

ROOFLIGHT APPLICATION GUIDE

In-plane rooflights for replacement and refurbishment applications in profiled metal roof systems

Non-fragility and durability of replacement rooflights or rooflights used for a refurbishment application such as an over-roof, are affected by factors such as the condition of the main roof, durability of components such as fasteners and sealants and correct installation. When a specific period of non-fragility is required a competent person should assess the main roof condition. All components used for the rooflight installation should have the same degree of durability as the rooflights.

Class B non-fragile to ACR[M]001 has been assumed for the roof types that follow, but it should be noted that the expected non-fragility classification and period of non-fragility for replacement rooflights will be no better than for the main roof. Contact the Filon Technical Department for recommendations to suit a specific application.

Please refer to the Filon Technical Information Sheet shown in brackets for application specific fastener, sealant types and fixing recommendations only. Fire performance and insulation requirements are covered at the end of this document.

Single Skin

Rooflight matches the profile of the main roof sheet profile



Sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof - See TIS101 for fixing details.

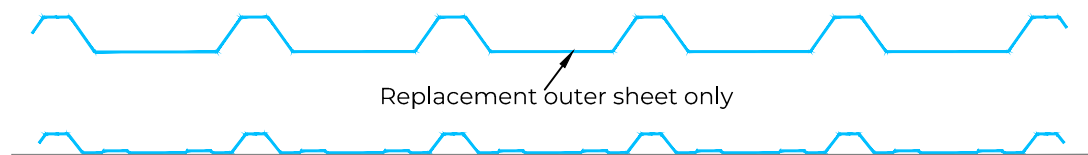
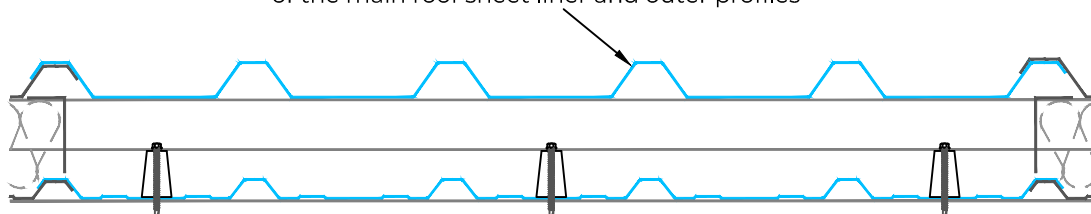
Filon sheet type	Expected period of non-fragility ⁽¹⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽²⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽²⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

⁽¹⁾The non-fragile classification and the expected period of non-fragility is subject to the factors detailed above.

⁽²⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

Site Assembled Built Up

Rooflight outer sheet and liner matches the profiles of the main roof sheet liner and outer profiles



Replacement outer sheet only

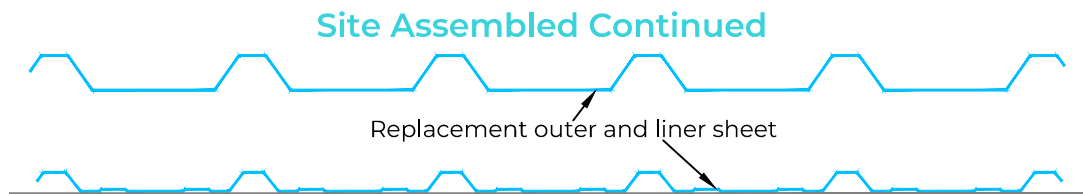
Outer sheet replacement only: Sheet types recommended to achieve Class B non-fragility in a Class B non-fragile Roof - See TIS101 for fixing details.

Filon sheet type ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	very frequent	0.6m to 2.5m

⁽¹⁾The sheet type for outer sheet replacement only is recommended to be the same as for a single skin rooflight because the existing liner strength and impact resistance is normally unknown and therefore non-fragility is reliant on the replacement outer sheet alone.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile when new, and for an expected period of 5 to 20 years depending on external factors as defined in the Rooflight Association guidance document NTDO3.1.



Outer and liner sheet replacement: Sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof with a 0.4mm gauge or similar steel liner - See TIS103 for fixing details

Filon outer sheet type with a CE18 or CE24 liner ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

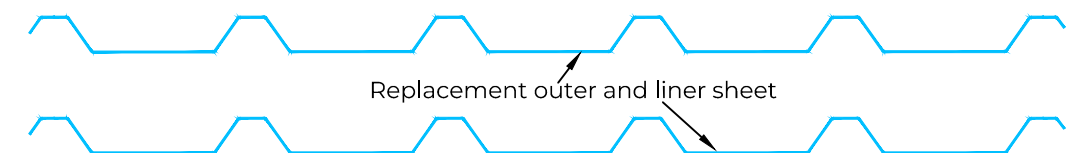
⁽¹⁾The replacement outer sheet type is recommended to be the same as for single skin rooflights for the following reasons: -

It is possible that replacement liners cannot be installed in accordance with Filon document TIS103 due to access limitations and other factors, therefore the non-fragility status of the replacement liner cannot be guaranteed.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

Site Assembled Built Up - 0.7mm Gauge Liner



Outer and liner sheet replacement: Sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof with a 0.7mm gauge or similar steel liner - See TIS102 for fixing details

Filon outer sheet type with a CE18 or CE24 liner ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

⁽¹⁾The replacement outer sheet type is recommended to be the same as for single skin rooflights for the following reasons: -

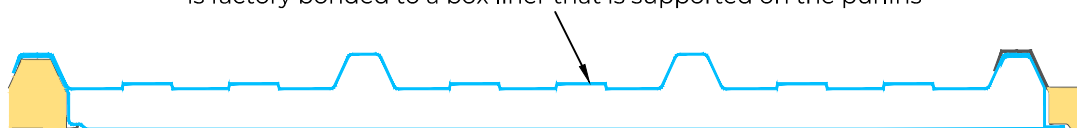
When first installed a minimum CE30 liner is recommended for this type of rooflight assembly as the liner layer is required to be Class B non-fragile before installation of the outer sheets. For replacement rooflights, a CE18 or CE24 liner will provide more flexibility during installation, but will not provide a Class B non-fragile classification, non-fragility is therefore reliant on the outer sheet alone. In addition it is possible that replacement liners cannot be fully installed in accordance with Filon document TIS102 due to access limitations and other factors, even if a minimum CE30 liner is used.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

Composite Panel Systems

Outer sheet matches the profile of the main roof sheet profile and is factory bonded to a box liner that is supported on the purlins



Factory assembled insulating rooflight (FAIR) replacement outer sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof - See TIS104 for fixing details

Filon outer sheet type	Expected period of non-fragility ⁽¹⁾	Recommended frequency of roof access	Recommended purlin spans
CE24E ⁽²⁾	5 to 20 years ⁽³⁾	Infrequent	Up to 2.0m
CE30E	25 years	Frequent	Up to 2.0m
CEDR24E	25 years	Frequent	Up to 2.0m
CE36E	25 years plus	Frequent	Up to 2.25m ⁽⁴⁾
CEDR30E	25 years plus	Frequent	Up to 2.25m ⁽⁴⁾
SUPASAFE E	30 years	Very frequent	Up to 2.5m ⁽⁴⁾

⁽¹⁾The non-fragility classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

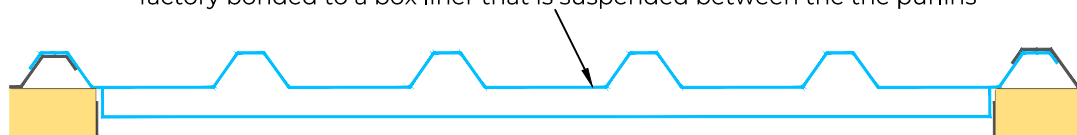
⁽²⁾CE24E outer sheet types will provide a Class B non-fragile classification but higher specification outer sheets may be required in areas of high wind loads or snow loads.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

⁽⁴⁾Mid-span stiffeners will be included in FAIRs over 2m long. These units can only incorporate polycarbonate cores, not film.

Older Roof Types: Typically Installed 1970's & 1980's

Outer sheet matches the profile of the main roof sheet profile and is factory bonded to a box liner that is suspended between the the purlins



Suspended box Factory assembled insulating rooflight (FAIR) replacement outer sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof - See TIS101 for fixing details

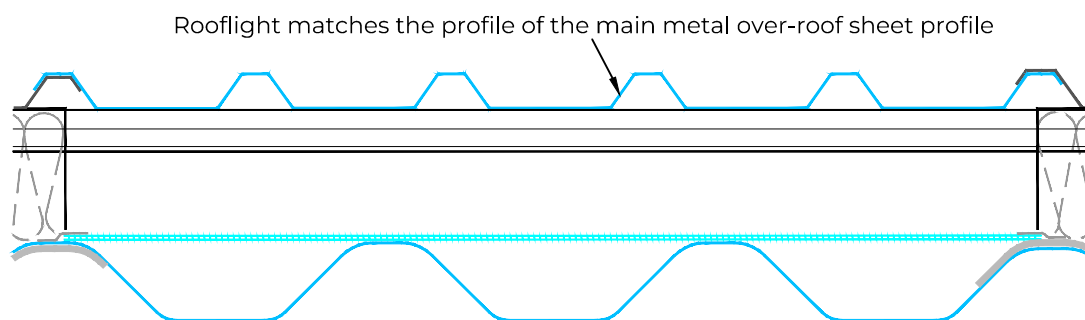
Filon outer sheet type ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

⁽¹⁾The outer sheet type for suspended box FAIRs is recommended to be the same as for a single skin rooflight because the unsupported box liner provides minimal contribution to impact resistance and therefore non-fragility is reliant on the replacement outer sheet alone.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

Profiled Metal Over-roof Over a Fibre Cement Roof



Over-roof rooflight sheet types to achieve Class B non-fragility in a Class B non-fragile over-roof - See TISI01 for fixing details

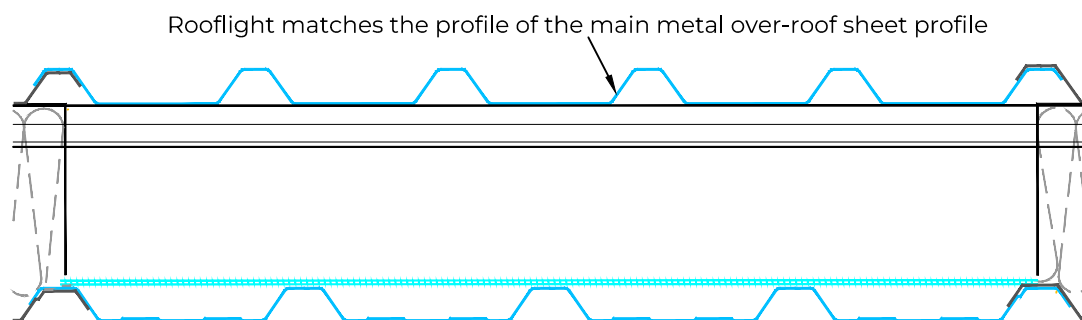
Filon outer sheet type ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
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CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

⁽¹⁾The over-roof rooflight sheet type is recommended to be the same as for a single skin rooflight. This is because the asbestos cement or fibre cement roof including any liner layer, below the new over-roof, is fragile and irrespective of how strong a rooflight may be in the roof layers below the over-roof, the impact of a falling person could cause catastrophic failure. The over-roof rooflight should therefore be non-fragile without any reliance on the layers below it. For this reason minimum specification replacement rooflights may be used in the existing roof layers but note that safety measures in accordance with HSE requirements must be in place during installation.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile 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.

Profiled Metal Over-roof Over an Old Profiled Metal Roof



Over-roof rooflight outer sheet types to achieve Class B non-fragility in a Class B non-fragile over-roof - See TIS101 for fixing details

Filon outer sheet type ⁽¹⁾	Expected period of non-fragility ⁽²⁾	Recommended frequency of roof access	Recommended purlin spans
CE30E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CEDR24E	5 to 20 years ⁽³⁾	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30 years	Very frequent	0.6m to 2.5m

⁽¹⁾The over-roof rooflight sheet type is recommended to be the same as for a single skin rooflight. This is because the non-fragility status of the existing roof below the over-roof and any rooflight layers within it are normally unknown. It may not be possible to install any replacement rooflight liner in accordance with the recommendations provided in TIS102 or TIS103, the Technical Information Sheets for site assembled rooflights. The over-roof rooflight should therefore be non-fragile without any reliance on the layers below it. For this reason minimum specification replacement rooflights may be used in the existing roof layers but note that safety measures in accordance with HSE requirements must be in place during installation.

⁽²⁾The non-fragile classification and expected period of non-fragility is subject to the factors detailed at the top of Page 1.

⁽³⁾Minimum specification, correctly installed rooflights are rated Class B non-fragile when new, and for an expected period of 5 to 20 years depending on external factors as defined in the Rooflight Association guidance document NTDO3.1.

Fire Performance

Filon Grade 300: B_{ROOF}(t4) to BS EN 13501 Part 5.

Filon Grade 104: B_{ROOF}(t4) to BS EN 13501 Part 5. TP(a) rating to BS 2782-0 Method 508A

Filon Grade 101: B_{ROOF}(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/m²K

Replacement rooflights should have a U-value no worse than 2.2 as measured in the horizontal plane.

U-value examples below:

Single skin

Approximately 5.7 W/m²K - Non-compliant for a building that is not exempt from Building Regulations.

Double skin

3.22 W/m²K - Non-compliant for a building that is not exempt from Building Regulations.

Triple skin

Options of 2.12, 1.71, 1.37, 1.17, 1.00, and 0.87

References

Filon Technical Information Sheets

TIS101 - Rooflight Application Guide, Single skin rooflight for use with single skin profiled metal roof systems.

TIS102 - Rooflight Application Guide, Site assembled rooflight for use with a built-up profiled metal system that incorporates a 0.7mm gauge steel 'walkable' liner.

TIS103 - Rooflight Application Guide, Site assembled rooflight for use with a built-up profiled metal system that incorporates a 0.4mm gauge steel liner.

TIS104 - Rooflight Application Guide, Factory Assembled Insulating Rooflight (FAIR) for use with a composite panel system.

NTD03.1 - Application of ACR[M]001 'Test for non-fragility of large element roofing assemblies' to GRP profiled rooflight sheeting

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