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**Agrément  
 Certificate  
 No 06/4356**

Designated by Government  
 to issue  
 European Technical  
 Approvals

## STORMKING PREFABRICATED BAY WINDOW ROOFS

Lucarne  
 Mansardenfenster


# Product



- THIS CERTIFICATE RELATES TO STORMKING PREFABRICATED BAY WINDOW ROOFS.
- The prefabricated units are for use as complete roof elements to bay windows forming part of the external wall of domestic buildings.
- It is essential that the bay window roofs are installed in accordance with the Certificate holder's instructions and the requirements of this Certificate.

## Regulations

### 1 The Building Regulations 2000 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which dormer units can contribute in achieving compliance. In the opinion of the BBA, Stormking Prefabricated Bay Window Roofs, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: A1	Loading
Comment:	The products will have sufficient strength and stiffness to sustain the design loads. See sections 9.1 and 9.2 of this Certificate.
Requirement: B4(2)	External fire spread
Comment:	The products have been assessed as having an AC designation in accordance with BS 476-3 : 2004. See sections 11.1 and 11.2 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The products will not adversely affect the host wall's ability to resist the passage of moisture. See section 10 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The products can meet this Requirement. See sections 13.1, 13.2, and 14.1 to 14.3 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The products can be used in buildings that satisfy this Requirement. See sections 12.2 to 12.4 of this Certificate.

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Requirement: **Regulation 7** Materials and workmanship  
Comment: The products are acceptable. See section 16.1 of this Certificate.

## 2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, Stormking Prefabricated Bay Window Roofs, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The products can contribute to a construction satisfying this Regulation. See section 16.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	1.1(a)(b)	Structure
Comment:		The products will have sufficient strength and stiffness to sustain the design loads, with reference to clause 1.1.1 <sup>(1)</sup> . See sections 9.1 and 9.2 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The products have been assessed as having an AC designation, in accordance with BS 476-3 : 2004, with reference to clause 2.8.1 <sup>(1)</sup> of this Standard. See sections 11.1 and 11.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products will not adversely affect the host wall's ability to resist the passage of moisture, with reference to clause 3.10.4 <sup>(1)</sup> of this Standard. See section 10 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products can meet this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> to 3.15.4 <sup>(1)</sup> . See sections 13.1, 13.2, 14.1 and 14.2 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The products can satisfy this Standard, with reference to clauses 6.2.2 <sup>(1)</sup> and 6.2.3 <sup>(1)</sup> . See sections 12.5 and 12.6 of this Certificate.

(1) Technical Handbook (Domestic).

## 3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Stormking Prefabricated Bay Window Roofs, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 16.1 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The products will not adversely affect the host wall's ability to resist the passage of moisture. See section 10 of this Certificate.
Regulation:	C5	Condensation
Comment:		The products will contribute to minimising the risk of interstitial condensation. See sections 13.2, 14.1 and 14.2 of this Certificate.
Regulation:	D1	Stability
Comment:		The products will have sufficient strength and stiffness to sustain the design loads. See sections 9.1 and 9.2 of this Certificate.
Regulation:	E5(a)(b)	External fire spread
Comment:		The products have been assessed as having an AC designation. In accordance with BS 476-3 : 2004. See sections 11.1 and 11.2 of this Certificate.
Regulation:	F2	Building fabric
Comment:		The products can be used in the Target U-value Method. See sections 12.7 and 12.8 of this Certificate.

## 4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 6 *Delivery and site handling* (6.1 and 6.3) and 7 *Design Data — General* (7.2).

### 5 Description

5.1 Stormking Prefabricated Bay Window Roofs are manufactured from a preformed structural timber framing which is then clad with either a moulded GRP shell, fully bonded to the timber frame in the factory, or with conventional roof tiles over battens carried out on site. The internal void is filled with a minimum 200 mm thickness of fibreglass insulation (eg rock wool or similar BBA approved insulation) laid over a vapour control layer.

5.2 The products covered by this Certificate are manufactured in three styles (see Figure 1). These are:

- flat roof — lead effect GRP
- pitched roof — lead effect (or tile effect) GRP
- pitched roof — timber frame only.

5.3 The products are manufactured in a range of standard sizes. Non-standard sizes can be fabricated to order.

5.4 The flat roof incorporates a slight fall towards the outer edge to allow rainwater run-off. The pitched roofs can have a fall of between 30° and 70°.

5.5 Quality control includes:

- visual inspection of raw materials prior to use
- checks on key dimensions during trimming
- visual inspection of the units against their respective master patterns
- visual inspection of product finishes prior to wrapping.

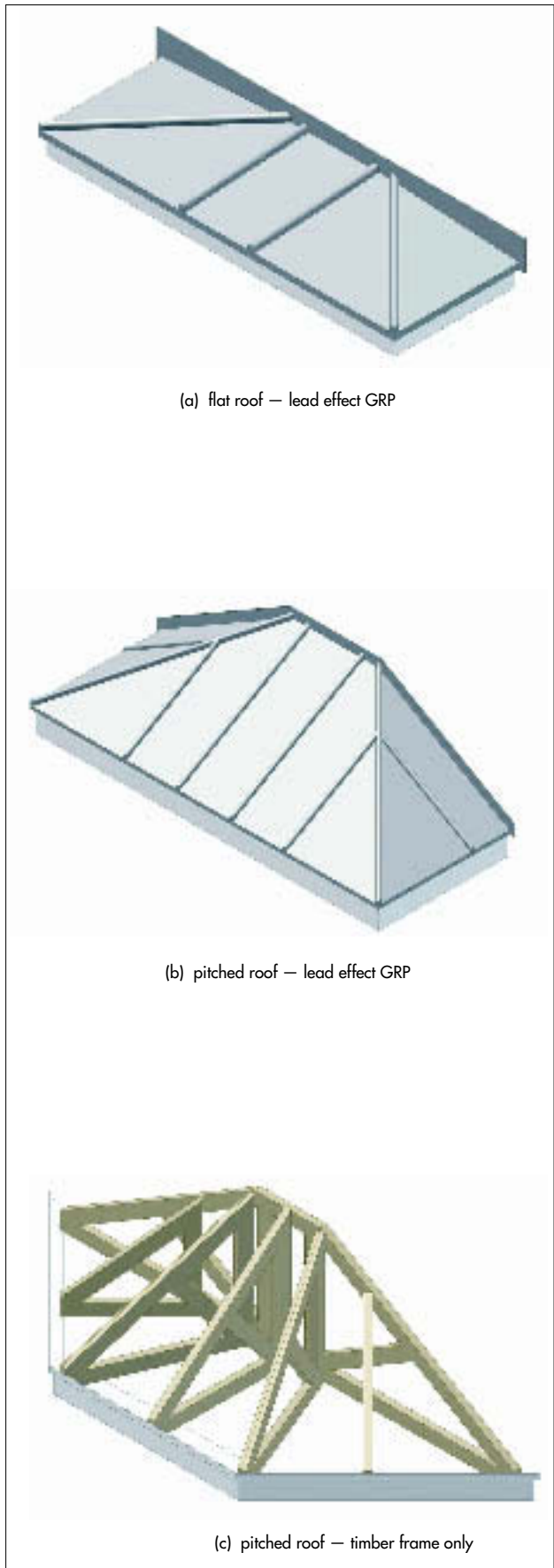
### 6 Delivery and site handling

6.1 Recommendations for site handling and installation are provided with each delivery.

6.2 The bay window roofs are delivered to site stretch wrapped in polythene sheeting. Each unit bears a label with the BBA identification mark incorporating the number of this Certificate.

6.3 Smaller units may be manhandled while larger units will require crange using suitable battens or bearers.

6.4 If the units are to be stored on site, they should be laid with their fixing edge on a flat, level surface. If stored externally, they should remain covered and raised off the ground.



### 7 General

7.1 Stormking Prefabricated Bay Window Roofs are suitable for use on new and existing buildings.

7.2 The wall to which the bay window roof is to be fixed should be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and national Standards.

7.3 The host wall should be checked for the additional loads, including wind loads, from the canopy. The fixings should be similarly checked. For design purposes, the bay window frames may not be assumed to offer any support to the edge of the canopy.

7.4 All design checks should be carried out by a suitably qualified engineer to the relevant national Codes and Standards.

### 8 Practicability of installation

The products are easy to install using the methods and procedures described in this Certificate and in accordance with the Certificate holder's installation guide.

### 9 Structural performance



9.1 The product can accept the loads associated with roofs where no access is provided, other than that necessary for cleaning and repair, as defined in BS 6399-1 : 1996.

9.2 The design of the fixings should be checked to ensure that the unit is adequately anchored to resist the appropriate combination of dead, imposed and wind loads, in accordance with BS 6399-1 : 1996, BS 6399-2 : 1997 and BS 6399-3 : 1988 respectively.

### 10 Weathertightness



When installed in accordance with the Certificate holder's instructions, the bay window roofs will provide a weatherproof construction.

### 11 Behaviour in relation to fire



11.1 The Stormking Prefabricated Bay Window Roof when tested for external fire exposure in accordance with BS 476-3 : 2004, achieved Category AC as defined in the Standard.

11.2 The classification given in section 11.1 may be used to determine the products suitability in accordance with the Building Regulations thus:

#### England and Wales

Approved Document B

#### Scotland

Mandatory Standard 2.8, clause 2.8.1<sup>(1)</sup>

(1) Technical Handbook (Domestic).

#### Northern Ireland

Technical Booklet E.

### 12 Thermal properties

12.1 The thermal transmittance (U value) for the bay window ceiling incorporating 200 mm thick Superglass insulation, calculated according to BS EN ISO 6946 : 1997 is  $0.25 \text{ Wm}^{-2}\text{K}^{-1}$ . This may be used to calculate the U value for the opening in the wall in conjunction with window and sill U values and jamb and sill  $\lambda$  values, provided that the junction between roof and window comply with the guidance given in BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*.



12.2 The products satisfy the limiting U values specified in Table 2, Approved Document L1A.

12.3 Junctions and opening heads maintain insulation continuity. The default psi values from Table 3 of BRE Information Paper IP 1/06 and Table K1 of *The Government's Standard Assessment Procedure for Energy Rating of Dwellings* (SAP 2005) may therefore be used in Target Emission Rate calculations to SAP 2005.

12.4 Further guidance on minimising heat loss by conduction and by air infiltration can be found in the TSO publication *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings*, TSO 2002.



12.5 The products can be used in the Elemental Target U value and Carbon index methods specified in clause 6.2.2 and 6.2.3 of the Technical Handbook (Domestic).

12.6 Junctions and opening maintain insulation continuity and comply with the relevant guidance in BRE report (BR 262 : 2002) *Thermal insulation : avoiding risks* and Annex 6.D of the Technical Handbook (Domestic).



12.7 The products in Northern Ireland can be used in the Elemental Target U value method specified in Technical Booklet F.

12.8 Opening details maintain adequate insulation continuity in accordance with Diagram 1.4 of Technical Booklet F.

## 13 Condensation

### Surface condensation



13.1 The risk of surface condensation in the bay window roof, including the junctions and opening, will be minimal.

### Interstitial condensation



13.2 The product, incorporating a vapour check plasterboard without joints, will adequately limit the risk of interstitial condensation. For the conventional pitched roof, a BBA approved, low water resistance, tile underlay can be used without the provision for cross ventilation.

13.3 To minimise ingress of moisture in the roof space, a continuous layer of vapour check plasterboard should be used and all ceiling perimeter junctions should be well sealed.

## 14 Air leakage



14.1 Care must be taken to seal paths through which heat can be lost by unwanted air infiltration. Particular care is required at junctions, openings and service penetrations.

14.2 Junctions and opening head details maintain adequate air barrier continuity.



14.3 Complete buildings in England and Wales are subject to pre-completion testing for airtightness in accordance with the requirements of section 20B of Approved Document L1A and L2A.

## 15 Maintenance

15.1 Maintenance will not be required, but when necessary, stains or marks can be removed with a damp cloth and household detergent, or, in the case of obstinate stains, mild abrasive cleaner. Where paint, varnish or similar materials are to be removed, the advice of the Certificate holder should be sought.

15.2 If repair to damaged GRP shell is required, the Certificate holder's instructions should be followed. The BBA makes no representation in regard to any advice given.

## 16 Durability



16.1 The evidence from material subjected to natural exposure for a period in excess of 10 years and from accelerated durability tests indicates that there will not be a significant

change in physical properties of the material due to ageing. A life in excess of 30 years can, therefore, be expected.

16.2 After natural weathering, slight initial dulling of the surface and slight change in colour shade may occur, particularly on the dark coloured material. However, this process is not likely to be progressive.

16.3 Any sealant joint weatherproofing may have to be renewed during the life of the GRP shell but the use of a high-performance silicone or polysulphide sealant can extend the period before replacement is required.

## Installation

### 17 General

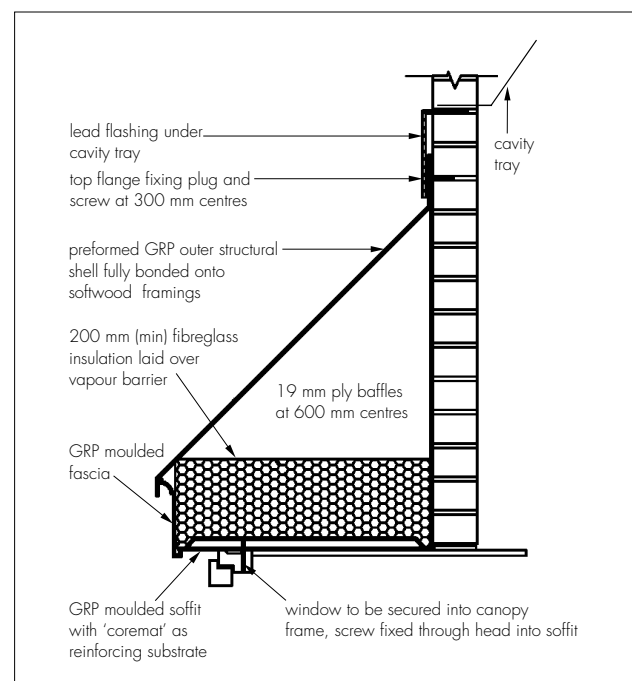
17.1 Installation of Stormking Prefabricated Bay Window Roofs must be carried out in accordance with the Certificate holder's installation guide.

17.2 The host wall should be checked for the additional loads, including wind loads, from the bay window roof by a suitably qualified engineer.

17.3 The opening and the bay window support wall should be checked for their relative positions and dimensions.

17.4 Reference should be made to the construction details shown in Figure 2 when reading the procedural details set out in section 18.

Figure 2 Installation detail



## 18 Procedure

18.1 The canopy is placed centrally against the opening, and fixed to the wall with screws of predetermined size and length, going through either the upstand provided in the GRP shell, or the back member in the 'timber frame only' construction. Care should be taken to avoid unnecessary loads exerted on the window frame during installation.

18.2 The bay window frame is fixed to the edge of the canopy using screws, taking care not to damage the GRP roof shell.

18.3 Lead flashing is applied to the fixed edge of the canopy by chasing it into the brickwork or by linking it with previously installed cavity tray.

18.4 Tiling of the frame only roof should be carried out to BS 5534 : 2003.

18.5 Sealant is applied around the window frame to ensure a weatherproof seal with the canopy and masonry.

18.6 Internally, plasterboard should be fixed to the underside of the canopy using screws not nails.

## Technical Investigations

The following is a summary of the technical investigations carried out on Stormking Prefabricated Bay Window Roofs.

## 19 Tests

Tests were undertaken to determine:

- hard and soft body impact performance
- the effect of thermal cycling/thermal shock
- external fire exposure classification.

## 20 Investigations

20.1 The manufacturing process was examined, including the methods adopted for quality control. Details were obtained relating to quality and composition of the materials used.

20.2 An assessment was made of:

- practicability of installation
- structural strength and stability
- weathertightness
- thermal transmittance
- maintenance requirements
- durability.

## Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*

BS 6399-1 : 1996 *Loading for buildings — Code of practice for dead and imposed loads*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 6399-3 : 1988 *Loading for buildings — Code of practice for imposed roof loads*

BS EN ISO 6946 : 1997 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

### 21 Conditions

21.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

21.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

21.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

21.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product or system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

21.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, Stormking Prefabricated Bay Window Roofs are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 06/4356 is accordingly awarded to Stormking Plastics Ltd.

On behalf of the British Board of Agrément

Date of issue: 3rd August 2006

A handwritten signature in black ink, appearing to read 'G. A. Cooper', is written over a light grey background.

Chief Executive

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**British Board of Agrément**

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For technical or additional information, contact the Certificate holder (see front page).  
For information about the Agrément Certificate, including validity and scope, tel: Hotline 01923 665400, or check the BBA website.