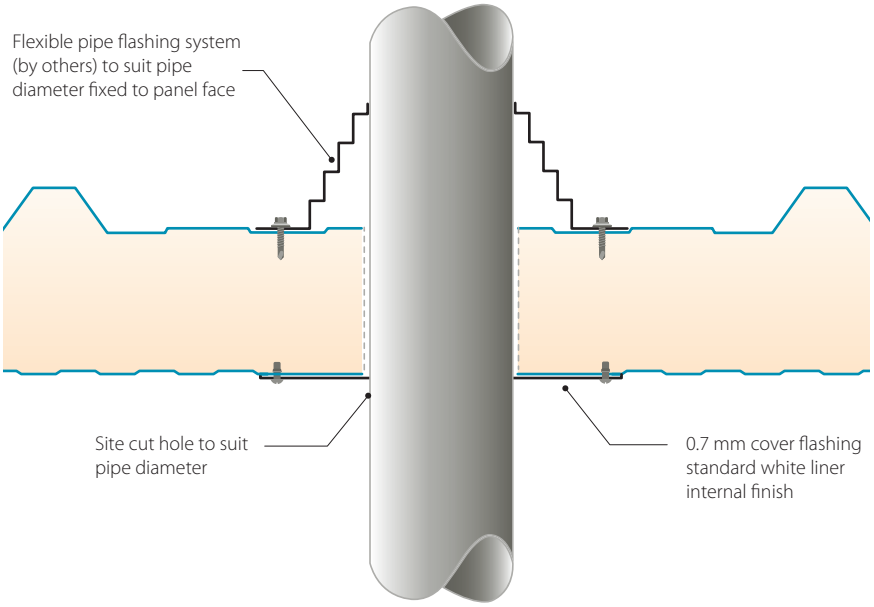
Window/door jamb



Window/door jamb
Trimming steel work around the opening is required to support the window or door independent to the panels.

Construction details – wall
continued

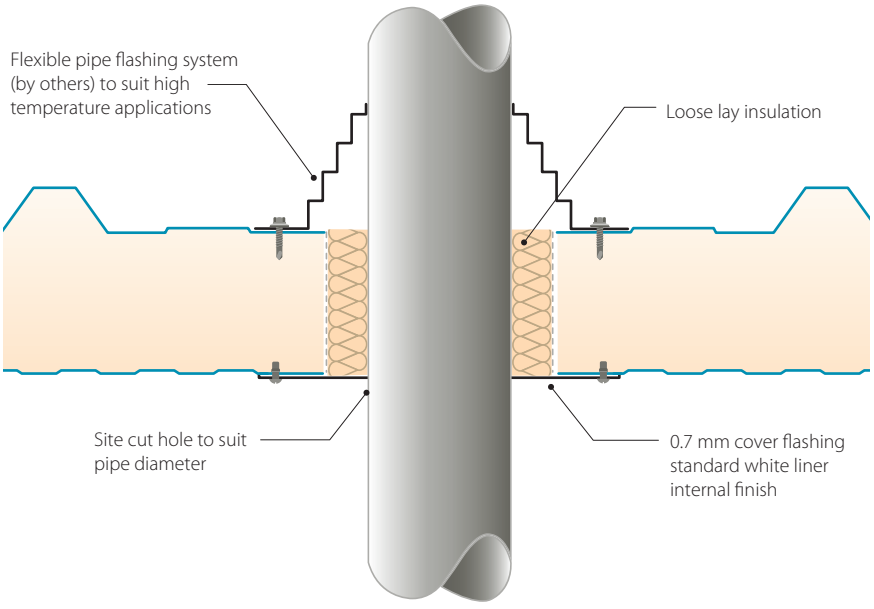
Penetration options, small



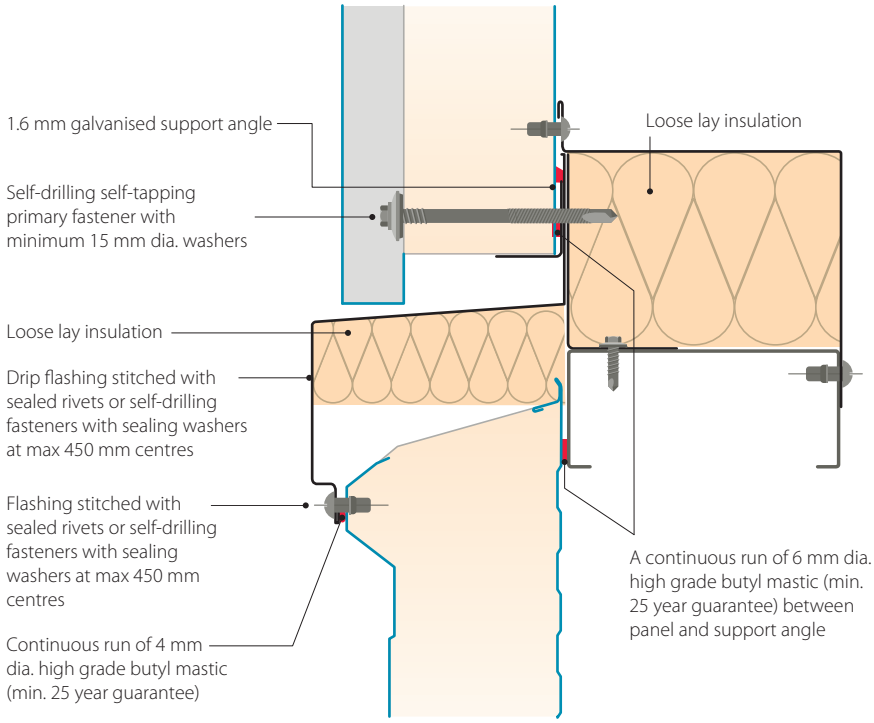
Penetration options, small and small hot
The pipe flashings are available in various specifications to facilitate different opening sizes and temperature ranges. Further details on these specifications and for order placement please contact our Platinum Plus® system guarantee approved suppliers, who are:

SFS intec Ltd, T: +44 (0) 113 208 5500 or EJOT UK, T: +44 (0) 1977 687040.

Penetration options, small hot



Vertical to horizontal break

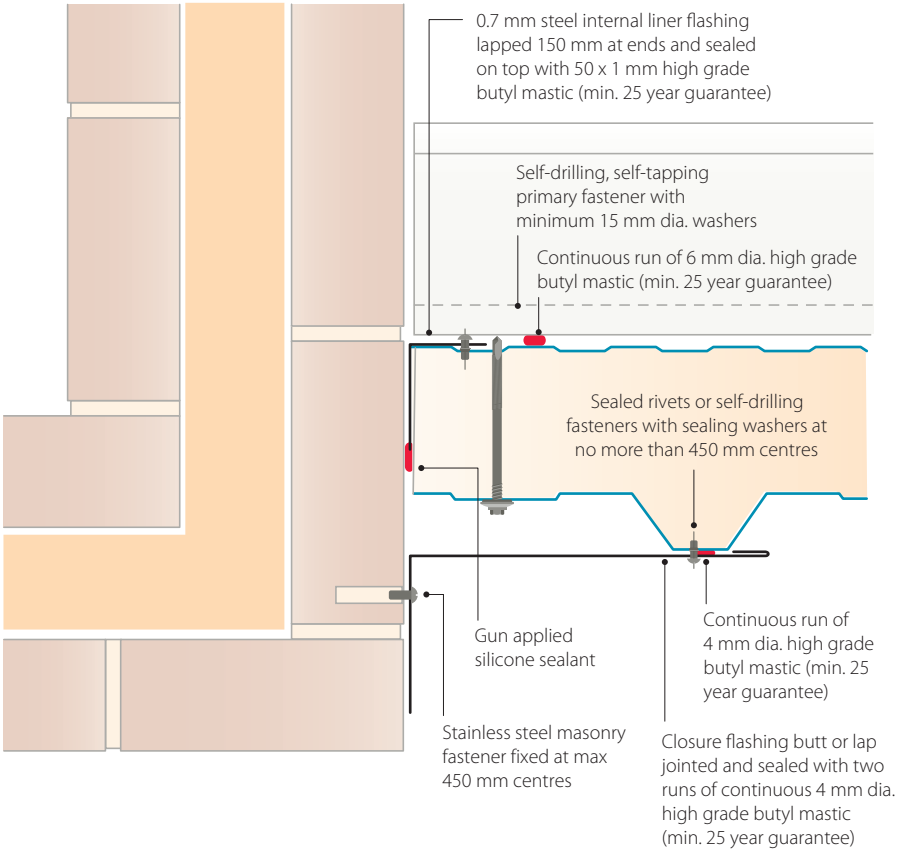


Vertical to horizontal break
Horizontal and vertical panels can be installed adjacent to each other creating interesting architectural features, while the drip flashing detail still maintains thermal performance and an efficient weather seal.

Psi value (W/mK)	f factor
1.103	0.579

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Brick wall abutment



Brick wall abutment
Masonry fasteners to be stainless steel to maintain the durability of the system.

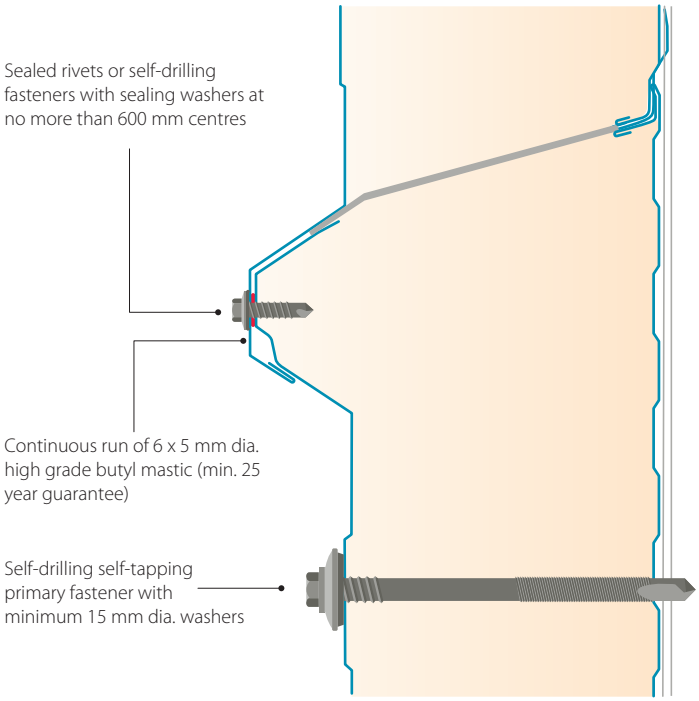
Psi value (W/mK)	f factor
0.260	0.837

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – wall
continued

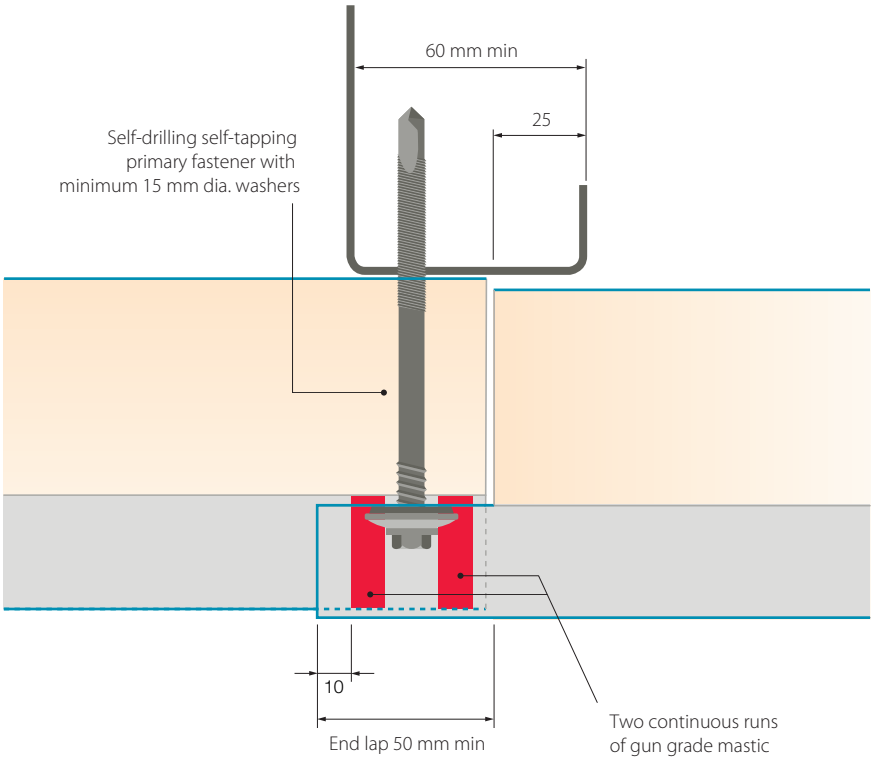
Horizontal details

Side lap



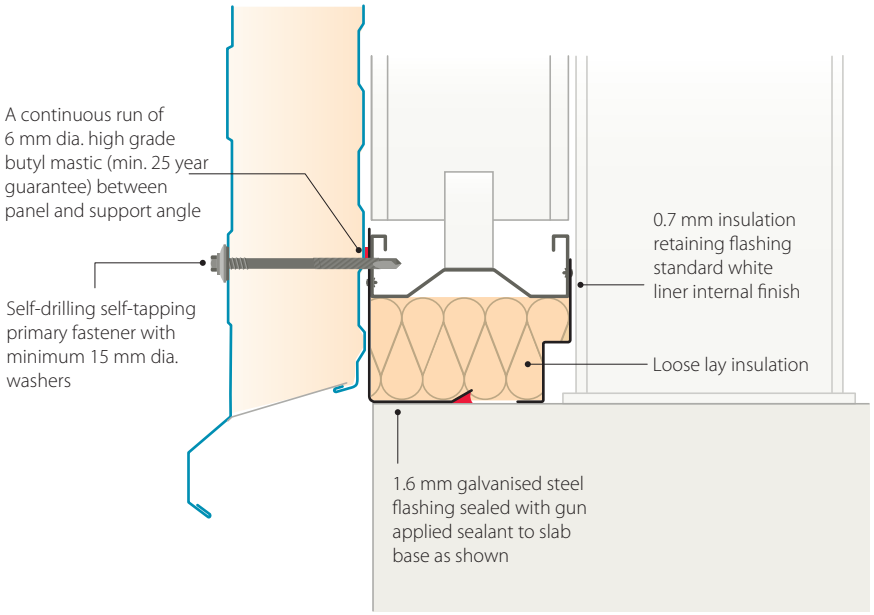
Side lap
The new side lap joint design enables panels to be lapped simply providing fast and efficient installation.

End lap



End lap
Gun grade silicon sealant is used in the end laps to ensure the outer profiles nestle closely for improved aesthetics.

Slab base drip

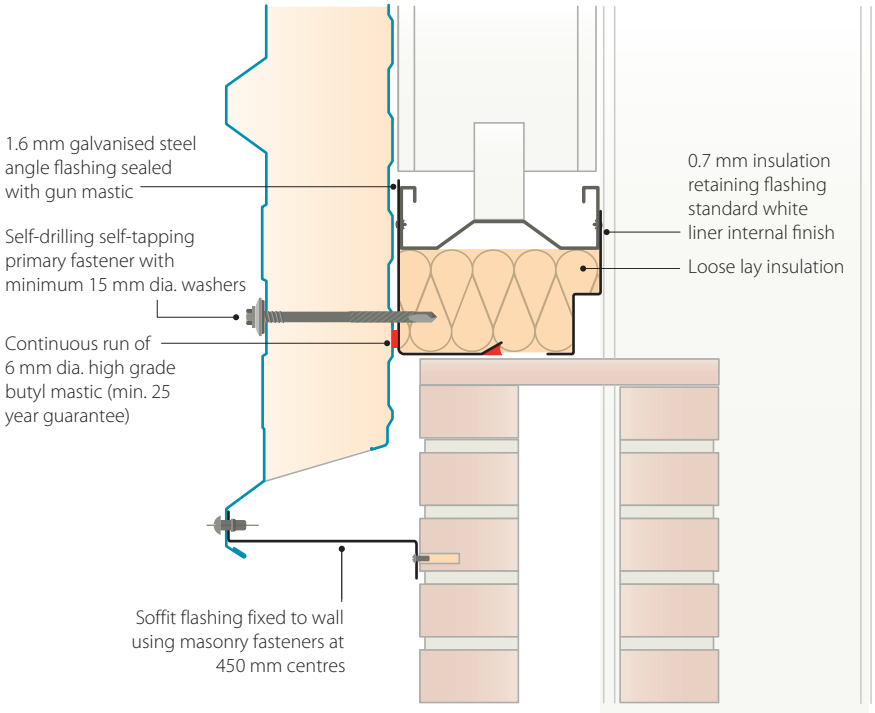


Expansion joint
The 'V' formed flashing allows movement at this junction.

Psi value (W/mK)	f factor
0.024	0.972

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Dado wall drip



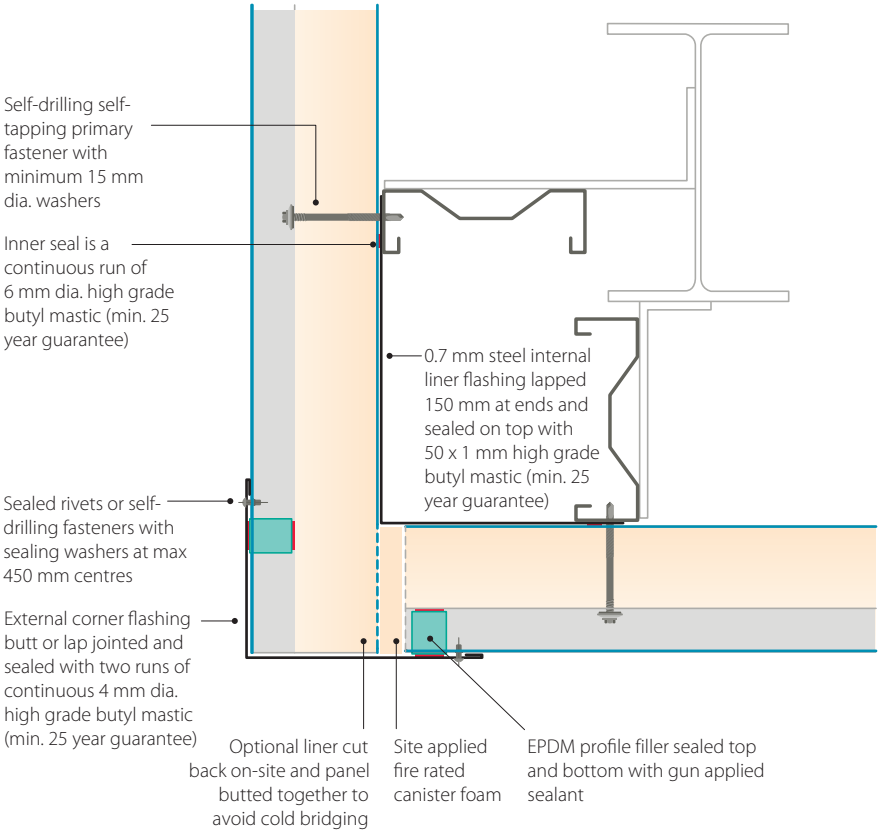
Dado wall drip
The 1.6 mm galvanised steel support flashings should be fixed together prior to placement and securing to wall capping and bottom rail.

Psi value (W/mK)	f factor
0.484	0.702

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Construction details – wall
continued

External corner

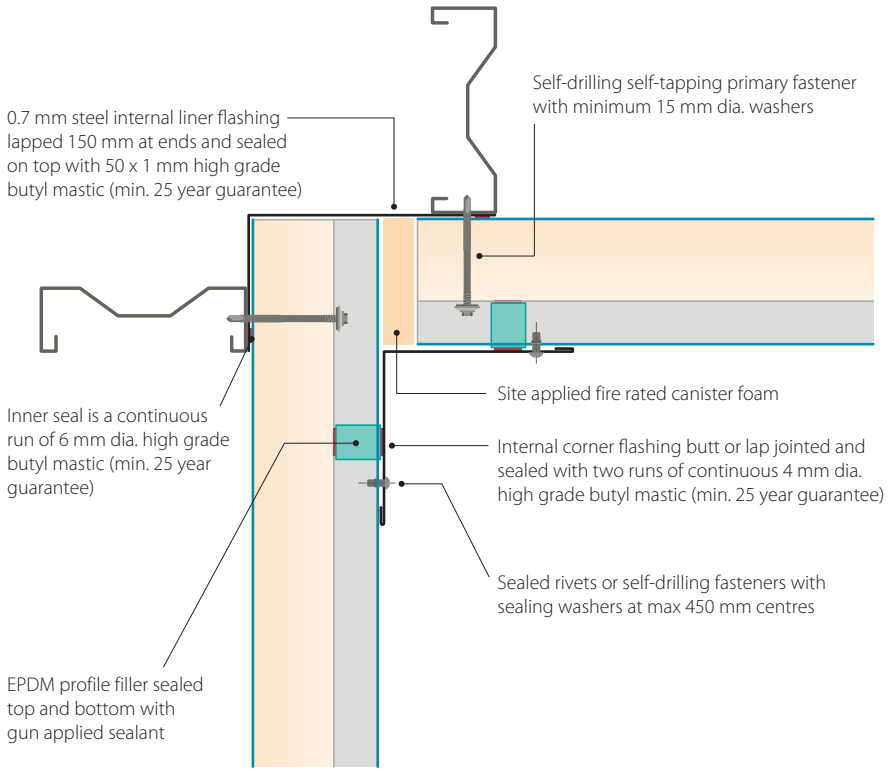


External corner
Thermal performance can be enhanced by the on-site removal of the panel liner, within the corner junction, therefore reducing the risk of cold bridging. Running a circular saw to a depth of 15 mm at approximately 100 mm from the panel edge and then peeling the cut strip of steel away can easily remove the liner.

Psi value (W/mK)	f factor
With liner cut back	
0.041	0.957
Without liner cut back	
0.092	0.939

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Internal corner

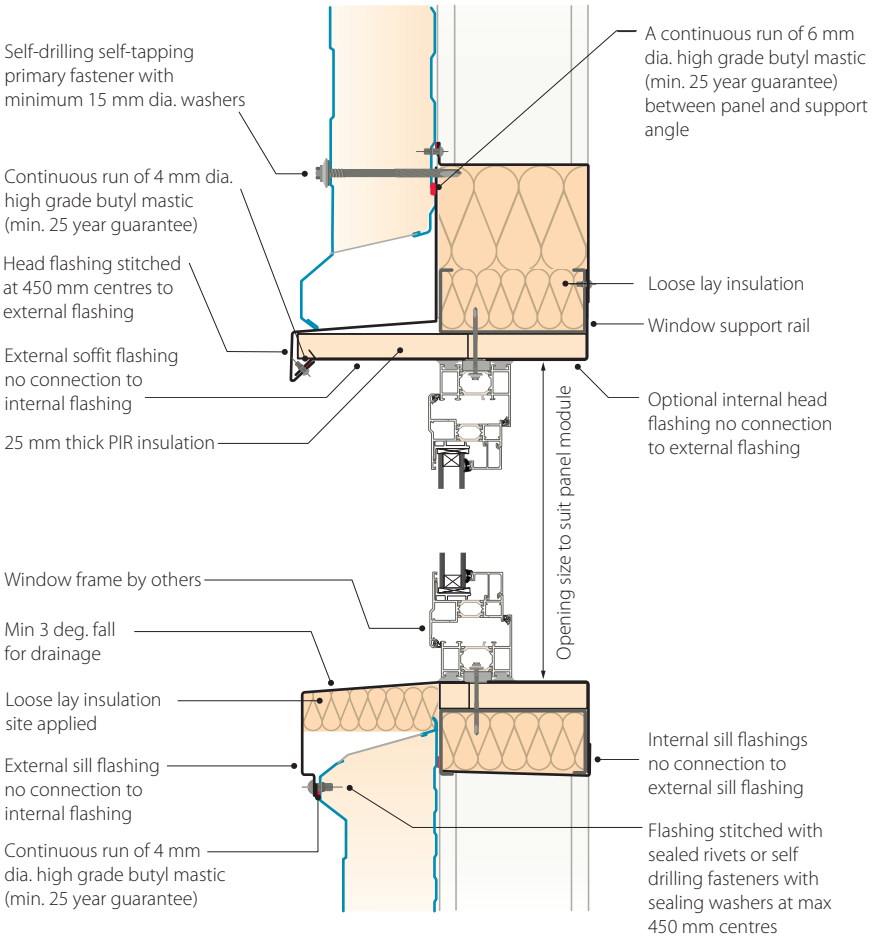


Internal corner
Before fillers and outer flashing are applied, fire rated canister foam should be applied into the void between the panel end and the trough of the adjacent panel.

Psi value (W/mK)	f factor
With liner cut back	
0.019	0.940
Without liner cut back	
0.092	0.939

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Window/door head



Window/door head
This window flashing detail has been designed so that it can accommodate any proprietary window.

Psi value (W/mK)	f factor
0.614	0.735

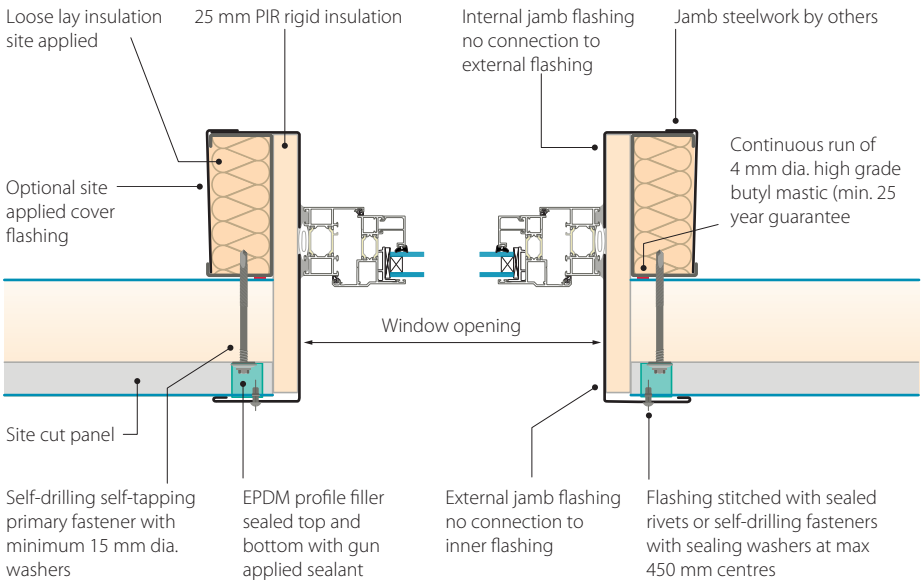
Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Window sill

Psi value (W/mK)	f factor
0.613	0.878

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

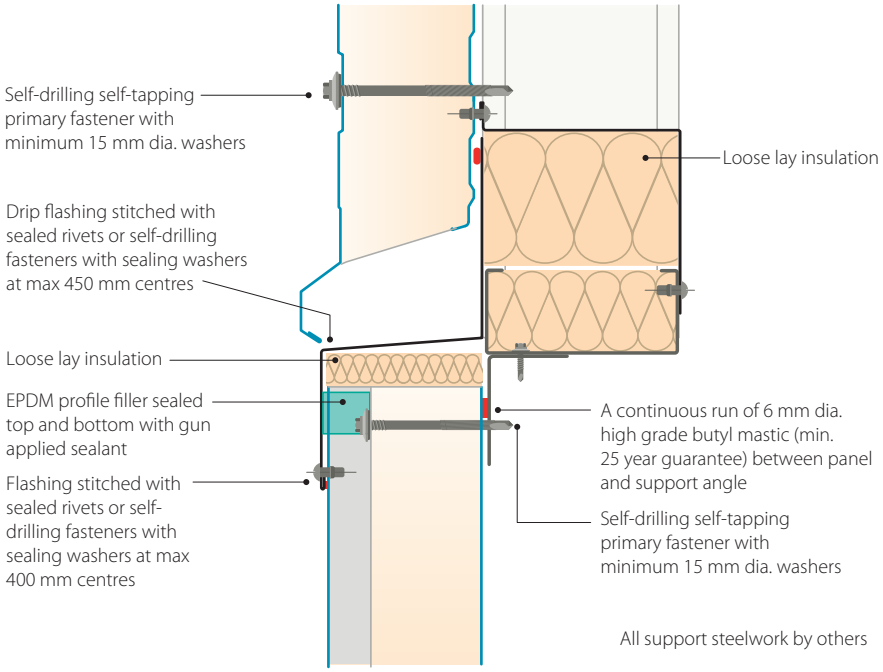
Window/door jamb



Window/door jamb
Trimming steel work around the opening is required to support the window or door independent to the panels.

Construction details – wall
continued

Horizontal to vertical break

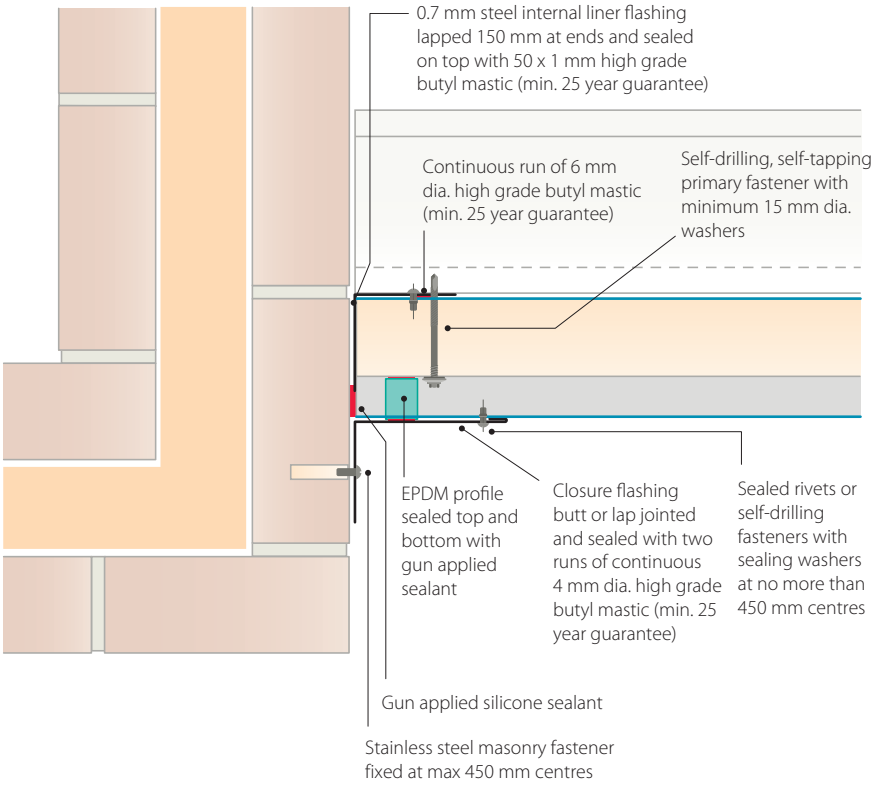


Horizontal to vertical break
Horizontal and vertical panels can be installed adjacent to each other creating interesting architectural features, while the drip flashing detail still maintains thermal performance and an efficient weather seal.

Psi value (W/mK)	f factor
1.103	0.579

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Brick wall abutment



Brick wall abutment
Masonry fasteners to be stainless steel to maintain the durability of the system.

Psi value (W/mK)	f factor
0.260	0.837

Stated calculation results are dependant on components being as shown. Computer modelled in accordance with EN ISO 10211.

Fasteners, sealants and fillers

Fastener selection table

Primary fixing for Trisomet® (3-Rib) to steel purlins

Application	Panel core thickness (mm)	SFS intec Ltd	EJOT UK
Cold rolled purlins, Roof 1.2 - 5.0 mm Wall 1.3 - 3.0 mm	40	SXC5-S19-5.5 x 75 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 67 + COLOUR
	60	SXC5-S19-5.5 x 95 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 107 + COLOUR
	80	SXC5-S19-5.5 x 115 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 127 + COLOUR
	100	SXC5-S19-5.5 x 135 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 147 + COLOUR
	120	SXC5-S19-5.5 x 160 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 167 + COLOUR
	135	SXC5-S19-5.5 x 193 + COLOUR	CF19 JT3-D6H 5.5/6.3 x 197 + COLOUR
Hot-rolled purlins, 4 – 14mm	40	SXC14-S19-5.5 x 80 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 75 + COLOUR
	60	SXC14-S19-5.5 x 100 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 95 + COLOUR
	80	SXC14-S19-5.5 x 120 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 115 + COLOUR
	100	SXC14-S19-5.5 x 140 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 155 + COLOUR
	120	SXC14-S19-5.5 x 165 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 175 + COLOUR
	135	SXC14-S19-5.5 x 193 + COLOUR	CF19 JT3-D12H 5.5/6.3 x 195 + COLOUR
Side-lap stitcher	All	SL2-S-S14-5.5 x 25 + COLOUR	CF15 JT3-2-6.3 x 25 + COLOUR
Metal flashings to panel	All	SL2-S-S14-5.5 x 25 + COLOUR	CF15 JT3-2-6.3 x 25 + COLOUR

When fixing to timber, fastener pullout values may limit the ability of the roof to resist wind uplift loads.
If in doubt, consult the Technical Department T: +44 (0) 1244 892199.

All fasteners can be sourced from: SFS intec Ltd, T: +44 (0) 113 2085 500 or EJOT UK Limited, T: +44 (0) 1977 687040.

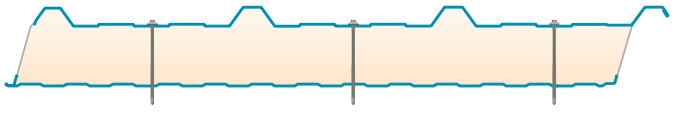
Fasteners

The primary fasteners for securing the Trisomet® roof panel to structural steel purlins have been purpose designed to facilitate speed of fixing, give this structural security with reduced risk of over compression, and have minimal thermal bridging. Time consuming pre-drilling of the panel or purlin is not necessary, as the high-thread fastener self-drills: the lower thread taps into the purlin and the higher thread taps into the outer skin, thereby clamping the panel securely in a single operation.

Side-lap stitching, should be at maximum of 450 mm centres. The stitcher can either be a painted sealed rivet, an integral nylon colour, or a powder coated headed austenitic stainless steel self-drilling fastener.

When a flashing needs to be secured to the panel, side lap fasteners can be used.

Standard fastener layout at all support positions



Sealants and fillers

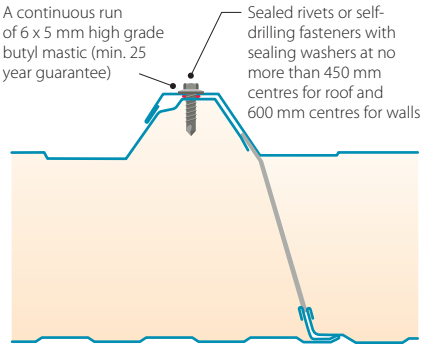
The end lap of Trisomet® requires three rows of 6 x 5 mm high grade butyl mastic (min. 25 year guarantee) this generally comes in rolls of 9.6 m with 30 rolls per box. (Wall end lap specifications vary see previous construction details).

Position the sealant in straight, unbroken lines, following the profile, taking care to avoid any stretch. Ensure the continuity and the effectiveness of the seal, especially at corners of sheets. The two lines of strip sealant must be placed between the sheets before fixing: two rows 10 mm from the sheet ends at the top and bottom of the lap.

The side lap of the panel is sealed with the same 6 x 5 mm sealant run continuously to weather side of the stitching fastener.

For panel ends at ridges and hips, black EPDM large flute profile fillers should be located between the panel's external skin and the cover flashing to provide continuity of weather seal and to prevent access by insects and small birds. These fillers should be sealed to top and bottom with gun applied solvent release bedding sealant.

All sealants can be sourced from the following suppliers:
Premier Sealants (White strip),
T: +44 (0) 1724 864100
EJOT UK Limited (Blue Strip).
T: +44 (0) 1977 687040
SFS intec Ltd, (Pink Strip).
T: +44 (0) 113 208 5500.



Site guidance

This guide assumes that all current safety regulations are in place before the installers commence work.

Maximum number of panels within a pack for varying panel lengths

Core thickness (mm)	Panel length (m)	No. of panels
40	2-7.5	19
	7.5-8	17
	8-9.5	15
	9.5-13	13
	13-16	9
	16-20	7
60	2-10	13
	10-11.5	11
	11.5-14.5	9
	14.5-18.5	7
	18.5-20	5
80	2-10	11
	10-13	9
	13-17.5	7
	17.5-20	5
100	2-12	9
	12-16	7
	16-20	5
120 & 135	2-16	7
	16-20	5

The above is based on interlocking stacking. Crown up stacking is available upon request, however this method of packing will reduce the number of panels in each pack.

Packaging

The number of panels in each pack will vary with the length of the panel to ensure stability (see table left). Typically, panels are packed in stacks up to 1,100 mm high. The panels are protected at the base of the pack by timber pallets and are plastic wrapped in the factory. If required, panels can be grouped and referenced for particular areas of the building (eg, grid line, elevation reference). As standard, each pack is labelled with the order reference number, the number of panels and the panel length.

Receipt of materials on-site

All materials arriving on-site must be checked promptly before off loading. Checks should be made against the relevant delivery notes to ensure that the correct quantities and specifications have been delivered and to determine any possible transportation damage. Any discrepancies or damage observed should be recorded immediately on the proof of delivery paperwork, and a written report should be submitted within 7 days. Please note that off loading is the customer's responsibility.

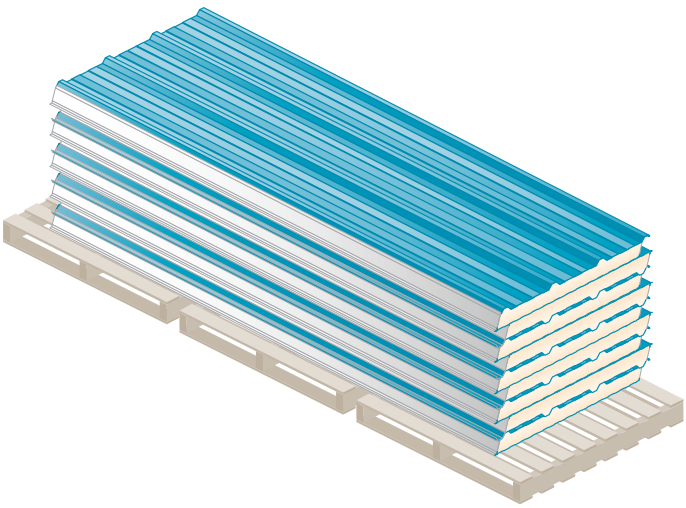
Off loading

Wherever possible, Trisomet® should be off-loaded directly from the vehicle to the area where they will be used to reduce the risk of on-site damage. If loading directly on to a roof all packs should be unwrapped at ground level, base pallets removed and pack re-strapped before lifting onto the roof, to avoid the potential of pallets dropping between purlins. Off loading is to be undertaken as per Tata Steel recommendations. If panels are to be stored before installation, they should be placed on level ground (in accordance with storage instructions opposite).

There are two recommended methods for off loading:

- **Forklift or telehandler:** These can be used when off loading panels less than 6 m long. Care must be taken not to tip or damage the bottom panel when driving on uneven ground. Only one pack at a time should be unloaded. Open forks fully before lifting.
- **Crane:** Where slings or grabs are used, precautions should be taken to prevent edge damage and to avoid pressure across the panels, which may cause distortion (chains should not be used). When lifting panels over 6 m long, a spreader bar with sufficient hoisting belts to spread the load should be used. If required, temporary edge protection can be installed to prevent local damage. Only one pack at a time should be off-loaded.

Packaging: Stacked panels



Storage

In addition to the guidelines above, the bundles should be stored on level ground (eg, a floor slab). The packs should never be stacked more than two high. There should be adequate separation between stacks to provide access and to avoid end damage.



1. Do not stand uncovered stacks in the open. Store under cover and away from open doorways.



2. If stacks cannot be stored under cover, erect a simple scaffold around them and cover it with a waterproof sheet, tarpaulin or polythene. Leave space between the cover and stacks to allow air to circulate.



3. Store stacks off the ground and on a slope, so that if rain penetrates the cover, the water will drain away.



4. Inspect the storage site regularly to ensure that moisture has not penetrated the stack.



5. Do not store sheets where people will walk across them.

Pre-erection checks

A secondary support structure is required to support the cladding system at the necessary positions and transfer all loads imposed on and by the cladding system back to the primary structure.

Before any work starts, a full survey or inspection should be carried out to ensure that the support steelwork and any other associated materials, is correctly positioned and within tolerance so that Trisomet® can be fixed correctly. Any obvious problems should be immediately reported to the main contractor to enable remedial work to be undertaken before installation of the cladding.

Tata Steel recommends the allowable variation in the outer flange level of the purlin/rail with respect to the datum line is L/400 (where L is the rail spacing).

Further guidance on steel work tolerance can be found in a Steel Construction Institute publication P346: *Best Practice for the specification in installation of metal cladding and secondary steelwork.*

Handling

Wherever possible, manual handling should be avoided and mechanical handling equipment should be used. Mechanical handling provides health and safety benefits, shorter installation times, smaller installation teams and less risk of panel damage.

Recommended suppliers

GGR Cladding
T: +44 (0) 161 683 2580

4 Cladding Services
T: +44 (0) 870 7417600

Cutting

For making small cut-outs, openings and cuts that are not straight, use a jigsaw or a reciprocating saw. For longer straight cuts we recommend using a circular saw that produces a cold cut with a fine-tooth metal cutting blade (ie, not a grinding blade, as this hot cut will damage the coating). All cutting should be undertaken at ground level.



Roof installation

Installation: Roof Panel

The steps given below are instructions for a typical construction and should be used only as a guide. Specific technical details, method statements and site-specific risk assessments should be produced and applied for each building. An extended list of construction details is available from Tata Steel, and advice can be give via our technical department on any bespoke details that may be required.

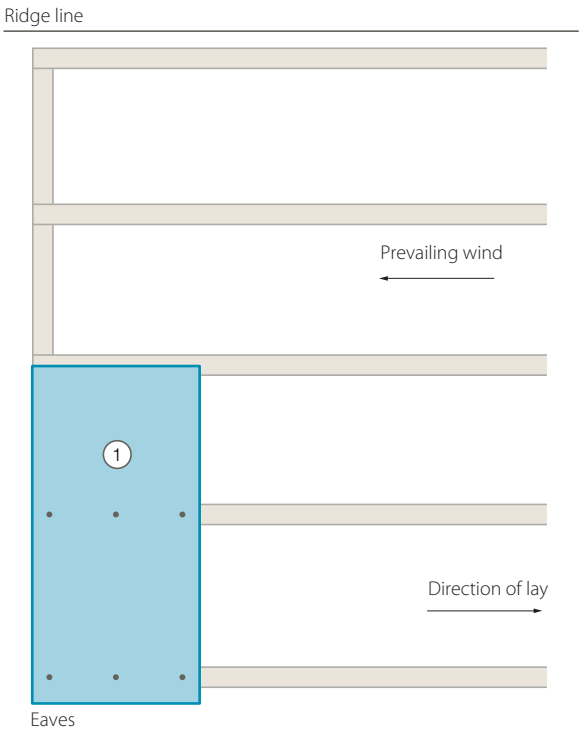
The following steps apply to a roof made up of multiple panels with end lap joints. Wherever practical, panels of the same length from ridge to eaves should be used to avoid end laps. This provides a cleaner finish and a more economical installation.

1. Carry out preparation work on internal ridge, internal eaves, trims, etc, and ensure that these are lined and levelled and sealed as specified. Lay down air seals onto the top flange of the eaves beam and the ridge purlins.

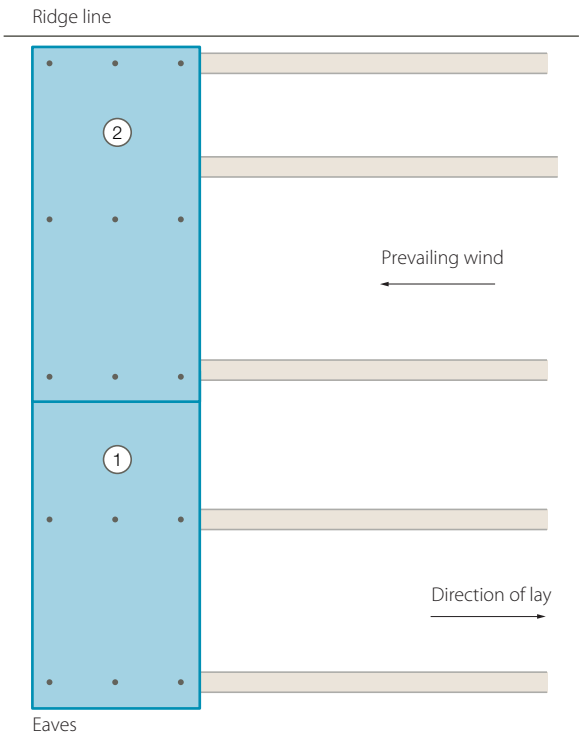
2. Position the eaves (or bottom) corner panel, and ensure it is correctly aligned and lapping in the right direction. Wherever possible, the panels should be laid with the exposed joints of the side laps facing away from the prevailing wind (see Figure 1). Fix the panel using primary fasteners in the trough of the trailing edge. Make sure the fasteners are not over tightened and clean away drilling swarf to avoid rust marks.

3. Ensuring that the top of the lower panel (panel 1) is clean and dry, apply three rows of sealant across the panel width with a strip of sealant at the underlap position as shown in the illustration on the next page. The first seal should be placed above the fixing line, the second directly below and the third 10 mm from the end of the specified lap (150 mm recommended). The seal should be carefully applied to ensure coverage in the corners of the profile.

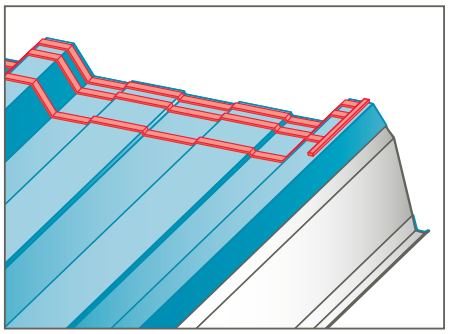
First panel laid



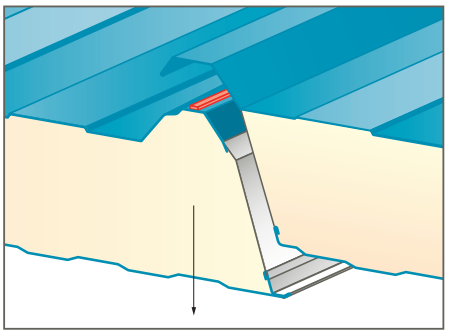
Second panel laid



End lap with three rows of sealant



Side lap



4. Ensure that the cutback of panel 2 is clean and dry before positioning the panel over panel 1. Be careful not to disturb the seals. Align the profiles of the two panels before securing at specified fastener layout.

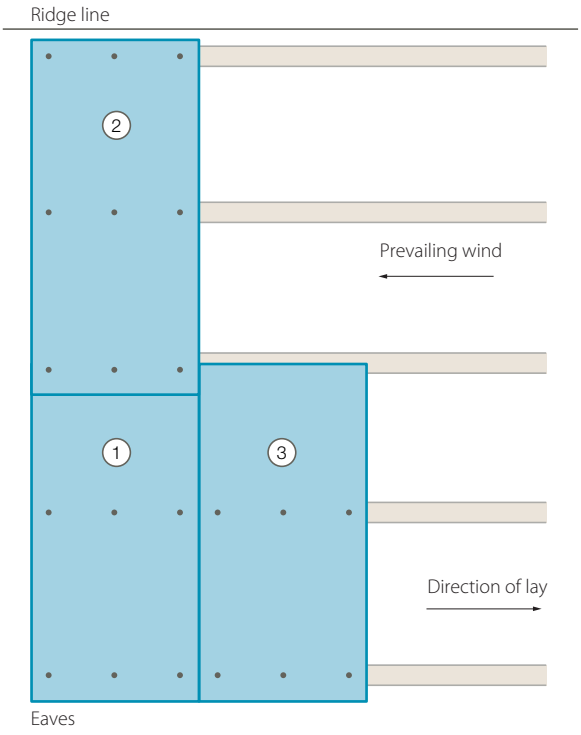
5. Run the side lap seal continuously from ridge to eaves ensuring this is placed to the weather side of the side lap. Side lap panel 3 by dropping panel into position and securing with specified fastener layout.

6. Apply the end-lap seals as described in step 3.

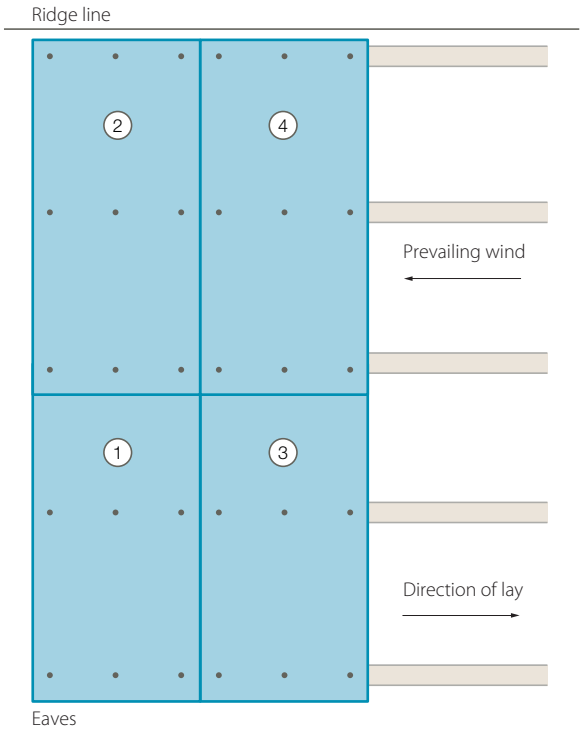
7. Ensure that the cutback of panel 4 is clean and dry. Position the end of panel 4 over panel 3 and drop down the Side lap as before. Ensure that the profiles of the two panels are aligned before securing into the purlins. Secure the side lap using sealed rivets or stitching screws at a minimum of 450mm centres.

8. Continue steps 5, 6 and 7 until the elevation is complete. Seal and position profile fillers at ridge and fit the external flashings and ensure they are sealed as specified.

Third panel laid



Fourth panel laid



Wall installation

Installation: Wall panel

The steps given below are instructions for a typical construction and should be used only as a guide. Specific technical details, method statements and site-specific risk assessments should be produced and applied for each building. An extended list of construction details is available from Tata Steel and advice can be given via our Technical Department on any bespoke details that may be required.

The following steps apply to a wall made up of multiple panels with one end lap joint. Wherever practical panels of the same length from base level to eaves should be used to avoid end laps. This provides a cleaner finish and a more economical installation.

Vertical wall installation

1. Checks should be carried out to make sure that the bottom rail is adequately supported and level along its full length before commencing installation work.

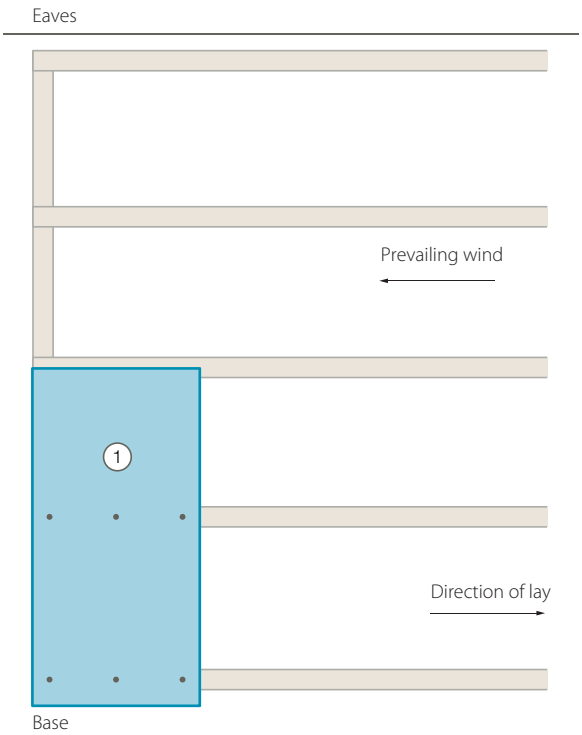
2. Carry out preparation work on sill trims and the base support angle for the first panel, and ensure these are lined, levelled and sealed as specified (see page 30 of construction details).

3. Hoist the first panel and position on the support angle with the overlap edge adjacent to the corner. Before inserting the fasteners, ensure that:
   a. The setting out dimensions are observed. Failure to comply with these dimensions may lead to problems later in the section.
   b. The panel is plumb using a plumb line.
   c. The position of the panel relative to the bottom and top or intermediate rails is correct. Check this with the erection drawings.

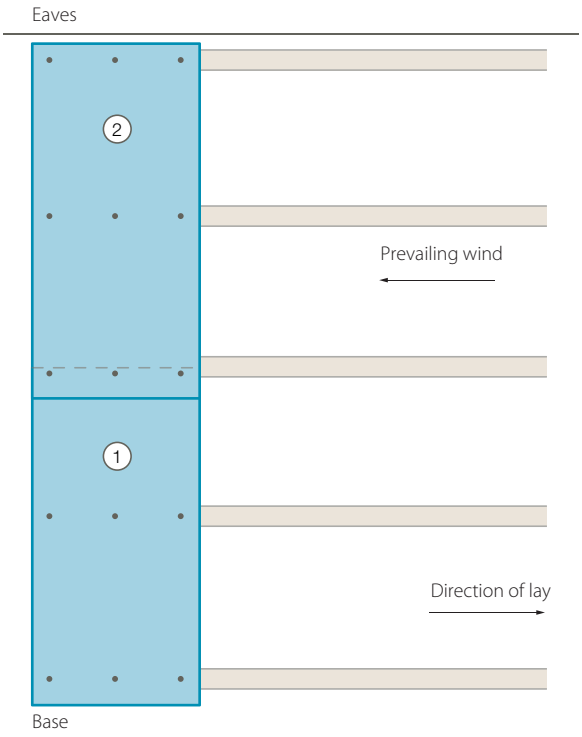
4. Fix the panel using primary fasteners as specified. Make sure the fasteners are not over tightened, and clean away drilling swarf to avoid rust marks.

5. Ensure that the top of the lower panel (ie, panel 1) is clean and dry, and then apply the two rows of sealant across the panel width in positions as shown. The first seal should be placed above the fixing line, the second between 10 mm from the end of the specified lap (75 mm recommended). The seal should be carefully applied to ensure coverage in the corners of the profile.

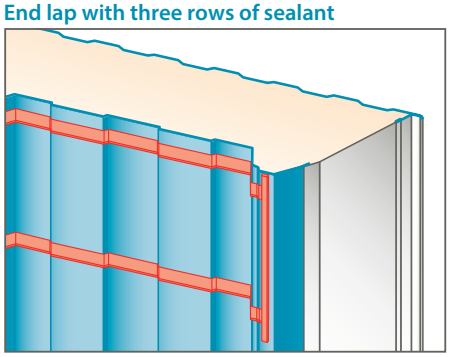
First panel laid



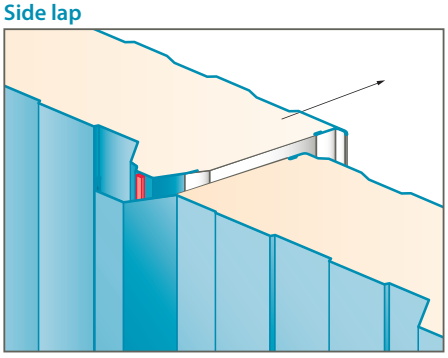
Second panel laid



End lap with three rows of sealant



Side lap



6. Ensure the cutback of panel 2 is clean and dry before positioning the panel over panel 1, as shown. Be careful not to disturb the seals. Align the profiles of the two panels before securing.

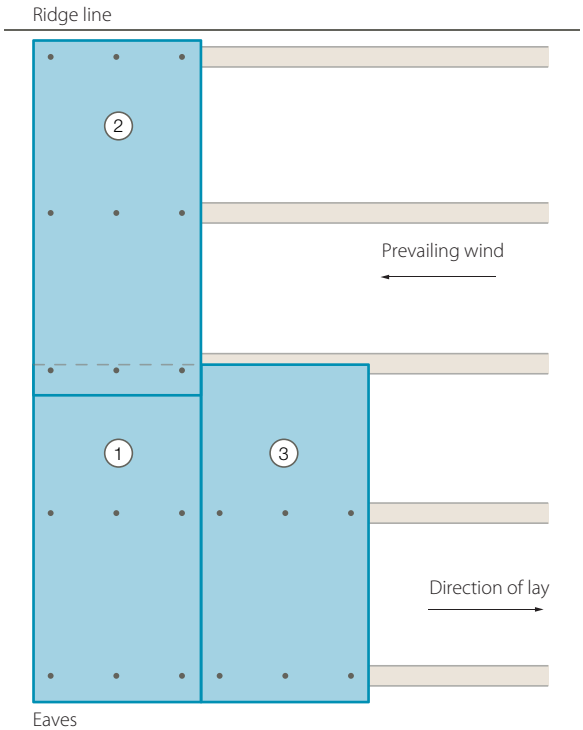
7. Run the side lap seal continuously from eaves to base ensuring this is placed to the weather side of the side lap. Side lap panel 3 and secure with specified number of fasteners.

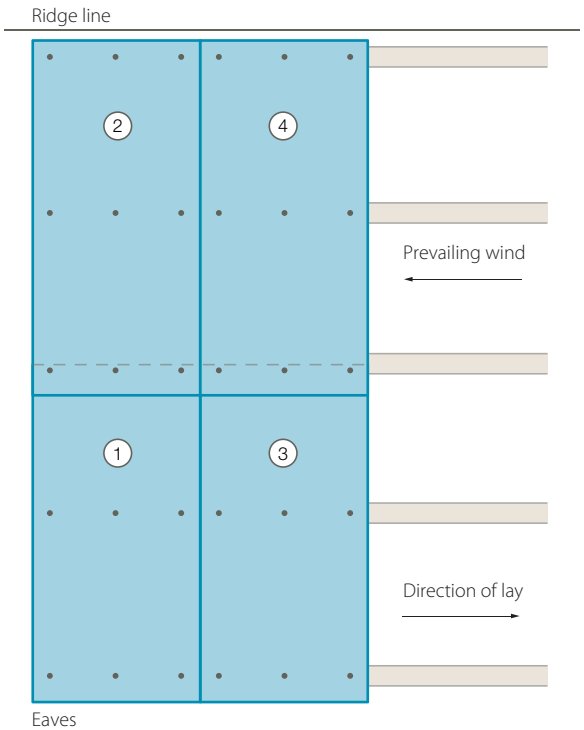
8. Apply the end-lap seals to panel 3 as shown.

9. Ensure that the cutback of panel 4 is clean and dry. Position the end of panel 4 over panel 3 and side lap as before. Ensure that the profiles of the two panels are aligned before securing into the rails. Secure the side lap using sealed rivets or stitching screws at a minimum of 600 mm centres.

10. Continue steps 5 to 9 until the elevation is complete. Fit the external flashings and ensure they are sealed as specified.

Third panel laid





Wall installation
continued

Horizontal wall installation

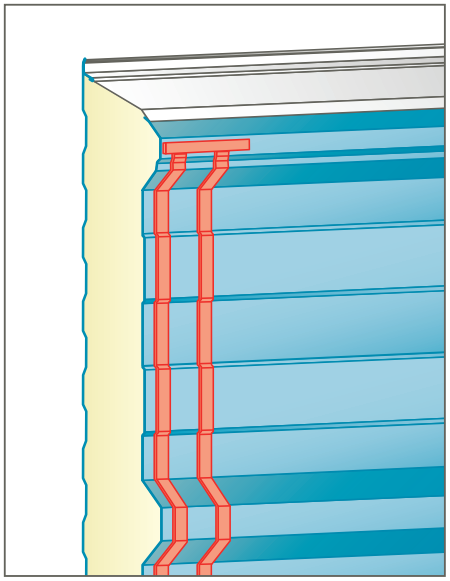
The following steps apply to a wall made up of multiple panels with one end lap joint between the corners of the elevation. For elevations containing more than one end lap ensure that each horizontal level of panels is complete before starting the row above.

When running panels horizontally on a wall elevation, care must be taken when ordering the handing of the product. The standard vertically laid left-to-right handed panels will run right-to-left when installed horizontally as shown below.

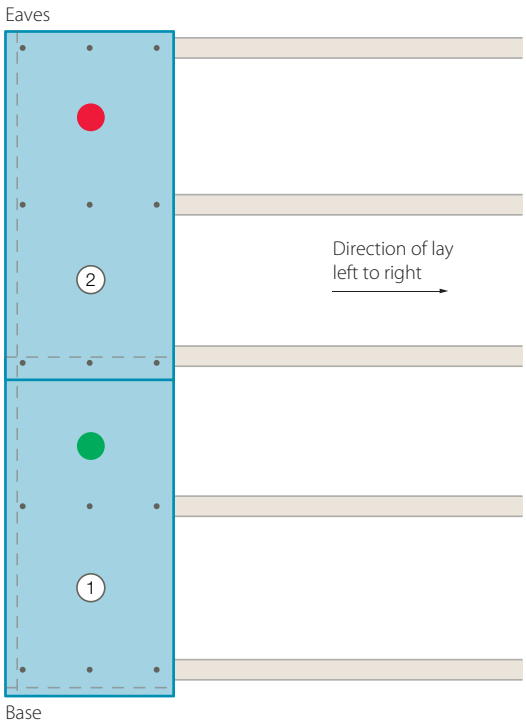
1. Carry out preparation work on sill trims. Ensure that these are lined, levelled and sealed as specified (see page 35 of construction details).

2. Temporarily support base panel and secure with one fastener. Recheck level and the bearing dimensions, on vertical supports, are correct before fully securing with specified number of fasteners. Ensure the fasteners are not over tightened, and clean drilling swarf from the rib ledge to avoid rust marks.

3. Ensuring that the end of the first panel is clean and dry, apply two rows of gun-grade silicone sealant across the full width of the panel in positions as shown. The first seal should be placed behind the fixing line, and the second 10 mm from the end of the specified lap (50 mm recommended).

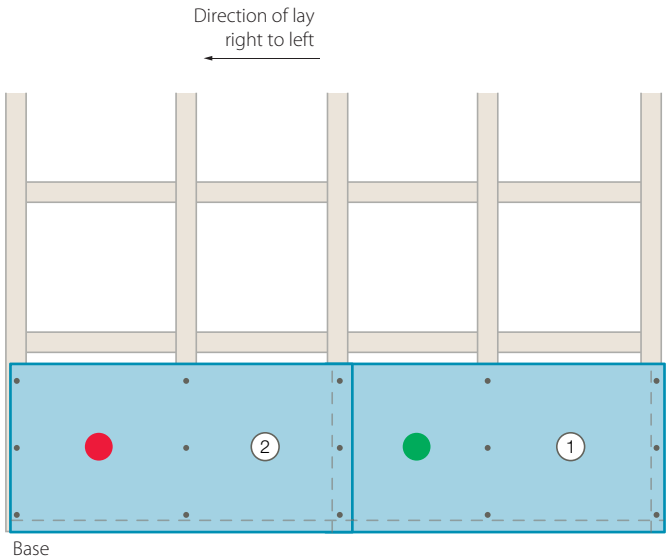


First and second panel laid – Vertical wall



NB. Care must be taken when ordering product handing for horizontal wall installations.

First and second panel laid – Horizontal wall



4. Ensure the cutback of panel 2 is clean and dry before positioning the panel over panel 1. Ensure that the profiles of the two panels are aligned before securing them to the vertical cladding rails using the recommended number of fasteners.

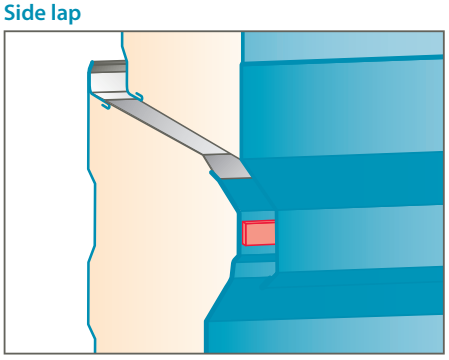
5. Run the side lap seal continuously to the bottom row of panels ensuring this is placed to the weather side of the side lap. Side lap panel 3 and secure with specified number of fasteners.

6. Apply the end-lap seals to panel 3 as shown.

7. Ensure that the cutback of panel 4 is clean and dry. Position the end of panel 4 over panel 3 and side lap as before. Ensure that the profiles of the two panels are aligned before securing into the rails. Secure the side lap using sealed rivets or stitching screws at a minimum of 600 mm centres.

8. This procedure should be continued along the full width of the elevation before starting the second row of panels. Continue row by row until the elevation is complete. Fit the external flashings, and ensure they are sealed as specified.

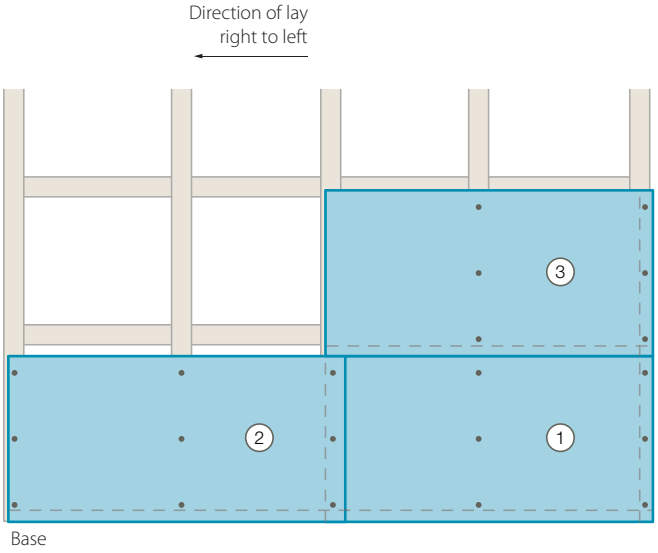
Side lap



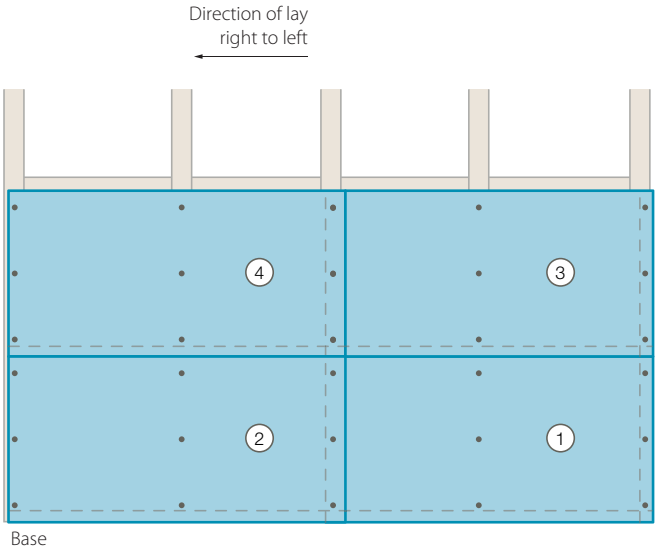
Removal of protective film

Trisomet® can be supplied with protective film on the external face. This is designed to provide additional protection during manual handling and site fixing. The film has a limited shelf life and must not be exposed to sunlight for long periods because it is susceptible to ultraviolet degradation. This makes the film difficult to remove and may result in adhesive residue that causes dust and dirt to adhere to the decorative finish. To ensure easy, clean removal, remove the film within one month of panel delivery to site.

Third panel laid



Fourth panel laid



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Tata Steel
Shotton Works
Deeside
Flintshire
CH5 2NH
T: +44 (0) 1244 892199
F: +44 (0) 1244 892121
www.tatasteeleurope.com

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Language English 1121