

# ROOFLIGHT APPLICATION GUIDE

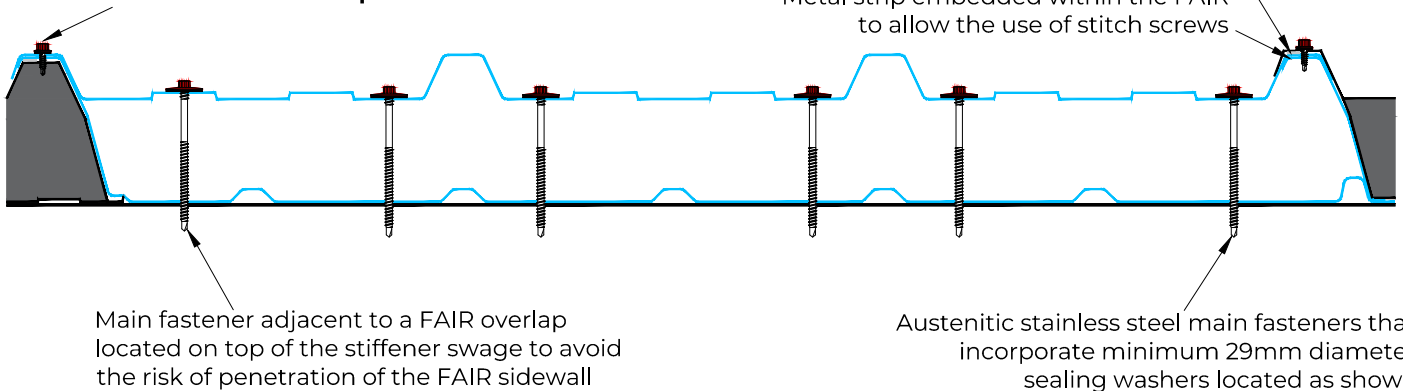
## Ascend System 5 - Factory assembled insulating rooflight (FAIR) for use with a composite panel system

### Typical Cross Section

Austenitic stainless steel stitch screws at maximum 450mm centres. For exposed sites or roof pitches less than 10° reduce centres to 300mm. **Note, avoid stitching through an end lap unless the stitch fasteners are of sufficient length to accommodate the build up thickness at that location**

6mm x 5mm tape, UV stable, cross-linked butyl mastic sealant on the weather side of the stitch fasteners. **Note, for three and four way end laps sealant is required between all lapping layers**

Metal strip embedded within the FAIR to allow the use of stitch screws



Main fastener adjacent to a FAIR overlap located on top of the stiffener swage to avoid the risk of penetration of the FAIR sidewall

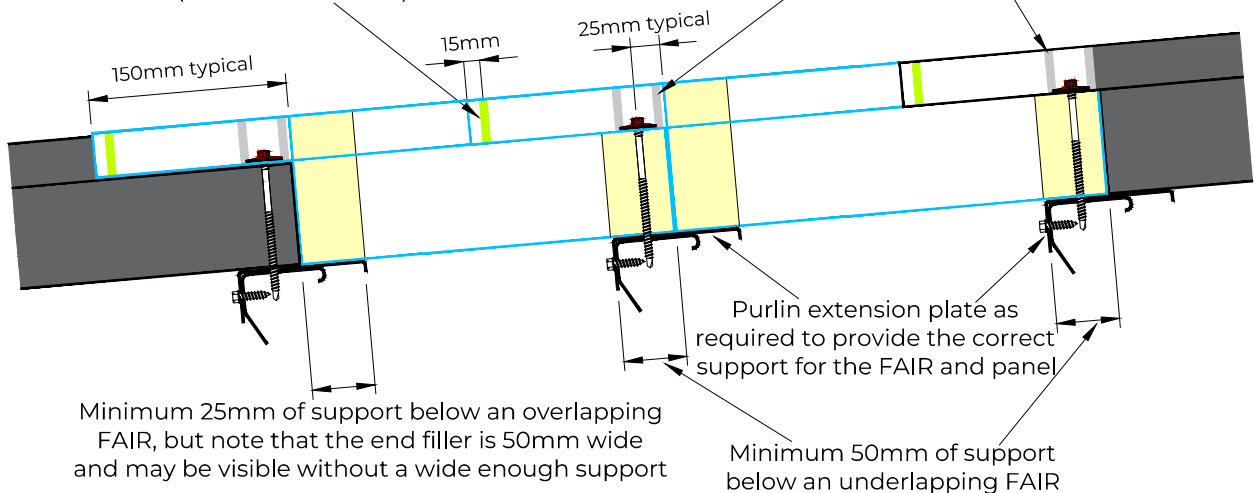
Austenitic stainless steel main fasteners that incorporate minimum 29mm diameter sealing washers located as shown

**Note: a purpose made, correctly adjusted screw gun is required for installation of all fasteners. Impact drivers and high speed guns operating at over 2000 rpm must not be used**

### Typical End Laps

Two continuous runs of 6mm x 5mm tape or 6mm bead, cross-linked butyl mastic sealant located 10mm to 15mm from the main fixing line on both sides of it. 8mm bead may be used with CE36E and Supasafe E outer sheets for panel with FAIR end laps

Optional run of silicone sealant (ISO 11600-F-25 LM)

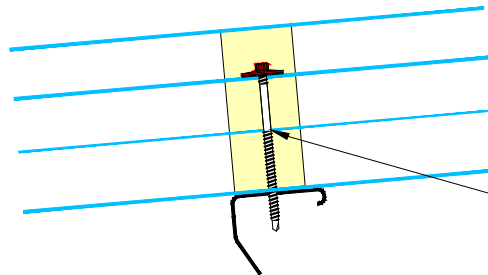


Minimum 25mm of support below an overlapping FAIR, but note that the end filler is 50mm wide and may be visible without a wide enough support

Purlin extension plate as required to provide the correct support for the FAIR and panel

Minimum 50mm of support below an underlapping FAIR

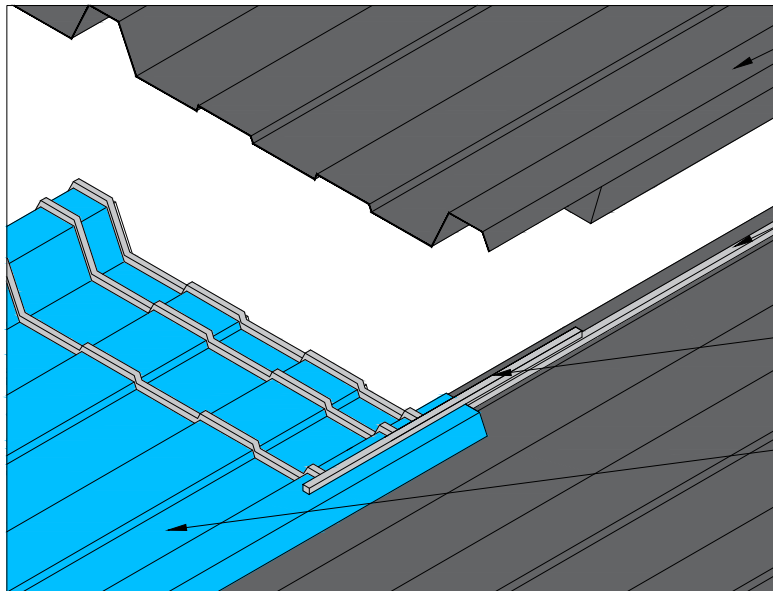
### Intermediate Purlins



Main fasteners must pass through the centre of the high compression resistance fillers that should be located over a purlin or purlin extension plate

### 3 and 4 Way Lap Joints

#### Upslope End Lap



Composite panel or FAIR overlapping at end and side

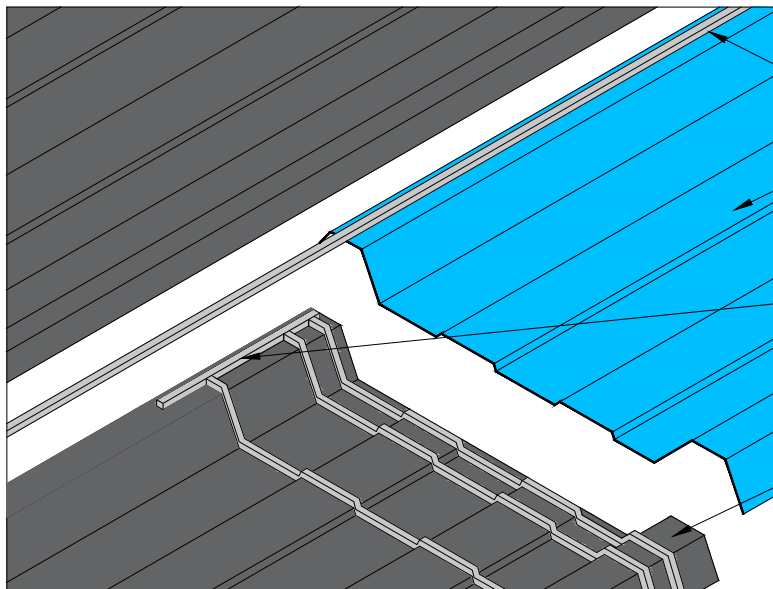
Continuous run of side lap sealant full length of the roof slope

Additional strip of sealant over the end lap, the length of the end lap plus another 75mm to 100mm upslope

FAIR

**Note: There should be sealant as shown between every lapping element in an end lap joint.**

#### Downslope End Lap



Continuous run of side lap sealant full length of roof slope

FAIR overlapping at end and underlapping at side

Additional strip of sealant within the end lap, the length of the end lap plus another 75 to 100mm downslope

Composite panel or FAIR

Recommended outer sheet types

Filon outer sheet type	Non-fragility classification to ACR[M]001	Expected period of non-fragility <sup>(1)</sup>	Recommended frequency of roof access	Recommended purlin spans
CE24E <sup>(2)</sup>	B	5 to 20 years <sup>(3)</sup>	Infrequent	Up to 2.0m
CEDR24E	B	25 years	Frequent	Up to 2.0m
CEDR30E	B	25 years plus	Frequent	Up to 2.25m
SUPASAFE E	B	30 years	Very frequent	Up to 2.5m

<sup>(1)</sup>Note that the expected non-fragility period of rooflights is affected by all components used within the roof assembly and when a specific period of non-fragility is required all components used should have the same degree of durability as the rooflights. This would typically require the use of austenitic stainless steel fasteners and minimum Class A butyl mastic for the rooflight installation. **Always consult the component manufacturer or supplier.**

<sup>(2)</sup>CE24E outer sheet types will provide a Class B non-fragile classification but higher specification outer sheets may be required in areas of high wind loads or snow loads.

<sup>(3)</sup>Minimum specification, correctly installed rooflights are rated Class B non-fragile during the construction phase, when new, and for an expected period of 5 to 20 years depending on external factors as defined in the Rooflight Association guidance document NTD03.1.

Fire Performance

Filon Grade 300: B<sub>ROOF</sub>(t4) to BS EN 13501 Part 5.

Filon Grade 104: B<sub>ROOF</sub>(t4) to BS EN 13501 Part 5. TP(a) rating to BS 2782-0 Method 508A

Filon Grade 101: B<sub>ROOF</sub>(t4) to BS EN 13501 Part 5. TP(a) rating to BS 2782-0 Method 508A

For further information, please refer to Filon Technical Information Sheet: TIS003 England  
TIS003-1 Wales  
TIS003-2 Scotland  
TIS003-3 Northern Ireland

A standard FAIR has a **Filon Grade 300** outer sheet and a **Filon Grade 104** liner.

## U-Value W/m<sup>2</sup>K

### Double skin

3.22. Non-compliant for a building that is not exempt from Building Regulations.

### Triple skin

2.12 as standard, 1.71, 1.37, 1.17, 1.00 and 0.87 are also available.

## Typical Fixing Specification

### Minimum roof pitch

In accordance with BS 5427: *Code of practice for the use of profiled sheet for roof and wall cladding on buildings*, Filon rooflights are suitable for a finished roof pitch of at least 4° (5.5° design pitch). For lower roof pitch solutions, please contact Filon Technical Department.

### Main fasteners

Filon FAIRs should be secured to purlins with minimum 5.5mm diameter, self drill/tap austenitic stainless steel screws that incorporate minimum 29mm diameter sealing washers, typically coloured poppy red. Main fasteners should be located in the profile troughs. For FAIRs that match modern composite panel systems this normally requires two fasteners per trough either side of the main profile ribs. Note that the fastener situated adjacent to a FAIR overlap at a side lap joint should be located on top of the stiffener as shown in the cross section drawing. This will prevent the fastener penetrating the sidewall of the FAIR. All fasteners that penetrate the FAIR must pass through an internal high compression resistance filler to ensure the optimum sealing performance of the fastener washer.

### End laps

Any end laps should be located directly over a purlin. The end lap length is typically 150mm. The end of an underlapping FAIR box liner should be supported by 50mm of length by the purlin or a purlin extension plate in order to maintain the expected impact resistance. An overlapping FAIR may be supported by a minimum of 25mm but a wider support than this is recommended for aesthetic reasons to conceal the 50mm wide end closure filler. The end lap joints should be sealed with two continuous runs of 6mm x 5mm tape, or 6mm bead cross-linked butyl mastic sealant. Note that 8mm bead may be used with CE36E or Supasafe E outer sheets if required, for panel to FAIR and FAIR to panel end laps. The sealant runs should be located 10mm to 15mm from the fixing line on either side of it. An optional run of gun applied silicone to classification ISO 11600-F-25 LM may be applied 15mm from the leading edge of the overlapping sheet within the joint to provide a supplementary seal to prevent dirt ingress. FAIR to FAIR end laps should be fixed and sealed in the same way.

### Side laps

The side lap joints should be stitched at maximum 450mm centres with austenitic stainless steel stitch screws. For exposed sites or roof pitches below 10° the stitch centres should be reduced to 300mm. **Note that stitching through an end lap should be avoided unless the stitch fastener is of sufficient length to accommodate the build up thickness at that location.** The side lap joints should be sealed with minimum one run of 6mm x 5mm tape or 6mm bead, cross-linked, butyl mastic sealant located on the weather side of the stitch fasteners. **Note that there should be sealant located between all lapping layers in a three or four way end lap joint.** FAIR to FAIR side laps should be treated in the same manner as for FAIR to composite panel side laps. **Note that it is recommended to restrict the number of FAIRs sidelapping to one another to three units.** This will reduce the risk of sheet tiers running out of true if there are small tolerance differences in the cover width of end lapping FAIRs and composite panels.

**Properties Table**

Top sheet	Insulating core	Liner	U-value W/m <sup>2</sup> K	G-value	Light transmission	Shading coefficient	Expected period of non-fragility
CE24E	No Core	CE18	3.22	0.62	0.62	0.71	5 to 20 years
CE24E	Film	CE18	2.12	0.57	0.60	0.66	5 to 20 years
CE24E	4mm Polycarbonate	CE18	1.71	0.57	0.56	0.66	5 to 20 years
CE24E	2 x 4mm Polycarbonate	CE18	1.16	0.52	0.47	0.60	5 to 20 years
CE24E	10mm Polycarbonate	CE18	1.37	0.50	0.52	0.57	5 to 20 years
CE24E	2 x 10mm Polycarbonate	CE18	0.87	0.42	0.42	0.48	5 to 20 years
CEDR24E	No Core	CE18	3.22	0.56	0.56	0.64	25 years
CEDR24E	Film	CE18	2.12	0.52	0.55	0.60	25 years
CEDR24E	4mm Polycarbonate	CE18	1.71	0.52	0.51	0.60	25 years
CEDR24E	2 x 4mm Polycarbonate	CE18	1.17	0.46	0.48	0.53	25 years
CEDR24E	10mm Polycarbonate	CE18	1.37	0.46	0.48	0.53	25 years
CEDR24E	2 x 10mm Polycarbonate	CE18	0.87	0.38	0.39	0.44	25 years
CEDR30E	No Core	CE18	3.22	0.52	0.53	0.60	25+ years
CEDR30E	Film	CE18	2.12	0.47	0.48	0.54	25+ years
CEDR30E	4mm Polycarbonate	CE18	1.71	0.47	0.45	0.54	25+ years
CEDR30E	2 x 4mm Polycarbonate	CE18	1.17	0.38	0.36	0.44	25+ years
CEDR30E	10mm Polycarbonate	CE18	1.37	0.38	0.36	0.44	25+ years
CEDR30E	2 x 10mm Polycarbonate	CE18	0.87	0.34	0.34	0.39	25+ years
Supasafe E	No Core	CE18	3.22	0.42	0.42	0.48	30 years
Supasafe E	Film	CE18	2.12	0.42	0.42	0.48	30 years
Supasafe E	4mm Polycarbonate	CE18	1.71	0.42	0.39	0.48	30 years
Supasafe E	2 x 4mm Polycarbonate	CE18	1.17	0.37	0.36	0.43	30 years
Supasafe E	10mm Polycarbonate	CE18	1.37	0.37	0.36	0.43	30 years
Supasafe E	2 x 10mm Polycarbonate	CE18	0.87	0.31	0.30	0.34	30 years