

Technical Information Sheet

Rooflight Application Guide



TIS110 September 2020

Previous issue August 2020

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 non-fragility classification of the following applications, but it should be noted that the expected non-fragility classification and period of non-fragility for 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. Fire performance and insulation requirements are covered at the end of this document.

Single skin (see also TIS101)

Rooflight matches the profile of the main roof sheet profile



Sheet types recommended to achieve Class B non-fragile in a Class B non-fragile roof

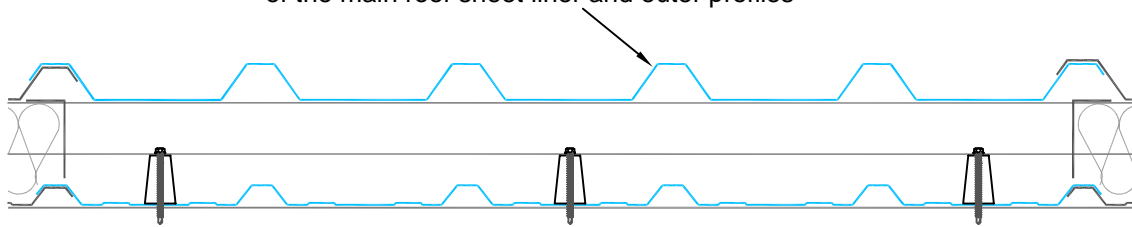
Filon sheet type	¹ Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	² 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	² 5 to 20 years	Infrequent	1.35m to 2.0m
CE36E	25 years	Frequent	1.0m to 2.25m
CEDR30E	25 years	Frequent	1.0m to 2.25m
SUPASAFE E	30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

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

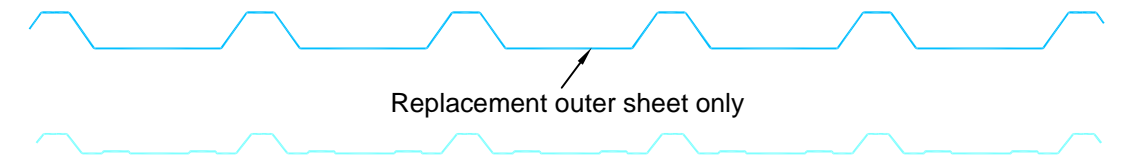
²Minimum specification, correctly installed rooflights are rated Class B non-fragile when new, and for an expected period of 5 to 20 years depending on external factors as defined in the National Association of Rooflight Manufacturers guidance document NTD03.

Site assembled built up (see also TIS102 and TIS103)

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



Outer sheet replacement only: Sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof (see also TIS101)



¹ Filon outer sheet type	² Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	³ 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	³ 5 to 20 years	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

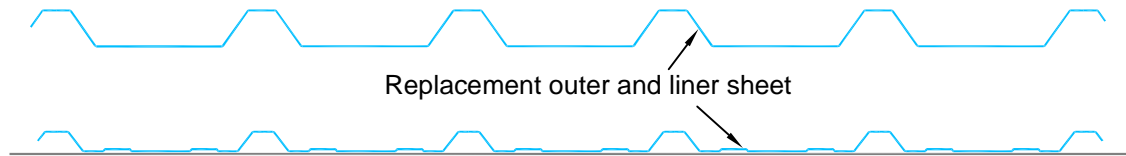
¹The sheet type for outer sheet replacement only is recommended to be the same as for a single skin rooflight because the existing liner strength and impact resistance is normally unknown and therefore non-fragility is reliant on the replacement outer sheet alone.

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

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Site assembled continued

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 also TIS103)



¹ Filon outer sheet type with a CE18 liner	² Expected period of non-fragility	Recommended frequency of roof access	³ Recommended spans when using a CE18 liner
⁴ CE24E	⁵ 5 to 20 years	Infrequent	1.35m to 2.0m
CE30E	25 years	Frequent	1.35m to 2.0m
CEDR24E	25 years	Frequent	1.35m to 2.0m
CE36E	25 years plus	Frequent	1.35m to 2.0m
CEDR30E	25 years plus	Frequent	1.35m to 2.0m
SUPASAFE E	30 years	Very frequent	1.35m to 2.0m

¹A minimum CE18 rooflight liner should only be used with the recommended outer sheets. A CE18E outer sheet and CE18 liner will be classified as fragile. This will also be the case if the liner cannot be installed in accordance with the recommendations provided in TIS103, in which case the outer sheet specification should be higher than CE24E, please refer to the table on Page 2.

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

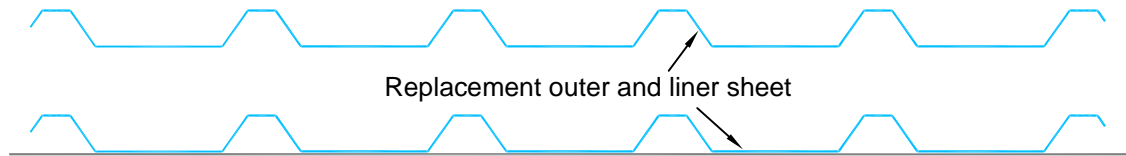
³A higher specification liner than a CE18 will be required in the event that purlin spans are less than 1.35m or more than 2.0m for the purposes of non-fragility. Please contact the Filon Technical Department for recommendations.

⁴CE24E outer sheet types will provide a Class B non-fragile classification when used with a correctly installed minimum CE18 liner but higher specification outer sheets may be required in areas of high wind loads or snow loads.

⁵Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Site assembled continued

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 also TIS101 and TIS102)



¹ Filon outer sheet type with a CE18 or CE24 liner	² Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	³ 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	³ 5 to 20 years	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

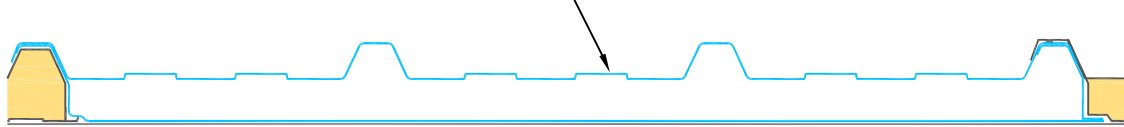
¹The replacement outer sheet type is recommended to be the same as for single skin rooflights for the following reasons: - When first installed a minimum CE30 liner is recommended for this type of rooflight assembly as the liner layer is required to be Class B non-fragile before installation of the outer 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.

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

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Factory Assembled Insulating Rooflight (FAIR), normally used with composite panel systems, supported box liner

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



FAIR replacement: Outer sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof (see also TIS104)

Filon outer sheet type	¹ Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
² CE24E	³ 5 to 20 years	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	⁴ Up to 2.25m with a mid-span stiffener over 2m
CEDR30E	25 years plus	Frequent	⁴ Up to 2.25m with a mid-span stiffener over 2m
SUPASAFE E	30 years	Very frequent	⁴ Up to to 2.5m with a mid-span stiffener over 2m

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

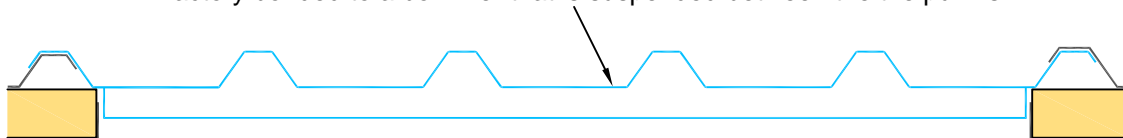
²CE24E outer sheet types will provide a Class B non-fragile classification but higher specification outer sheets may be required in areas of high wind loads or snow loads.

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

⁴FAIRs that require an insulating core and a mid-span stiffener are only supplied with a polycarbonate core.

Factory Assembled Insulating Rooflight (FAIR), suspended box liner

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



FAIR replacement: Outer sheet types recommended to achieve Class B non-fragility in a Class B non-fragile roof (see also TIS101 and TIS104)

¹ Filon sheet type	² Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	³ 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	³ 5 to 20 years	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

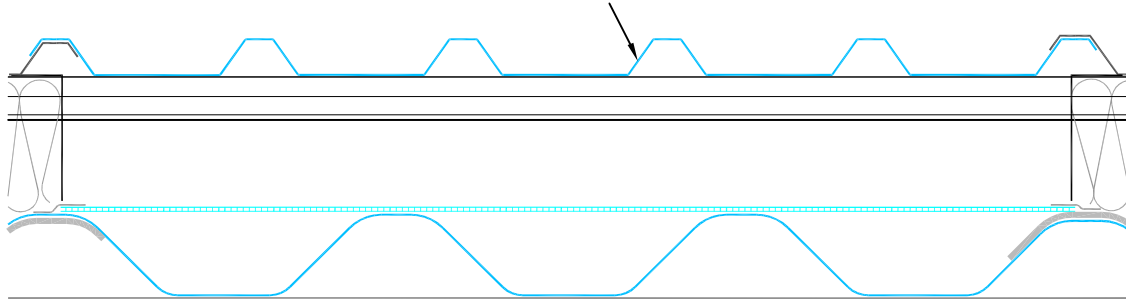
¹The outer sheet type for suspended box FAIRs is recommended to be the same as for a single skin rooflight because the unsupported box liner provides minimal contribution to impact resistance and therefore non-fragility is reliant on the replacement outer sheet alone.

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

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Rooflights within a profiled metal over-roof over a fragile asbestos cement or fibre cement roof

Rooflight matches the profile of the main metal over-roof sheet profile



Over-roof rooflight sheet types to achieve Class B non-fragility in a Class B non-fragile roof (see also TIS101)

¹ Filon sheet type	² Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	³ 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	³ 5 to 20 years	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

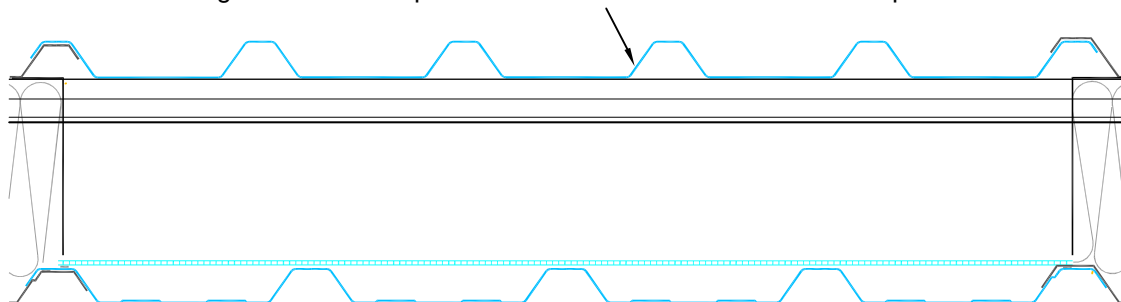
¹The over-roof rooflight sheet type is recommended to be the same as for a single skin rooflight. This is because the asbestos cement or fibre cement roof including any liner layer, below the new over-roof, is fragile and irrespective of how strong a rooflight may be in the roof layers below the over-roof, 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.

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

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Rooflights within a profiled metal over-roof over an old profiled metal roof

Rooflight matches the profile of the main metal over-roof sheet profile



Over-roof rooflight sheet types to achieve Class B non-fragility in a Class B non-fragile roof (see also TIS101)

¹ Filon sheet type	² Expected period of non-fragility	Recommended frequency of roof access	Recommended purlin spans
CE30E	³ 5 to 20 years	Infrequent	1.35m to 2.0m
CEDR24E	³ 5 to 20 years	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

¹The 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.

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

³Minimum 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 National Association of Rooflight Manufacturers guidance document NTD03.

Fire performance

Filon Grade 104 that is rated AA, Class 1 to BS476 Parts 3 and 7 as standard for single skin and for a liner that is exposed within the building.

Filon Grade 300 that is rated AB, Class 3 to BS476 Parts 3 and 7 as standard for the external sheet that has another rooflight layer below it.

When allowed in Building Regulations Grade 300 may be used as a single skin rooflight or the inner surface of a double or multi-skinned rooflight. These include buildings that are exempt from Building Regulations, buildings within certain size constraints and rooflights within certain area and spacing constraints, e.g., maximum 5m² rooflight or group of rooflights area and minimum 3.0m between rooflight areas. If the rooflights are evenly distributed and do not exceed 20% of the room they are located over, the space separation may be reduced to 1.8m on non-residential buildings.

Note that Filon Grade 101, designated Class 0 by definition in Building Regulations, is also available.

For further information, please refer to Filon Technical Information Sheet TIS003.

U-value W/m²K

Replacement of a single rooflight without changing the surrounding roof sheets means that a like for like replacement is allowed. This would also be the case if changing the outer sheet only of a single rooflight. Note that it is good practice to upgrade the rooflight to current standards with a U-value of 1.8, if practical to do so.

Replacement of an entire rooflight including the surrounding roof sheets would require the rooflight to achieve an overall U-value of 1.8.

When all of the rooflights, rooflight outer sheets or FAIRs in a roof are replaced, or for rooflights in an over-roof and the existing roof, the overall rooflight U-value should be 1.8. It is also good practice to apply this principle when more than one rooflight in a roof is to be changed or refurbished.

Please refer to the National Association of Rooflight Manufacturers guide document NTD06.2. for more information. U-value examples follow: -

Single skin

U-value 5.7. Non-compliant for a building that is not exempt from Building Regulations. May be used as a like for like replacement as described above.

Double skin without any insulating layer

U-value 3.0. Non-compliant for a building that is not exempt from Building Regulations. May be used as a like for like replacement as described above.

Triple skin

U-value 1.8. Three translucent GRP site assembled layers, e.g., profiled liner, centre layer and outer sheet. Building Regulations compliant when required.

U-value 1.9. Film membrane core in a FAIR (subject to suitability). Building Regulations compliant when required.

Triple layer with a clear structured polycarbonate core layer

U-value 1.7 as standard, 1.3 and 1.0 are available. Building Regulations compliant when required.

For other U-value requirements please contact the Filon Technical Department.

TIS110 September 2020



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.*

National Association of Rooflight Manufacturers

- NTD03. *Application of ACR[M]001 'Test for Non-Fragility of Profiled Sheeting Roofing Assemblies' to GRP Profiled Rooflight Sheeting.*
- NTD06.2. *Designing with Rooflights Supporting Part L Building Regulation guidance in England; Approved Documents L1A, L1B, L2A and L2B (2013 editions).*

Notes



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