Technical Information Sheet
Filon Fire Grades

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Filon Fire Grades to meet the requirements of Approved Document B, Fire Safety, Volume 2: Buildings other than dwellinghouses, England, 2019 issue

Filon Products Limited manufactures three fire grades to comply with the requirements of UK Building Regulations and certain insurance requirements. Filon sheets are tested and classified in accordance with the following standards: -

BS EN 13501 Part 5, *Classification using data from external fire exposure to roofs tests.*
BS 476 Part 3, *Classification and method of test for external fire exposure to roofs.*
BS 476 Part 7, *Method of test to determine the classification of the surface spread of flame of products.*
BS 476 Part 6, *Method of test for fire propagation for products.*

The Filon Fire Grades and their test ratings are as follows: -

Filon Grade 300: B_{ROOF} (t4) to BS EN 13501 part 5, SAB to BS 476 Part 3, Class 3 to BS 476 Part 7.

Filon Grade 104: B_{ROOF} (t4) to BS EN 13501 Part 5, SAA to BS 476 Part 3, Class 1 to BS 476 Part 7.

Filon Grade 101: B_{ROOF} (t4) to BS EN 13501 Part 5, SAA to BS 476 Part 3, Class 1 to BS 476 Part 7, Class 0 to BS 476 Part 6.
The Class 0 designation is defined by UK Building Regulations when a material has an index of performance (I), of less than 12 , a sub-index (i_1), of less than 6 to BS 476 Part 6 and that has a Class 1 designation to BS 476 Part 7.

For most industrial (non-residential / non-domestic) buildings, Filon GRP roof and vertical sheet fire resistance to meet the requirements of the above guidance document where allowed, may be summarised as follows. Our recommendations are provided in good faith, but approval from the appropriate local government authority may be required in certain circumstances or if there is any uncertainty regarding the correct material to use. The following references are taken from the above document.

Liners and single skin

B2, Section 6: *Wall and ceiling linings*, provides classifications to BS EN 13501 Part 1. Clause 6.1, Table 6.1: *Classification of linings*, lists the requirements for various building types and room size.

Products that are lawfully on the market using the BS 476 classifications set out in previous editions of Approved Document B are allowed as alternatives to the BS EN 13501 Part 1 classes. Appendix B, Table B1: *Reaction to fire classifications: transposition to national class*, provides the BS 476 Part 6 and Part 7 alternatives to the BS EN 13501 Part 1 classes.

Using the information listed in Table 6.1 and Table B1, the following recommendations apply: -

For rooms not more than 30m^2 in non-residential accommodation: **Class 3 - Filon Grade 300** may be used.

For other rooms including garages: **Class 1 - Filon Grade 104** may be used. Note that this covers the majority of industrial applications.

For a circulation space: **Class 0 - Filon Grade 101** may be used, subject to Building Control approval.

Please note that Building Control approval is strongly recommended for large area applications.

There are limitations stated in Section 6 for a rooflight liner or single skin rooflight that is rated Class 3 and also for certain thermoplastic rooflights, these restrictions do not apply to Filon Grades 101 & 104.

Table 6.2 and Diagrams 6.2 and 6.3 provide the criteria that apply for the use of rooflights with a Class 3 inner surface as follows: -

Each rooflight area or rooflight group must not exceed 5m^2 area. The minimum space separation in any direction between rooflight areas is 3m. For industrial and other non-residential purpose groups this may be reduced to a minimum of 1.8 metres, but the rooflights should be evenly distributed and not exceed 20% of the floor area of the room.

Note that GRP roof liners and single skin sheets must not be used within 1.5m of a compartment wall.

Roofs

B4 Section 14: *Resisting fire spread over roof covering,* provides classifications to BS EN 13501 Part 5. Table 14.1, *Limitations on roof coverings,* lists the designation for a roof covering in relation to the minimum distance from any point on a relevant boundary.

Products that are lawfully on the market using the BS 476 classifications set out in previous editions of Approved Document B are allowed as alternatives to the BS EN 13501 Part 5 classes. Appendix B, Table B2: *Roof covering classifications: transposition to national class*, provides the BS 476 Part 3 alternatives to the BS EN 13501 Part 5 classes.

Using the information listed in Table 14.1 and Table B2, the following recommendations apply: -

For a roof covering that is less than 6m to any point on a relevant

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Roofs continued

boundary, classification B_{ROOF} (t4) or AA, AB & AC is allowed. Any Filon Fire Grade may be used for this or any distance greater than 6m to any point on a relevant boundary, but the requirements for a liner still apply.

Diagram 14.1 provides the same restrictions for rooflights with a Class D-s3,d2 or Class 3 inner surface as Diagram 6.2 in terms of area and space separation.

Note that GRP rooflights and liners must not be used within 1.5m of a compartment wall.

Table 14.2 provides guidance for the permissible use of rooflights having a Class D-s3,d2 lower surface. Table B1 confirms the alternative classification to BS 476 Part 7 is Class 3, therefore **Filon Grade 300** my be used. The following applications are permitted.

A balcony, verandah, carport, covered way or loading bay, which has at least one longer side wholly or permanently open.

Detached swimming pool.

Conservatory, garage or outbuilding, with a maximum floor area of $40m^2$.

Walls

Refer to the Liners and single skin section on the previous page for the inner surface requirements.

B4 Section 12**:** *Resisting fire spread over external walls,* provides classifications to BS EN 13501 Part 1.Table 12.1, *Reaction to fire performance of external surface of walls,* lists the classifications for an external wall surface depending on building height and proximity to a relevant boundary.

Products that are lawfully on the market using the BS 476 classifications set out in previous editions of Approved Document B are allowed as alternatives to the BS EN 13501 Part 5 classes. Appendix B, Table B1: *Reaction to fire classifications: transposition to national class,* provides the BS 476 Part 6 and Part 7 alternatives to the BS EN 13501 Part 1 classes.

Using the information listed in Table 12.1 and Table B1, the following recommendations apply for an external wall surface: -

For a building that is 18m high or more with a wall that is less than 1000mm to the relevant boundary:

Class 0 – Filon Grade 101 may be used.

For a building that is less than 18m high with a wall that is less than 1000mm from a relevant boundary:

Class 0 – Filon Grade 101 may be used.

For a building that is less than 18m high with a wall that is 1000mm or more from a relevant boundary no provision is given:

Class 3 – Filon Grade 300 may be used with the appropriate liner classification.

For a building that is 18m high or more with a wall that is more than 1000mm to the relevant boundary:

Class 0 – Filon Grade 101 may be used for any part of the wall that is more than 18m high.

and **Class 1 – Filon Grade 104** may be used for any part of the wall that is less than 18m high.

Note that in practical terms it would be prudent to use **Filon Grade 101** for the complete wall to ensure consistency of appearance and to reduce the risk of site error.

Summary - Liners and Single Skin

In almost all circumstances the inner surface of a liner or single skin sheet should be rated minimum **Class 1** and therefore **Filon Grade 104** may be used.

Filon Grade 300, Class 3 rated rooflight liners or single skin sheets may be used when the aforementioned criteria for area and space separation are met.

Filon Grade 101, Class 0 may be used when a higher fire performance is required.

Summary - Roofs

The requirements for a liner or single skin still apply.

Any Filon Fire Grade may be used for an external roof covering that is within 6m of a relevant boundary and any distance beyond that. Common practice for rooflights is to use a **Filon Grade 300** outer sheet with a **Filon Grade 104 liner**. For large area applications **Filon Grade 300** satisfies the standard requirements for an external surface, but Building Control should be consulted if there are any concerns.

Summary - Walls

For the external wall surface the table on the following page can be used.

The requirements for a liner or single skin still apply:

Minimum **Class 1, Filon Grade 104** may normally be used for a liner together with the relevant outer skin (see above).

Class 1, Filon Fire Grade 104 may be used for a single skin application unless other factors dictate the use of **Class 0, Filon Grade 101**.

Continued.

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External wall surfaces

Distance from boundary	Building Height	
	Less than 18m	More than 18m
Less than 1000mm	Filon Grade 101	Filon Grade 101
More than 1000mm	Filon Grade 300	Filon Grade 104 for any height up to 18m Filon Grade 101 for any height over 18m

The above recommendations for walls are based upon current requirements for industrial, storage and other non-residential buildings. It is strongly recommended that Building Control approval is sought if there is any concern or doubt with regard to the correct use of materials.

It should be noted that there are certain restrictions for the fire performance of insulation within wall cavities that may also affect any spacer system that is used.

Notes

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