

FILON **SupasaFe** Non-fragile GRP Rooflights



FILON SupasaFe as a Canopy and also with Metal Roofing

Keywords : - Roof Finishes - Overlapping Sheets - Reinforced Plastics

Introduction

Extra Strong FILON SupasaFe GRP rooflights -

- ☛ Equals the strength and durability of 0.7mm thick protected steel sheets.
- ☛ Will remain *non-fragile* for the life of the roof. This meets the "HSE" preferred option for long term *non-fragility*.
- ☛ Designed at a thickness which ensures "tight" end and side laps with metal sheeting.
- ☛ Install to the same specification as the steel sheets.

Product Range

FILON SupasaFe rooflights are manufactured from polyester resins and glassfibre and incorporate two additional reinforced woven glass mats. These additional reinforcement layers and the method of incorporating them into the rooflights during manufacture, are used in the marine industry to increase the strength and impact resistance of GRP naval vessels.

This additional reinforcement is clearly visible, as illustrated in **Fig.1**, giving the roofer confidence that the rooflights are safe.

This extra reinforcement produces strength and impact resistance comparable to much thicker conventionally produced GRP sheets.

Controlling the sheet thickness provides an improved profile match with thin adjacent trapezoidal profiled metal sheets, compared to thicker rooflights which do not sit down as tightly at end laps.

The improved profile definition of **FILON SupasaFe** rooflights offers well fitting, sealed watertight joints. This is clearly illustrated in **Fig.2**.

FILON SupasaFe rooflights are available in Class 0, Class 1 and Class 3 fire grades and lengths up to 8m to match most metal and fibre cement profiles. Opaque sheets are available for use in hostile chemical environments and to match metal profiles which are no longer available.



Fig.1 - FILON SupasaFe illustrating the Stitched Woven Mat Reinforcement

Comparison of Mechanical Properties with Standard GRP Rooflights

Table 1 : Structural and Mechanical - Typical Values

	Standard Weight GRP	FILON SupasaFe
Nominal Panel Weight (kg/m ²)	1.83/2.44	4.5
Nominal Thickness (mm)	1.00/1.40	2.5
Tensile Strength (N/mm ²)	80	140
Flexural Strength (N/mm ²)	180	300
Flexural Modulus (KN/mm ²)	4.0	5.0
% Light Transmission	90	85
% Glass Content	30	35
Barcol Hardness	50	60
Impact Strength (Joules) Single Drop	530/1060	2200

The above values confirm that **FILON SupasaFe** rooflights are at least **four times stronger** than standard weight GRP rooflights.

Fixings

Fix and seal **FILON SupasaFe** rooflights to the same specification as the matching profiled metal sheets. Designers and contractors must ensure the durability of the fasteners and sealants are comparable to the expected life of the roof.

Rooflights will require cleaning from time to time and to assist in identifying their location on the roof, the use of poppy red fasteners or caps is recommended.

Durability

All external weathering sheets are normally supplied with a highly durable UV resistant **Melinex** film to the weather face. This extends the durable working life of the sheet and the UV resistance limits sheet yellowing. Under normal atmospheric conditions sheet life should be in excess of 30 years.

Independent accelerated weathering tests completed under ISO 4892 and EN 1013-1 1997 **Light Transmitting Profile Sheeting**, confirms that FILON rooflights meet the highest durability classification under this standard.

Where very aggressive chemical environments exist FILON sheets can be provided with gel coats to the weather face and the internal face of lining panels. FILON Citadel Isoflex gel coats are chemically inert to most aggressive chemical environments and can be used in opaque format to substitute for metal sheets that would otherwise readily corrode.

Fire Resistance

FILON SupasaFe rooflights are manufactured in three fire retardant grades. This enables the most economical products to be selected to meet Building Regulations.

They have been tested under the conditions laid down in **BS 476**: "Fire Tests" and have been rated in accordance with **Table 2**.

Table 2 : Fire Performance Ratings

FILON Grade	Part 3	BS 476 Part 6	Part 7	Colour Identification ²
101	AA	(I) < 12 ¹ (i) < 6	Class 1	Brown Nylon Threads Dark Brown Labels
104	AA	(I) < 20	Class 1	Brown NylonThreads Light Brown Labels
300	AB	-	Class 3	Blue Nylon Threads Blue Labels

¹ By definition under UK Building Regulations, FILON Grade 101 sheets which have an index of performance of less than 12 and 6 when tested under BS 476 : Part 6, are designated **Class 0**.

² Coloured nylon identification threads are not used with tinted or flat sheets.



Fig.2 - FILON SupasaFe Blue Tint Fitted to Metal Profile, Underlap and Overlap, Illustrating Good Profile Matching

Impact Resistance

The impact resistance of **FILON SupasaFe** rooflights has been assessed in accordance with **ACR(M)001-2000 "Test for Fragility of Roofing Assemblies"**. This test supersedes the HSE "Special Inspectors Report 30"

Under the above test **FILON SupasaFe** rooflights, supported by purlins at 2.0m centres are rated **Class B Non-fragile** assembly. This is the same impact rating as 0.7mm profiled steel and aluminium sheets.

FILON SupasaFe as "Strong as Steel"

FILON SupasaFe is designed to be *non-fragile* for the life of the roof.

As illustrated in the photographs below, 0.7mm thick profiled steel sheets were subjected to impact tests which involved dropping a bag weighing 90kg twice from a height of 2.44m.

Identical drop tests confirm that **FILON SupasaFe** rooflights are as strong and durable as steel sheets.

GRP has been used extensively since the mid 1950's for building and marine applications such as the construction of sea going yacht hulls. From this experience we know that GRP will not rust, corrode or appreciably degrade.

FILON SupasaFe rooflights, with additional glassfibre reinforcement and *Melinex* surface protection, will remain as strong as the rest of the roof and *non-fragile* for the expected life of the surrounding steel or aluminium roof.



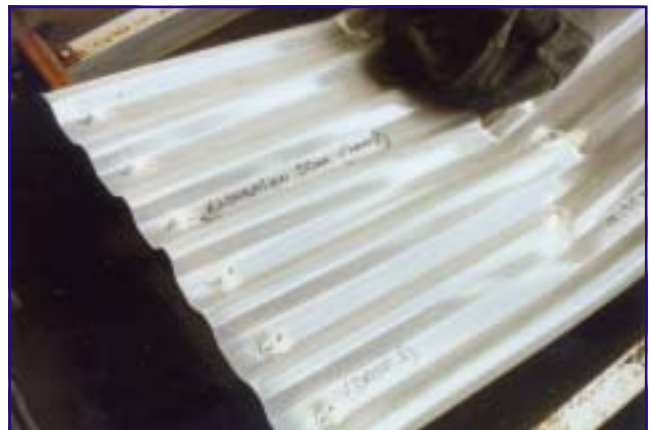
An unfixed **FILON SupasaFe** rooflight supports a 16 stone man carrying a heavy gas cylinder. This exceeds the requirements of HSG (33), where the above loadings would be applicable to a **fully fixed roof**.

Thus the *non-fragility* of **FILON SupasaFe** does not rely on the durability of the fixings or sealants.

0.7mm Steel Sheet - Results After 2 Drops



FILON SupasaFe - Results After 2 Drops



- In both cases the sheets buckled and tearing occurred round the sheet fasteners.
- Sheet tearing in the metal sheet was **considerably worse** than the **FILON SupasaFe**.
- Both sheets retained the 90kg bag after two drops from 2.4m.

Health and Safety

Work should be completed in accordance with the working practices detailed in the current HSE publication "Safety in Roofwork HS(G) 33".

Prior to assembly the rooflights must be considered *fragile* until fixed in position.

Although **FILON SupasaFe** rooflights are designed to support foot traffic, walking on the sheets can damage the weather protective surface. This could reduce the long term durability of the surface, and it is recommended that foot traffic on **FILON SupasaFe** should be avoided. The "**Health and Safety File**" provided to the building owner should contain this recommendation.

Additional information on HSE requirements is provided in the 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 and can be obtained from a nationwide network of distributors and contractors.

Technical Services

Technical and advisory services are available from Area Sales Managers or Filon Technical Services Department.

Siteworks

Sheets are generally supplied loose. Store sheets on flat, clean, level battens located at 1.5m centres. Secure against theft and from being blown away.

Continuously protect sheets stored in the open with waterproof opaque covers otherwise, even on relatively dull days, sheet stacks will act as a solar battery boiling any entrapped moisture and discolouring the sheets. Inspect regularly to ensure that moisture has not penetrated the stack.

Maintenance

FILON SupasaFe rooflights require periodic cleaning to maintain light levels within the building. The frequency of cleaning will depend on the surrounding environmental conditions. The sheets should be washed with warm soapy water using a stiff brush. Persistent stains can generally be removed using white spirit.

Information Services

For further information about the Company, its Products and Services please visit our web site www.filon.co.uk.

In addition, there is a general product datasheet entitled "**FILON PRODUCTS - More than just glassfibre sheet for roofing and cladding**" outlining the range of products manufactured by the Company and the applications.



FILON SupasaFe Gold Tint for a Complete Re-roof at Rhyl Suncentre (replacing polycarbonate)

FILON is a trademark of Filon Products Ltd.

Information and recommendations contained in this publication are given in good faith without warranty or guarantee. Because we are constantly seeking to improve our products, we reserve the right to change specifications at any time. No liability can be accepted for any claims, losses or demands arising out of the contents of this publication. This statement does not affect any statutory rights which cannot be excluded by agreement.



FILON®

Filon Products Limited

Unit 3 Ring Road Zone 2 Burntwood Business Park
Burntwood Staffordshire England WS7 3JQ

Tel 01543-687-300

Fax 01543-687-303

e-mail : sales@filon.co.uk

website : www.filon.co.uk