

# ROOFLIGHT APPLICATION GUIDE

## Monarch F Rooflights

### Introduction

Filon Monarch F rooflights are designed for use on shallow roof pitches, with standing seam and secret fix roofing systems, flat deck roofs, barrel vaulted curved roofs and continuous ridge applications.

Filon Monarch F rooflights are fabricated with Filon translucent GRP sheets which are robust and shatter resistant. They are unaffected by temperature extremes and their diffusing characteristics ensures even light distribution and minimises internal glare and excessive shadows.

When correctly fixed and sealed, Monarch F rooflights are rated Class B non-fragile to ACR[M]001. Filon Monarch F rooflights project above the plane of the roof. This is an HSE recommendation to reduce the risk of a person falling through a rooflight as they cannot be readily walked on.

### Non-Fragility

Outer sheet Filon CEDR24E as standard, Class B non-fragile to ACR[M]001 for an expected period of 25 years.

Note: 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 very high durability sealants and tapes for the Monarch F rooflight installation. Always consult the component manufacturer or supplier.

### 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

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

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

Double skin with separate liner: Approximately 2.0. A polycarbonate core layer may also be used on a separate liner.

Triple skin: Options of 1.72 and 1.37

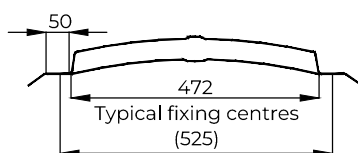
For other u-value requirements please contact the Filon Technical Department

**Monarch F Types**

Monarch F rooflights are available in the sizes shown below.

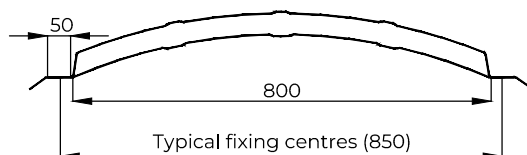
**Monarch F 500**

500mm module standing seam systems and 500mm and 508mm cover width secret fix systems. Fixing centres across the width: 525mm.



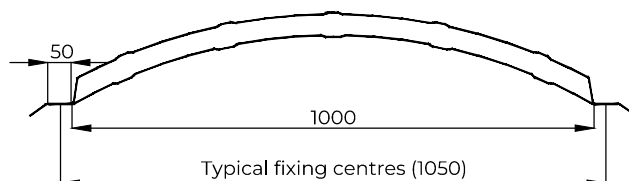
**Monarch F 800**

400mm module standing seam systems. Fixing centres across the width: 850mm.



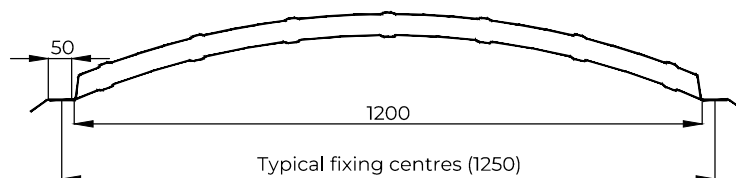
**Monarch F 1000**

500mm module standing seam systems and 500mm, 508mm and 1000mm cover width secret fix systems. Fixing centres across the width: 1050mm



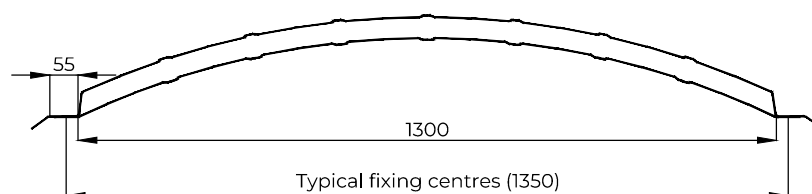
**Monarch F 1200**

300mm and 400mm module standing seam systems and 600mm and 1200mm cover width secret fix systems. Fixing centres across the width: 1250mm.

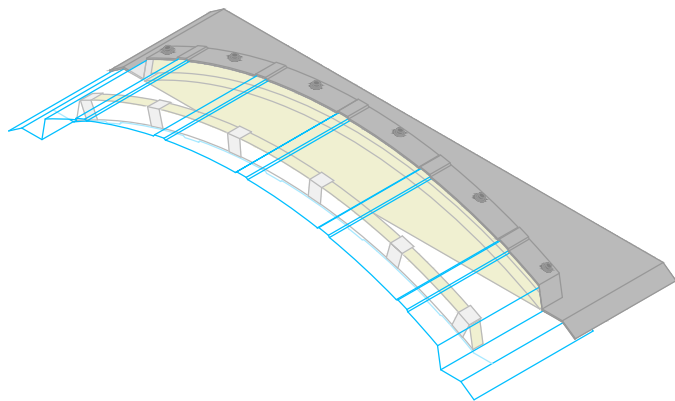


**Monarch F 1300**

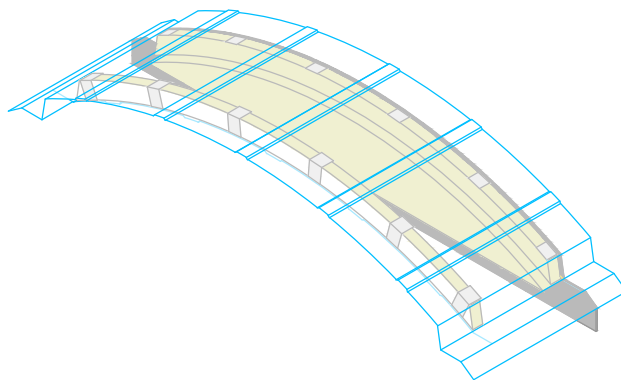
May be used with most of the above examples for new or refurbishment projects in the event that the Monarch F rooflight is required to extend further out to accommodate existing curb supports or wide insulated curb supports. Fixing centres across the width: 1350mm.



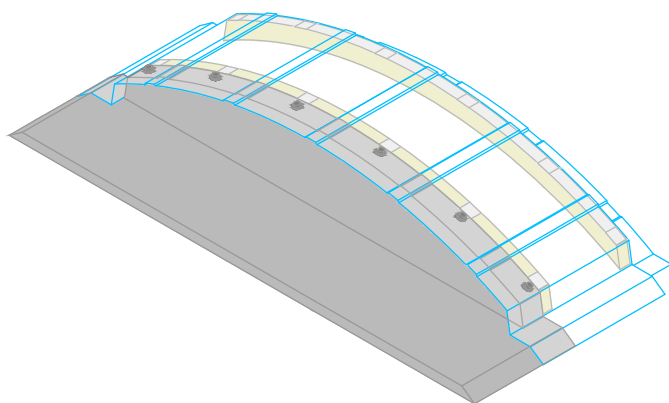
## Monarch Components



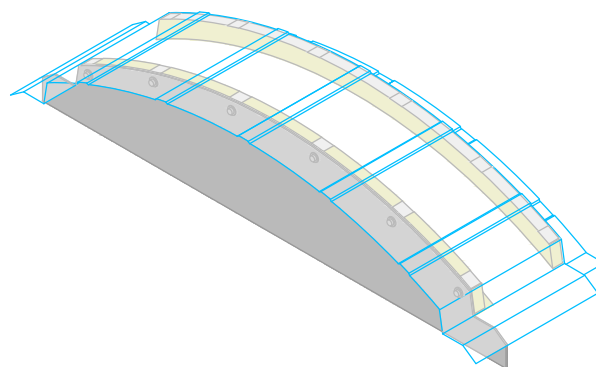
Aluminium top stop-end unit



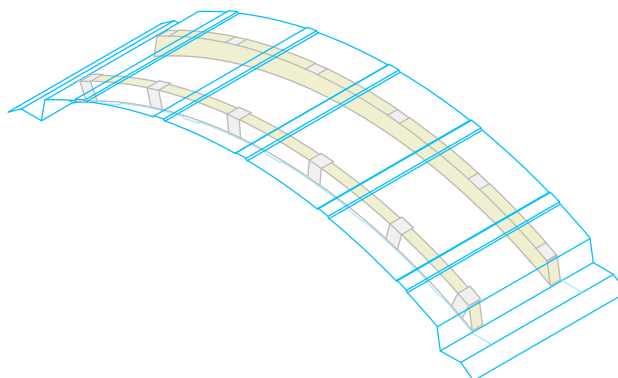
GRP flat plate top stop-end unit



Aluminium bottom stop-end unit

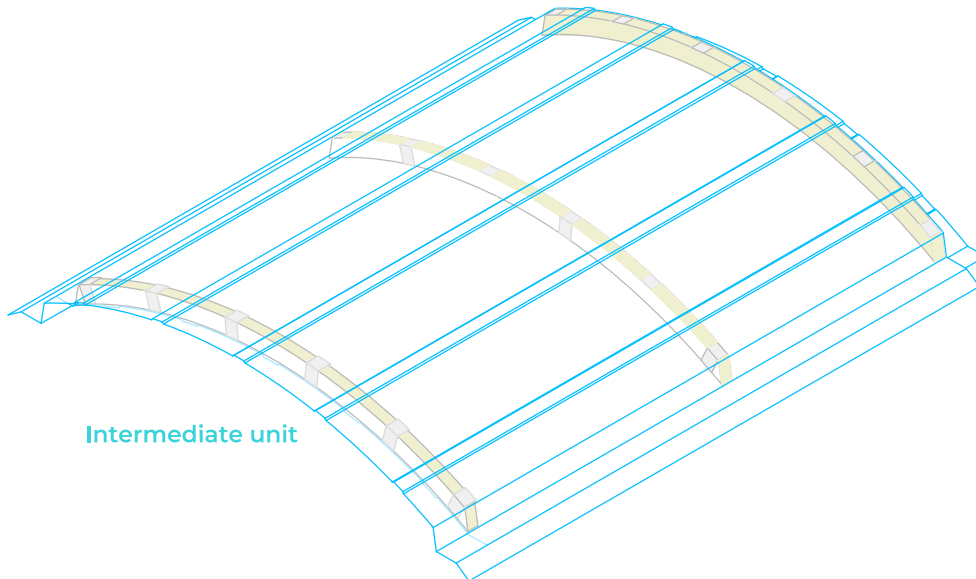


GRP flat plate bottom stop-end unit



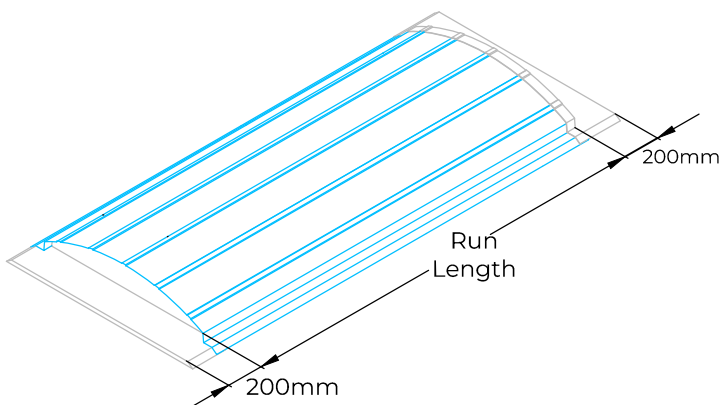
Crown unit for the centre of a rooflight run  
that extends over the apex of a curved roof

Monarch F Components

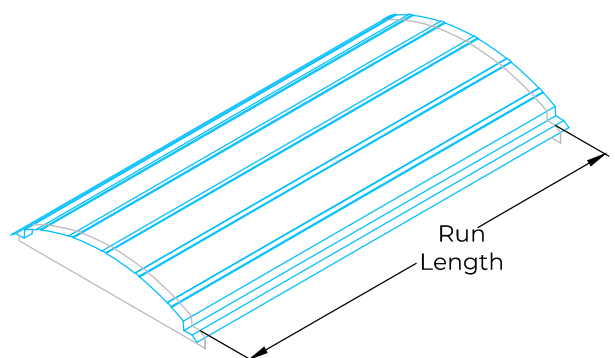


Monarch F Run Length

A Monarch F rooflight run may be of any length and the individual Monarch F intermediate units can be tailored to suit. The maximum unit length (box length) for flat, ridge mounted or pitched roofs is 3m. On curved roofs between 25m to 70m radius the maximum unit length is 1.5m. For a roof radius of between 71m and 150m the maximum unit length is 2.0m and for a roof radius above 150m the maximum unit length is 3.0m.



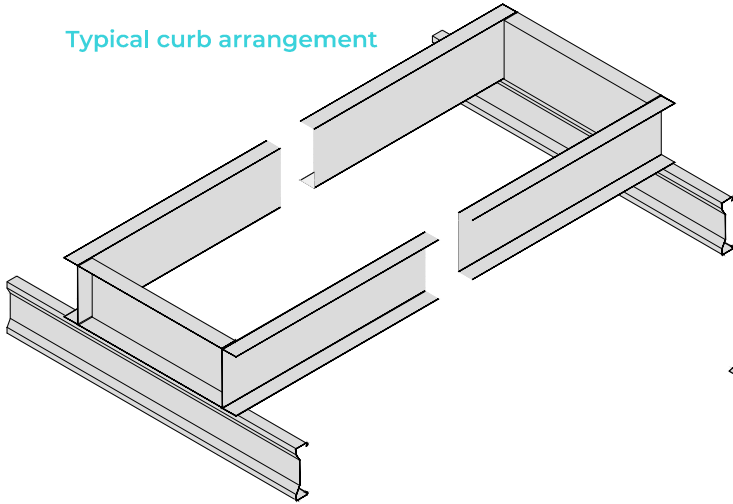
Monarch F rooflight run with an aluminium top and bottom stop-end for Monarch F rooflights located at the same level as the roof



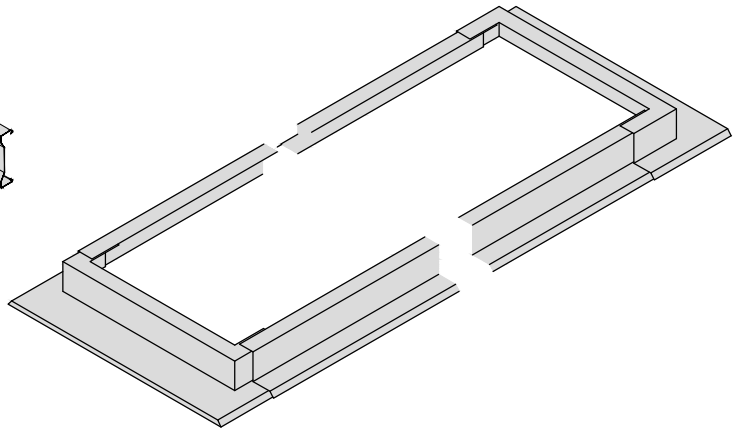
Monarch F rooflight run with Filon Plate stop-ends for Monarch F rooflights located above the roof level

Monarch F Supports and Flashings

Typical curb arrangement

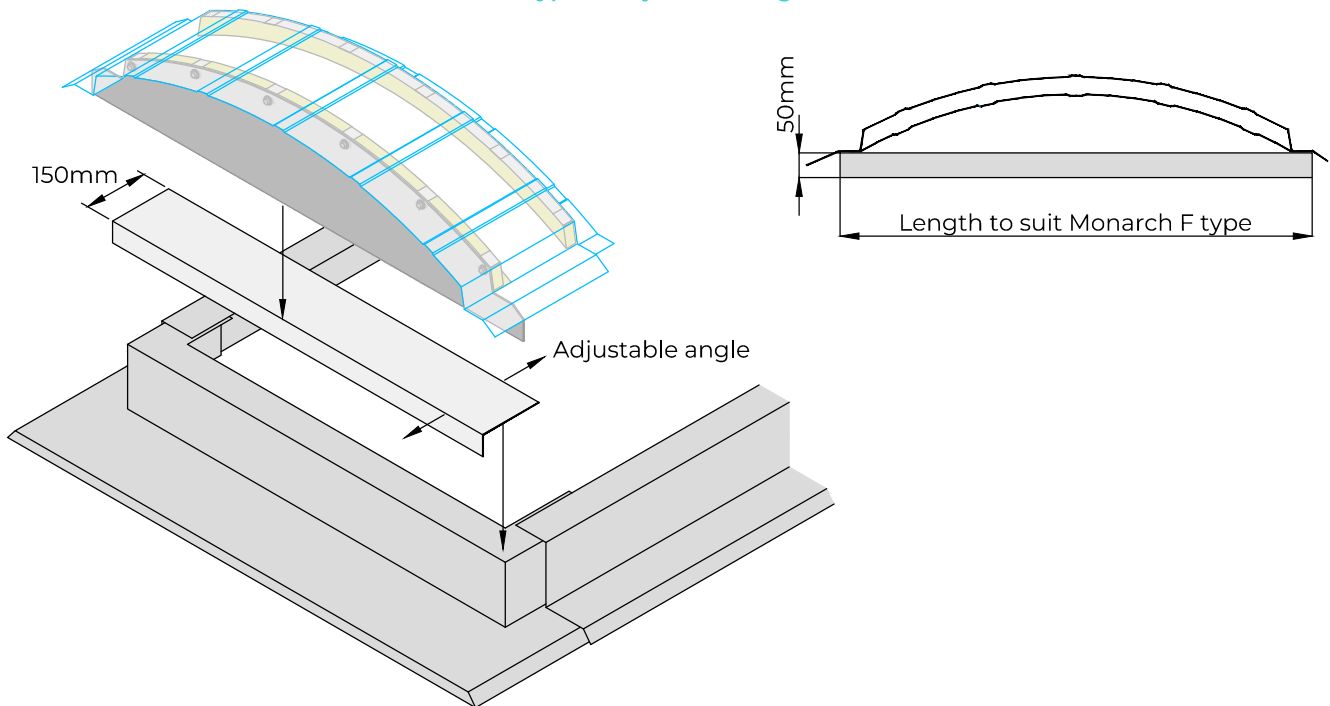


Typical flashing arrangement



The curb and flashing arrangements shown above are typical for an application where the Monarch F rooflight is elevated above the plane of the roof. For applications where the Monarch F rooflight is located on the same plane as the main roof, the support and flashing arrangement may depend on the roof system used. Curbs supports and any flashings at sides and ends are not supplied by Filon Products Limited. Curbs should be of sufficient strength and stability to withstand any expected wind and snow loads and to prevent excessive flexing of the Monarch F rooflights.

Typical adjustable angle

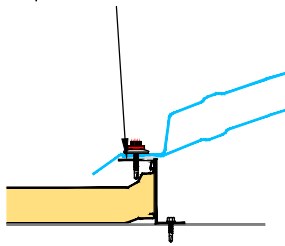


An adjustable angle supplied by others may be used at the ends of a Monarch F run where flat plate stop-end units are located. This will allow any run length adjustment to be made should it be required. The adjustable angle should be of a similar material specification to the curb supports.

## Typical Fixing Recommendations Main Fasteners and Seals

Two runs of 6mm x 5mm, high grade, cross-linked butyl mastic tape approximately 30mm to 40mm apart located either side of the main fasteners

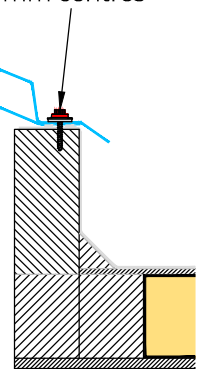
Austenitic stainless steel main fasteners resistant to winding out, with minimum 29mm diameter sealing washers at maximum 300mm centres



Typical application, low curbs or supports at the same plane as the roof

**Note: UV stable, water resistant, self-adhesive expanding foam tape with high durability may be used between the Monarch units, adjustable angles and the curb supports in the event that the top surface of the curbs are uneven, as may be the case for a refurbishment project**

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

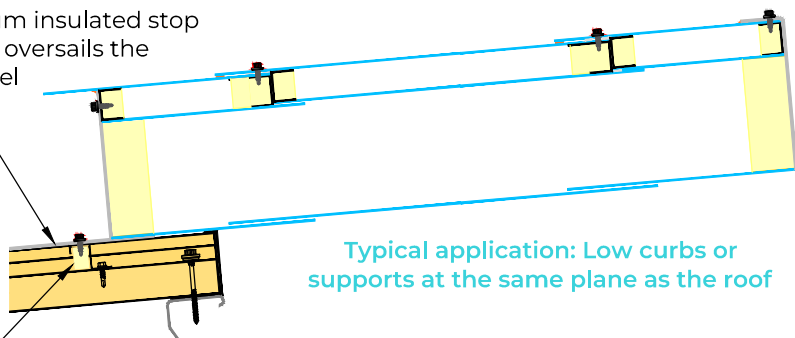


Typical application, raised curbs above the plane of the roof

## Stop-end Fixing and Sealing

Filon aluminium insulated stop-end unit that oversails the main roof panel

Filon aluminium insulated stop-end unit that extends under the ridge or apron flashing



Typical application: Low curbs or supports at the same plane as the roof

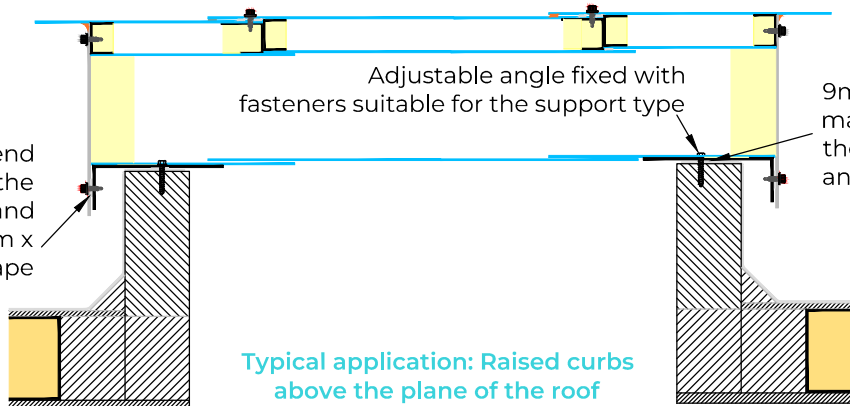
Detail here may depend on the roof system used

Profiled filler and zed or similar sealed to the stop-end and roof panel

Filon flat plate stop-end unit stitched to the adjustable angle and sealed with 9mm x 3mm butyl mastic tape

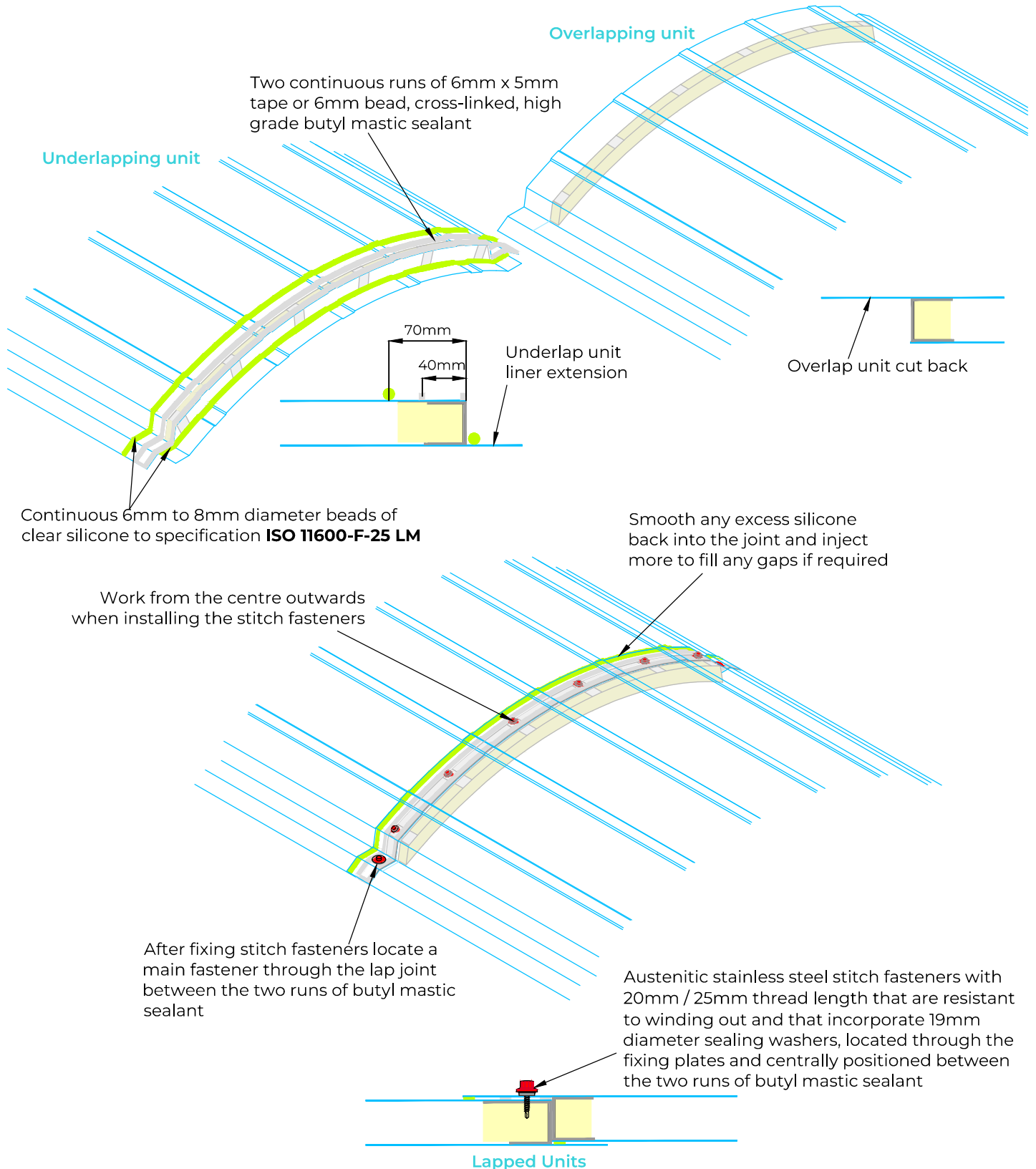
Adjustable angle fixed with fasteners suitable for the support type

9mm x 3mm butyl mastic tape between the adjustable angle and the curb support

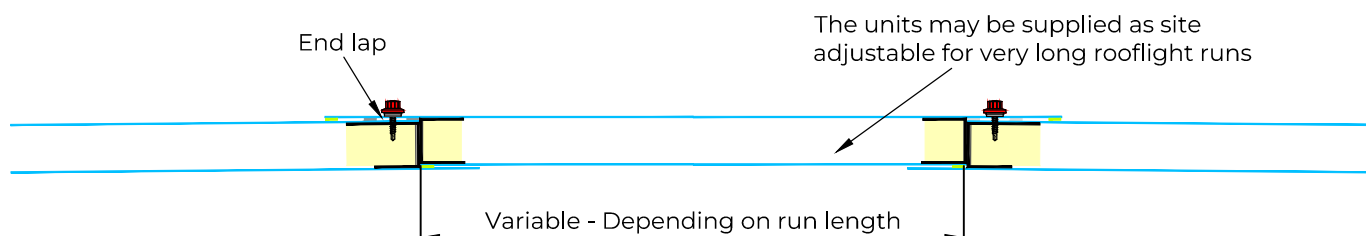


Typical application: Raised curbs above the plane of the roof

Typical Fixing Recommendations  
End Laps



**Typical Fixing Recommendations**  
**Crown Unit for a Curved Roof**



**General fixing recommendations**

**Main fasteners and seals**

Filon Monarch F rooflights should be secured to existing steel curb supports or new steel support curbs with minimum 5.5mm diameter, self drill/tap austenitic stainless steel screws that are resistant to winding out; use wood screws for timber curbs. Main fasteners should incorporate minimum 29mm diameter sealing washers and be spaced apart at maximum 300mm centres. Main fasteners should be located through the centre of the Monarch F 'wings'. Two continuous runs of 6mm x 5mm, high grade, cross-linked, butyl mastic tape positioned approximately 30mm to 40mm apart should be located between the Filon Monarch F rooflight wings and the support curbs.

**End laps**

The outer sheet end laps should be stitched with 20mm to 25mm thread length austenitic stainless steel stitch screws that are resistant to winding out and that incorporate 19mm diameter sealing washers, located through the Monarch F rooflight's internal fixing plates. The joints should be sealed with two continuous runs of 6mm x 5mm tape or 6mm bead, high grade, cross-linked butyl mastic sealant. The sealant runs should be located on both sides of the stitch fastener line. A continuous run of 6mm to 8mm bead, gun applied silicone to classification ISO 11600-F-25 LM should be applied 10mm to 15mm from the leading edge of the overlapping sheet within the joint to provide a supplementary seal and prevent dirt ingress. The inner skin of an underlapping unit extends under the box end of an overlapping unit. A continuous run of 6mm to 8mm bead, gun applied silicone to classification ISO 11600-F-25 LM should be applied on the underlap unit's extended lip close to the box end.

**Stop-ends**

Stop-end units that are designed for low curb applications or with other low level purpose made support components, should be fixed and sealed to the units above or below them as described for end laps above. Top stop-end units are designed to extend under a ridge flashing or apron flashing if used off ridge. Bottom stop-end units are designed to extend over the main roof covering and would typically be used with a purpose made profile filler supplied by others when used with a profiled metal system.

Filon plate stop-end units are designed for use with elevated curb support systems that raise rooflights above the main roof level. The use of adjustable galvanized steel angles as shown on Pages 5 and 6 will accommodate any adjustment that may be necessary. The adjustable angles would typically be as wide as the distance between the horizontal outer edges of the Monarch F rooflight wings before they angle down. The adjustable angles should be fixed and sealed to the support structure at the Monarch F rooflight run ends and the Filon plate stop-ends may be stitched and sealed to them in turn.

**Crown units for curved roofs**

Crown units used at the apex of a Monarch F rooflight run on a curved roof should be fixed and sealed to the intermediate units on either side of them as described for end laps above. It may be necessary to dry lay the Monarch F rooflight run prior to fixing to establish the crown unit position. For very long rooflight runs a site adjustable crown unit may be required. Contact the Filon Technical Department for recommendations.

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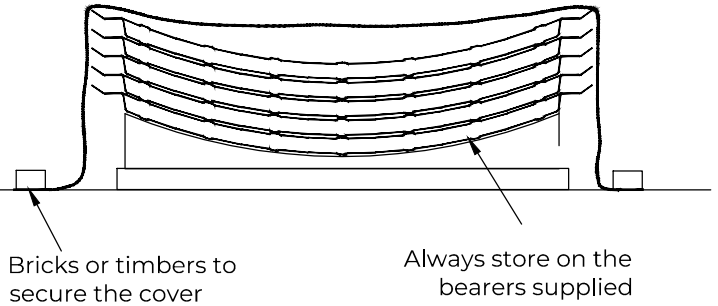
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## Site Works

### Storage

Filon Monarch F rooflights are delivered shrink wrapped on pallets with shaped supports.

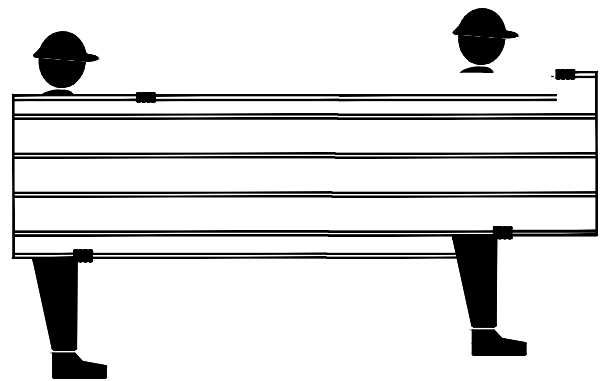
Store indoors whenever possible. If it is essential to store outside, protect packs with opaque waterproof covers once the original wrapping has been removed, during the night or the weekend for example and secure against theft or wind damage. Avoid allowing standing water on the top of the pack.



### Handling

The appropriate PPE, including anti-cut gloves, should be worn when handling Filon Monarch rooflights. Units must be carried by a minimum of two people as shown to avoid twisting or bending them.

Packs should be lifted onto the roof in the original wrapping to prevent damage. Spreader forks, lifting beam or similar should be use when offloading and lifting the packs.



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