

FILON MONARCH

Double Skin Barrel Vault Rooflights

Introduction

FILONMONARCH factory assembled double skin GRP barrel vault rooflights, are designed for use in conjunction with shallow roof pitches, standing seam and secret fix roofing systems, continuous ridge applications and flat deck roofs. They are suitable for use on curved roofs down to a minimum of 25m radius.

FILON MONARCH rooflights are fabricated from Filon sheets which are robust and shatter resistant. They are unaffected by high or low temperatures. The diffusing characteristics of Filon sheets, which scatter transmitted light, ensures even light distribution without internal glare or excessive shadows.

Surface protection for long term durability is provided by proprietary **FILON ISOFLEX** gelcoats, which are applied to the weather surface during manufacture.

FILON MONARCH rooflights project above the plane of the roof. This is one of the primary 'HSE' recommendations to reduce the risk of a person falling through a rooflight. When fixed they meet the 'HSE' impact test for *non-fragility*. Although such rooflights can not be readily walked on, they will withstand the impact of a person accidentally falling on them.

When used in an environment where the rooflights may be subject to mechanical damage, **FILON MONARCH** rooflights are available with extra strong **FILON SupaSafe** top sheet. Rooflights with **FILON SupaSafe** top sheet will remain durable and *non-fragile* for 25 to 30 years. For additional technical information on **FILON SupaSafe** please refer to datasheet titled 'FILON DR and FILON SupaSafe'.



A typical FILON MONARCH Application

Fig.1 - FILON MONARCH 500/508

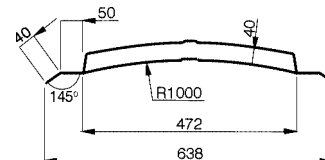


Fig.2 - FILON MONARCH 800

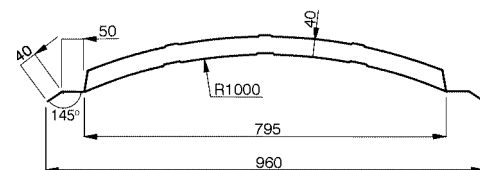


Fig.3 - FILON MONARCH 1000/1016

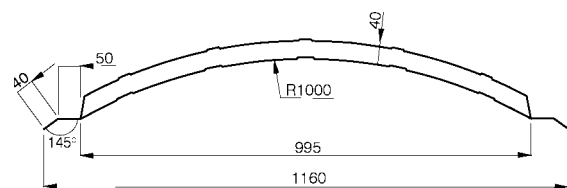
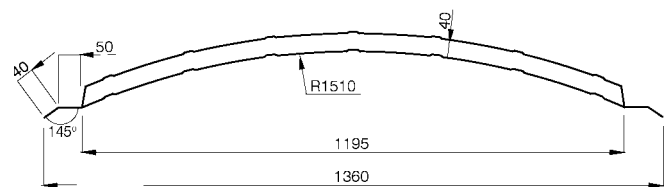


Fig.4 - FILON MONARCH 1200



Product Range

Details and dimensions of standard **FILON MONARCH** rooflights are illustrated in **Figs 1, 2, 3 and 4**.

Rooflights are supplied in lengths up to 4.2m. They can be butt jointed to form continuous runs.

End closures are either moulded GRP, flat Filon or preformed protected steel. The closures are designed to meet specific design requirements. Refer to working drawings on **Pages 3, 4, 5 and 6**.

Alternative rooflight designs and widths to suit openings up to 1200mm can be supplied subject to minimum quantities.

Nominal Weights

Rooflights manufactured from standard sheets = 4kg/m²

Rooflights manufactured from SupaSafe top sheets = 6kg/m²

Keywords :- Roof Windows - Overlapping Sheets - Reinforced Plastics

Physical Properties

Table 1 - Physical Properties

Thermal Transmission 'U' (Value for Design Purposes)	3.3 W/m ² °K
Thermal Movement (Coefficient Linear Expansion)	25 x 10 ⁻⁶ per °K
Operating Temperature	-20°C to +100°C
Light Transmissions (Percentage of Natural Daylight)	
❖ Fabricated from Standard Sheets	80%
❖ Fabricated with SupaSafe Top Sheets	74%

Durability

Long term surface protection is provided by a proprietary **FILON ISOFLEX-S** gelcoat applied to the weather surface during manufacture.

Accelerated weather tests by an independent test laboratory under Clause 5 of BS EN 1013:1-1998 Part 1 'Light Transmitting Profiled Plastic Sheeting for Single Skin Roofing' have classified **FILON ISOFLEX-S** protected rooflights as follows :

- ❖ Clause 5.2 : Light Transmission **Category L₀**
- ❖ Clause 5.4 : Variation of Yellow Index and Light Transmission After Ageing Procedure **Classification A₀**

These are the **highest** classifications under this standard.

The above accelerated ageing process involves continuous exposure to very high levels of 'UV' radiation for 4,500 hours (over 6 months) under wet and dry conditions.

In aggressive chemical and marine environments an alternative **FILON ISOFLEX-C** is available. Whilst this coating has similar resistance to 'UV' degradation as **FILON ISOFLEX-S**, it provides additional protection in such environments.

Fire

Filon performance on **FILON MONARCH** units when tested to BS 476 'Fire Tests' are as follows :

- ❖ Outer Skin designated **AB : Part 3**
 - ❖ Liners designated **Class 1 : Part 7**
- Rooflights with higher fire resistance can be supplied.

Limitations

In buildings where high levels of humidity or harsh aggressive atmospheres are likely, consult Filon Technical Services for recommendations.

Applications

FILON MONARCH rooflights are suitable for new build and refurbishment projects.

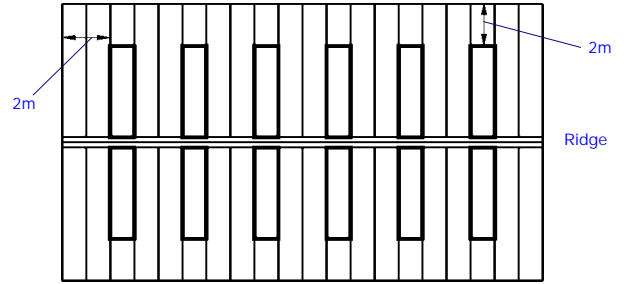
On new build, proposed regulation EN1873 requires a minimum curb height of 150mm above the general roof plane. Typical applications are illustrated on **Pages 2, 3 and 4**.

On refurbishment projects, particularly where thermoplastic barrel vault rooflights have been used, supporting curbs are generally in line with roof sheets. See **Page 5** for typical details.

Other applications include continuous barrel vault rooflights fixed along the ridge and rooflights secured to prepared curbs on deck constructions. Recommended details are illustrated on **Page 6**.

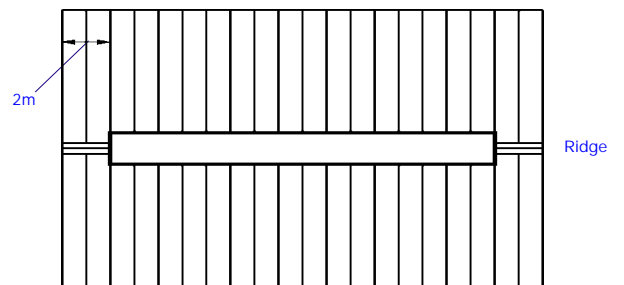
Typical Roof Layouts for FILON MONARCH Rooflights

Fig.5 - Ridge Down Rooflight Layout



- ❖ Rooflights to be fitted down from the ridge purlin.
- ❖ Do not locate rooflights within 2m of exposed edges or adjacent boundary wall gutters, otherwise edge protection will be required when cleaning.
- ❖ To reduce risks during assembly and subsequent maintenance, the minimum recommended space separation between rooflights should not be less than 2m.
- ❖ Rooflights can be butt jointed to form continuous runs.

Fig.6 - Continuous Ridge Rooflight Layout



- ❖ Do not locate within 2m from an exposed verge.
- ❖ Rooflights can be butt jointed to form continuous runs.

Ridge Down Applications - New Build - 150mm curbs to comply with draft EN1873

Fig.7 - Supporting Curb Assembly

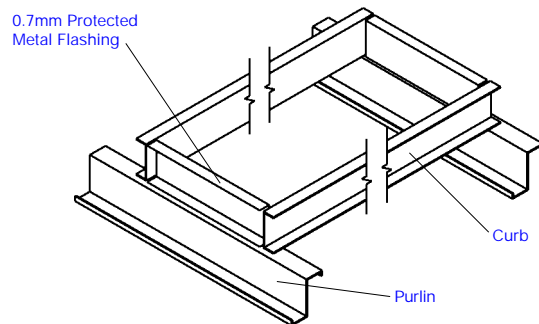


Fig.8 - Preformed Flashing Assembly

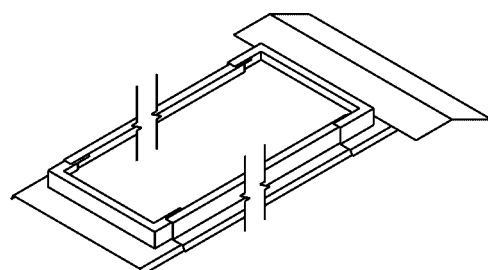


Fig.9 - Typical FILON MONARCH Cross Section Detail

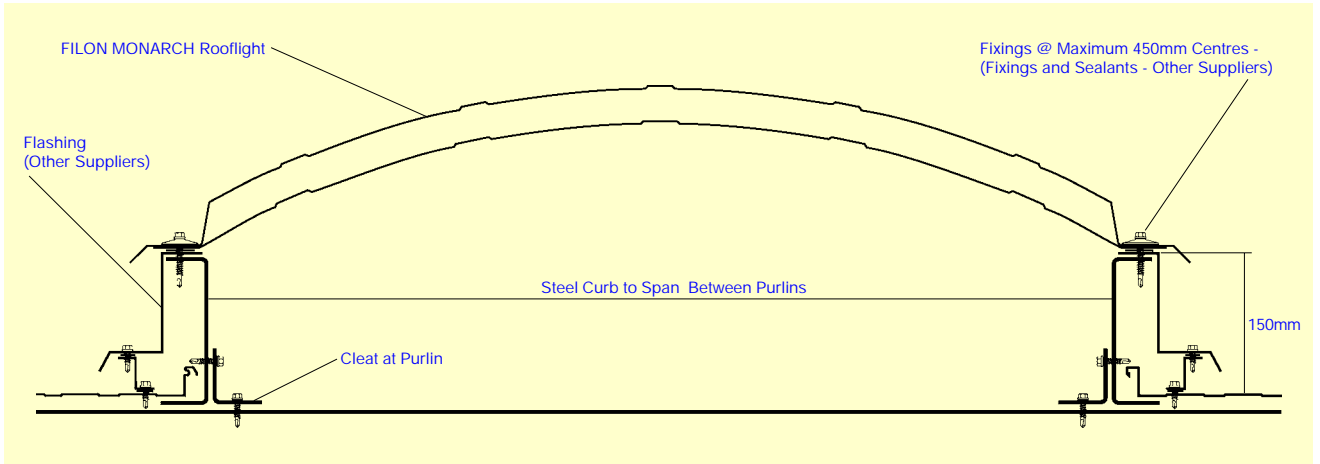


Fig.10 - Detail at Bottom Edge

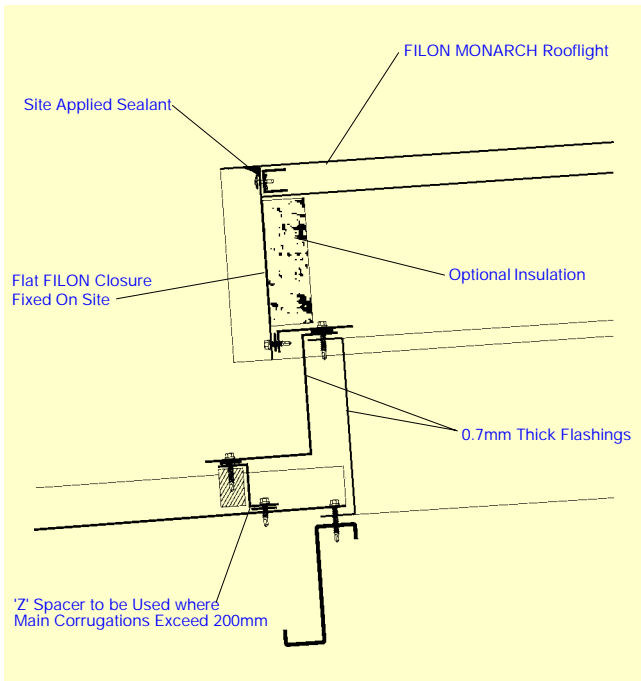
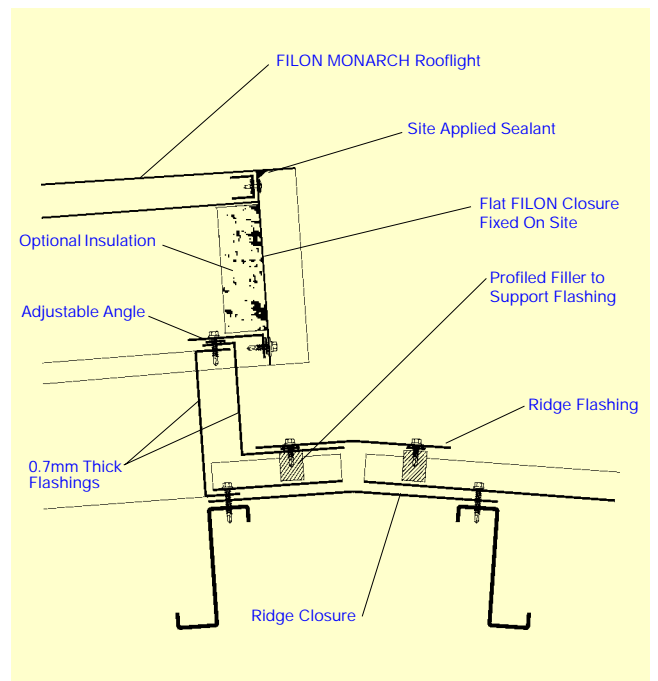


Fig.11 - Detail at Ridge



Note : Liners and insulation detail have been omitted for clarity.

FILON Monarch on a Ridge Down Application



Fig.12 - Typical FILON Monarch Cross Section Ridge Detail

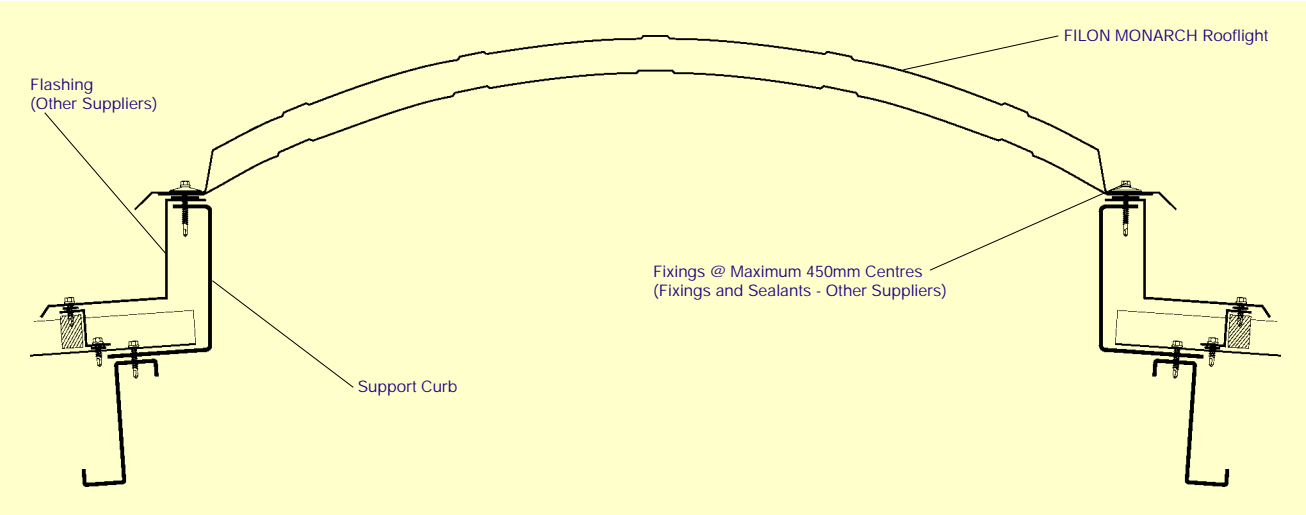


Fig.13 - Ridge Mounted Rooflight Showing External Flashing Details

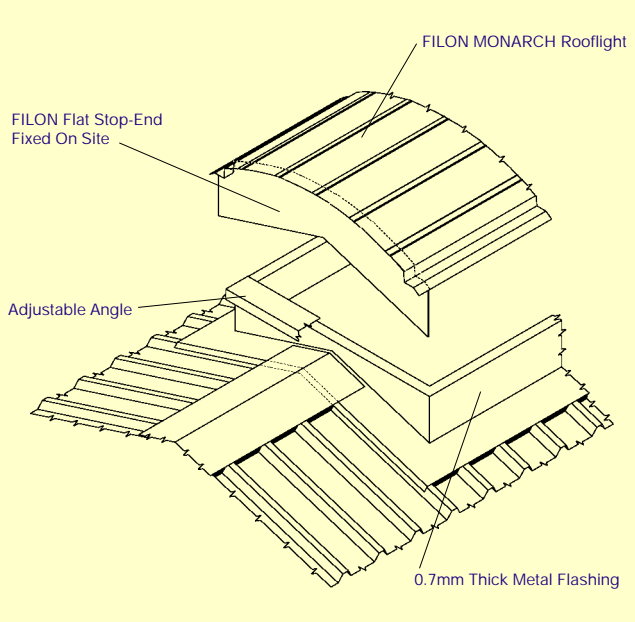
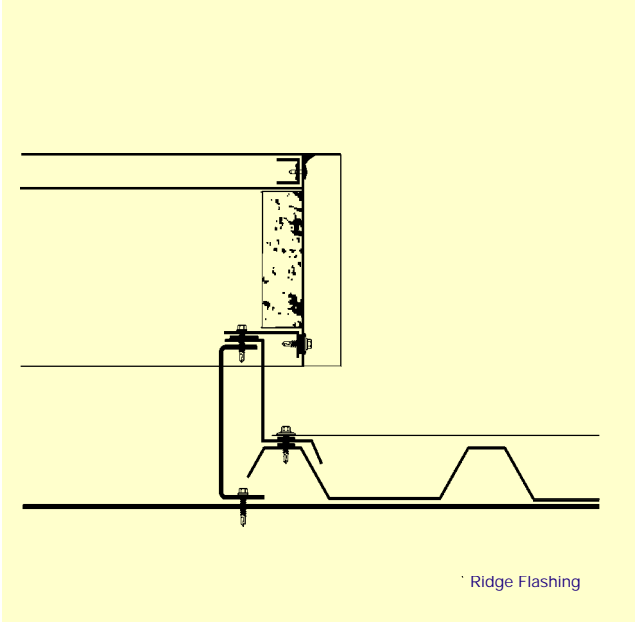


Fig.14 - Detail Ridge Application



Note : Liners and insulation detail have been omitted for clarity.

FILON MONARCH on a Continuous Ridge Application



Fig.15 - Typical FILON MONARCH Cross Section for Rooflight Replacement onto Existing Curbs

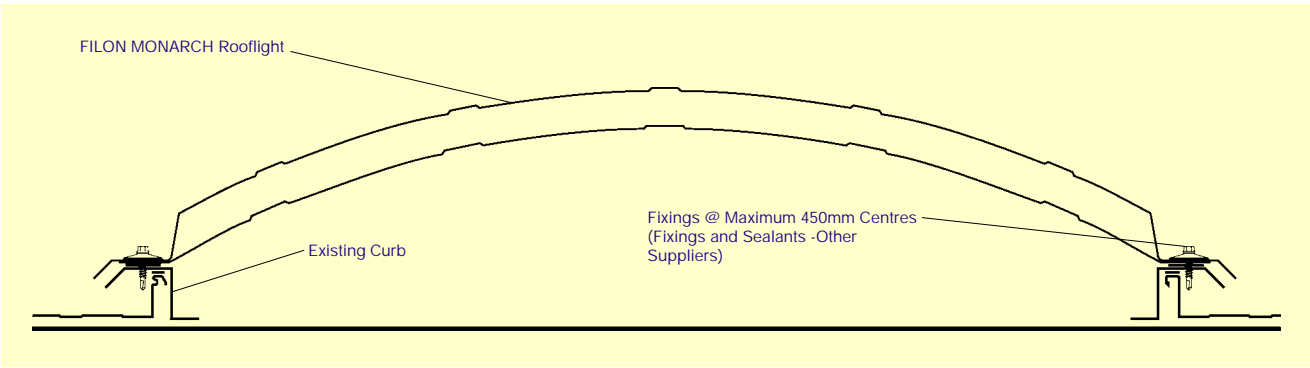


Fig.16 - Lower End Detail with Shaped Metal Stop-End

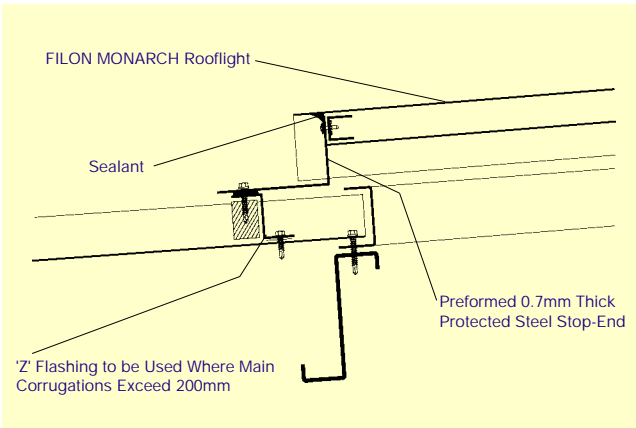


Fig.18 - Ridge Down Detail with Moulded GRP Stop-End

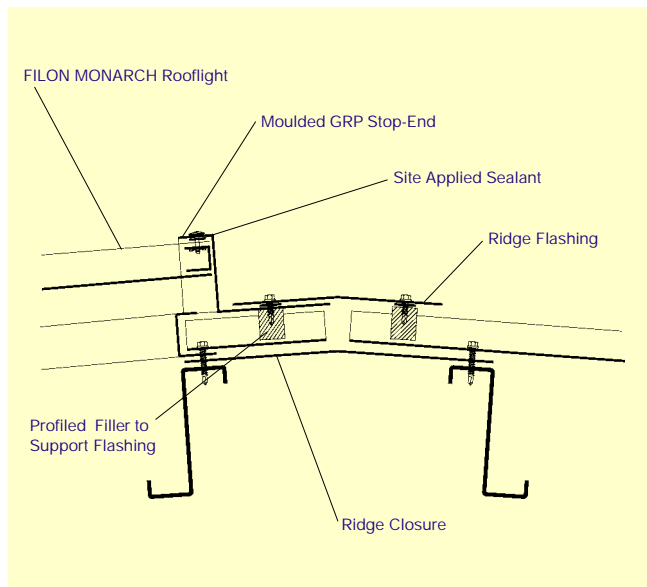
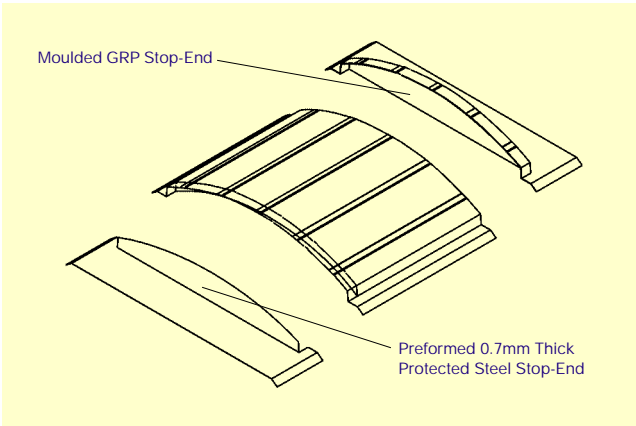


Fig.17 - Typical Monarch Stop-Ends



Note : Liners and insulation detail have been omitted for clarity.

FILON MONARCH Ridge Down Application which Illustrates the Moulded GRP Stop-Ends.



Fig.19 - Typical FILON MONARCH Cross Section Detail on Flat Metal Decked Roof

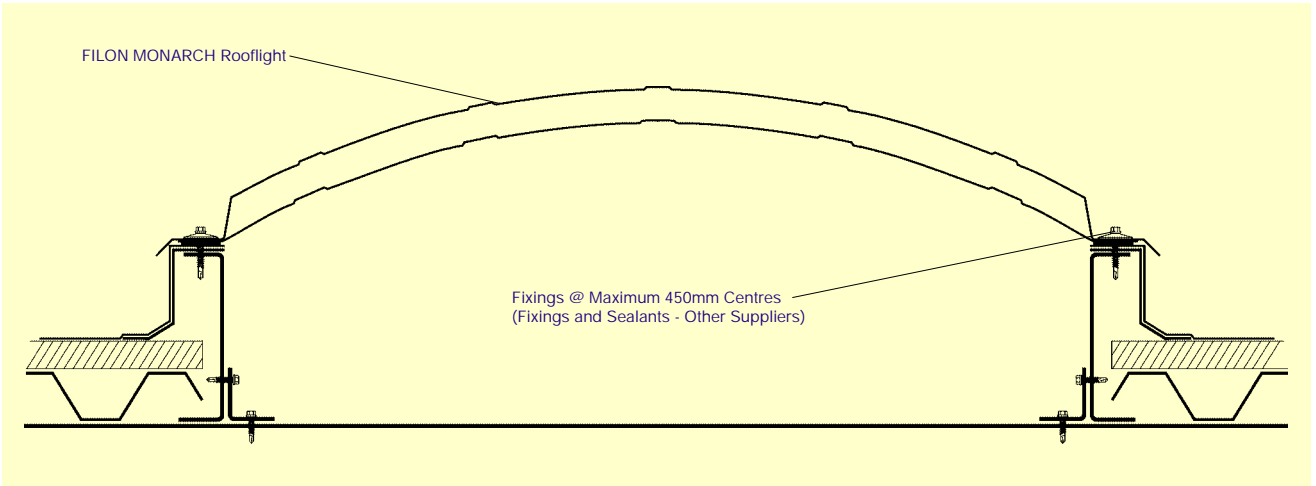


Fig.20 - Detail on Flat Metal Decked Roof

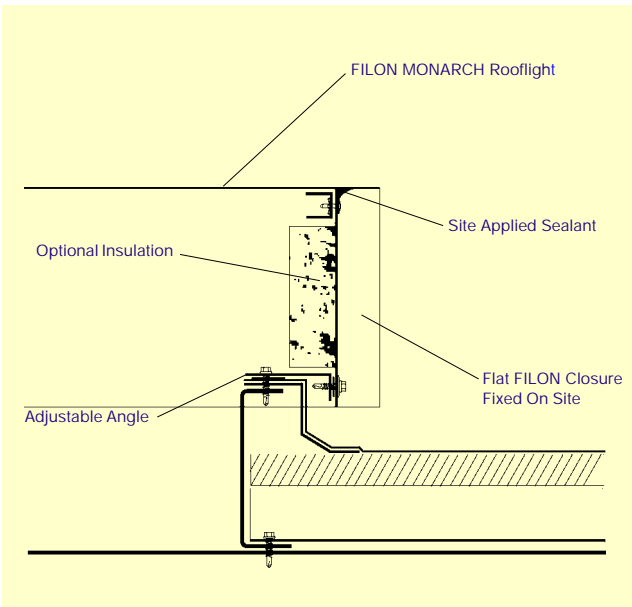


Fig.22 - Detail on Flat Roof with Builder's Curbs

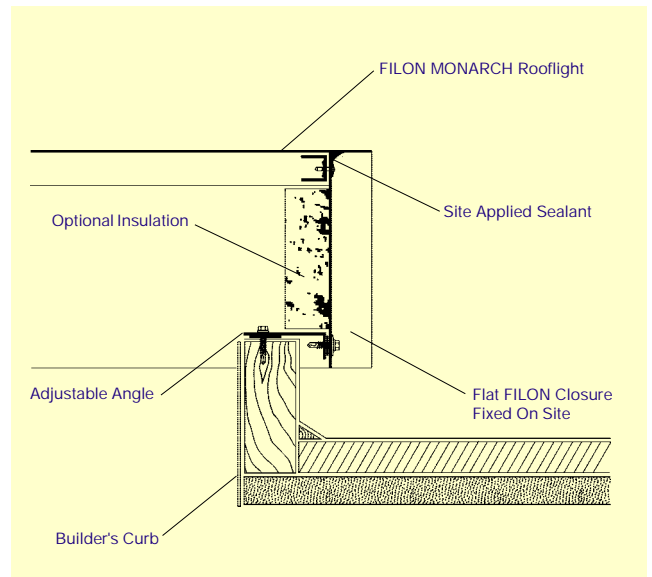
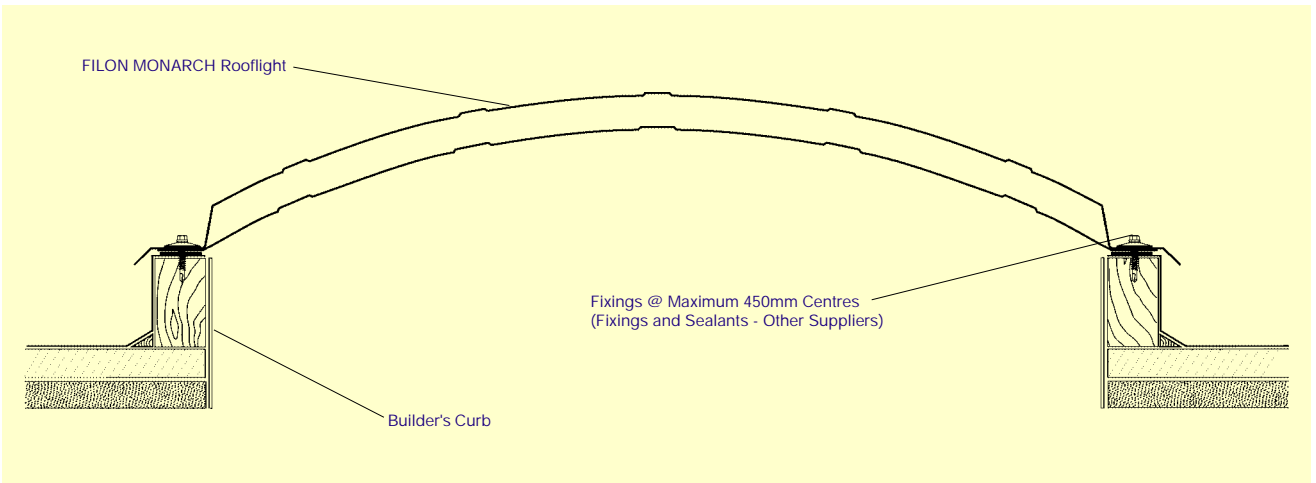


Fig.21 - Typical FILON MONARCH Cross Section Detail on Flat Roof with Builder's Curbs



FILON MONARCH rooflights can be used on curved roofs down to 25m radius.

As it is necessary to make minor adjustments to joint assemblies when used in continuous runs, the radius must be confirmed when placing the order.



A typical FILON MONARCH Curved Roof Application

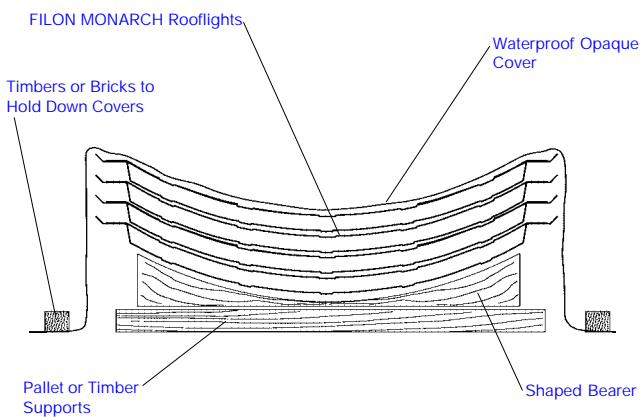
Siteworks

Storage

FILON MONARCH rooflights are delivered shrink wrapped on non-returnable pallets.

If it is essential to store rooflights outside, these must be fully protected with opaque waterproof covers. If not protected a stack of translucent rooflights act as a *solar collector* and any entrapped water will *boil* which will discolour the units.

Fig.23 - FILON MONARCH Stacking Arrangement

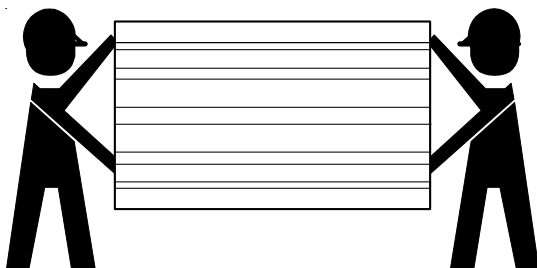


Stacks should be frequently inspected to ensure that water has not penetrated the stack.

Handling

Take care not to twist the rooflights when handling.

The following sketch illustrates the recommended method of carrying rooflights.

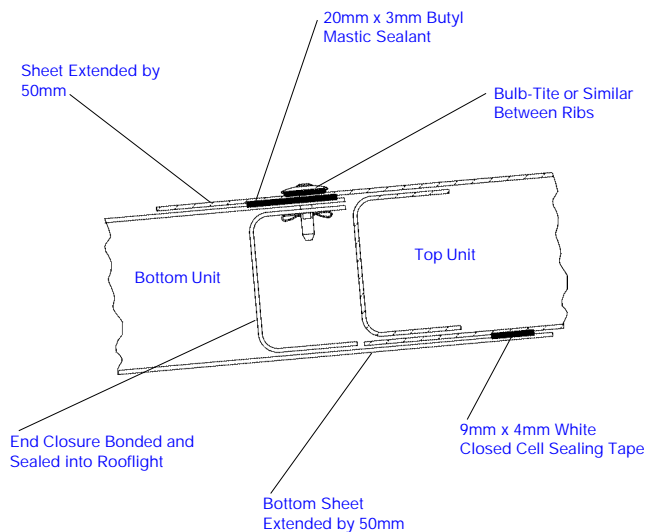


Fixing

To comply with 'HSE' *non-fragile* requirements, rooflights must be fixed to curbs with fasteners incorporating 29mm dia. washers. The centres of the fasteners must not exceed 450mm.

When installed in continuous runs, units are jointed and sealed as illustrated in **Fig 24**.

Fig.24 - FILON MONARCH Intermediate Joint Detail



Labour Safety

All rooflights must be considered *fragile* until they are correctly fixed as recommended.

Work should be completed in accordance with the working practices detailed in the current 'HSE' publication '**Health and Safety Booklet HS(G) 33**'.

Additional safety information is presented in Filon publication '**Guide to the use of FILON GRP Rooflights to meet HSE Construction (Design and Management) Regulations 1994 (CDM)**'.

Supply

Sheets are manufactured to order. They can be obtained through a nationwide network of distributors and major contractors.

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