

Technical Information Sheet

Filon Fire Grades

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Filon Fire Grades to meet the requirements of the Building Regulations for England and Wales 2000, Approved Document B (Fire Safety), Volume 2, Buildings Other Than Dwellingshouses

Filon Products Limited manufactures three fire grades to comply with the requirements of the *Building Regulations 2000 for England and Wales* and certain insurance requirements. Filon sheets are tested in accordance with BS 476 Fire Tests, Parts 3 (External exposure roof test) and 7 (Internal surface spread of flame test), and where applicable, Part 6 (Fire propagation test for materials). The Filon Grades and their test ratings are as follows:

Filon Grade 300: AB, Class 3 to BS 476: Parts 3 and 7.

Filon Grade 104: AA, Class 1 to BS 476: Parts 3 and 7.

Filon Grade 101: AA, Class 0 to BS 476: Parts 3 and 6. The Class 0 designation is defined by UK Building Regulations when a material has an index of performance of less than 12 (I) and a sub-index of less than 6 (i₁) under BS 476: Part 6 and has a **Class 1** rating to BS 476: Part 7.

For most industrial (non-residential) buildings, Filon GRP roof and vertical sheet fire resistance to meet the requirements of the *Building Regulations, Approved Document B, Volume 2, Fire Safety*, may be summarised as follows. Note that the section references etc. are from the abovementioned Approved Document and site specific advice should be sought from Building Control.

Liners & Single Skin

The section headed *Internal linings*, in *Appendix A: Performance of materials, products and structures*, provides guidance for resistance to flame spread. *Paragraph 11* states that under the national classifications, liners are rated for performance by reference to the test method specified in BS 476: Part 7. *Paragraphs 12 and 13* make reference to BS 476: Part 6 in order to restrict the use of materials that ignite easily and have a high rate of heat release.

B2 Section 6: Wall and ceiling linings provides the requirements for wall and ceiling surfaces. *Clause 6.1, Table 10, Classification of linings* lists the requirement for various building types and room size.

For rooms not more than 30m² 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.

There are limitations stated in the same section 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 11* and *Diagram 27* provide the criteria that apply for the use of rooflights with a **Class 3** inner surface as follows:

Each rooflight area must not exceed 5m².

The space separation in any direction between rooflights for industrial and other non-residential purpose groups must be a minimum of 1.8 metres.

The rooflights should be evenly distributed and not exceed 20% of the floor area of the room.

Filon Grade 300 may be used if all of these conditions apply. Note that the above restrictions to the use of rooflights with a **Class 3** rating also apply to thermoplastic rooflights rated **TP(b)**. Filon rooflights are manufactured from translucent Glass Reinforced Polyester (GRP), which is a thermoset material, *not* a thermoplastic.

Roofs

The section headed *Roofs*, in *Appendix A: Performance of materials, products and structures*, provides guidance for resistance to external fire exposure. *Paragraph 6a* states that under the national tests, roofs are rated for performance by reference to the test method specified in BS 476: Part 3.

B4 Section 14: Roof Coverings provides the requirements for external roof coverings. *Table 16, Limitations on roof coverings* lists the designation for a roof in relation to the minimum distance from any point on a relevant boundary.

For a roof covering that is less than 6m (worst case) to any point on relevant boundary a designation of **AA, AB** or **AC** is allowed, therefore **AB – Filon Grade 300** or **AA – Filon Grades 104** and **101** may be used for this or any distance greater than 6m to any point on relevant boundary.

Table 17 provides guidance for the permissible use of rooflights having a **Class 3** lower surface to BS 476 Part 7 as follows:

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 40m².

Walls

B4 Section 12: Construction of external walls gives guidance for the fire resistance sufficient to prevent fire spread across a relevant boundary and where appropriate, the combustibility of external walls in relation to boundary distance and height of building. *Diagram 40, Provisions for external surfaces or walls* shows the external wall surface fire classification for various building heights and their proximity to a relevant boundary.

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.

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 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 may be prudent to use **Filon Grade 101** for the complete wall.

Summary - Liners & Single Skin

In almost all circumstances a liner or single skin sheet should be rated **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 optimum fire resistance is needed.

Summary - Roofs

Any Filon Fire Grade may be used for an external roof covering that is within 6m of the boundary and any distance beyond that, but common practice is to use a **Filon Grade 300** outer sheet with a **Grade 104 liner**.

Filon Grade 300 may be used in single skin applications on the examples above that include open canopies.

Summary - Walls

For the external wall covering the following table can be used.

The requirements for an internal liner or single skin still apply:

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

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

DISTANCE FROM BOUNDARY	BUILDING HEIGHT	
	Less than 18 metres	More than 18 metres
Less than 1 metre	Filon Grade 101	Filon Grade 101
More than 1 metre	Filon Grade 300	Filon Grade 104 for any height up to 18 metres Filon Grade 101 for any height over 18 metres



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