

Brick Fabrication Ltd

Gemini Works
Estate Road
Pontypool
NP4 6YW

Tel: 01495 759555 Fax: 01495 759874
e-mail: sales@brickfabrication.co.uk
website: www.brickfabrication.co.uk



Agrément Certificate
13/5073
Product Sheet 2

BRICK FABRICATION CHIMNEYS

BRICK FABRICATION GRP CHIMNEYS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Brick Fabrication GRP Chimneys, a range of glass-reinforced polyester (GRP) false chimneys with flaunchings, aprons and pots, for decorative use on tiled or slated pitched roofs in new and existing constructions.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Loading — the products have acceptable resistance to the effects of wind suction acting on the roof and, in a suitably designed structure, will not affect the stability of the building (see section 6).

Behaviour in relation to fire — the products will not affect the overall fire classification of the roof (see section 7).

Weathertightness — the products, when correctly installed, will not affect the weathertightness of the roof (see section 8).

Durability — the products will have a service life in excess of 25 years (see section 10).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Simon Wroe
Head of Approvals — Materials

Claire Curtis-Thomas
Chief Executive

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The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

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tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Brick Fabrication GRP Chimneys, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: A1	Loading
Comment:	The incorporation of the products into a suitably designed roof structure will not affect the structure's stability. See sections 6.1 to 6.3 of this Certificate.
Requirement: B4(2)	External fire spread
Comment:	The incorporation of the products into a roof classified as unrestricted will not affect the roof's classification under this Requirement. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	When detailed correctly, the products will enable a roof to meet this Requirement. See section 8 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The products are acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2)	Fitness and durability of materials and workmanship
Comment:	The use of the products satisfies the requirements of this Regulation. See sections 9 and 10.1 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1(a)	Structure
Comment:	The incorporation of the products into a suitably designed roof structure will not affect the structure's stability under clause 1.1.1 ⁽¹⁾⁽²⁾ . See sections 6.1 to 6.3 of this Certificate.
Standard: 2.8	Spread from neighbouring buildings
Comment:	The incorporation of the products into a roof classified as unrestricted will not affect the roof's classification under this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	When detailed correctly, the products will enable a roof to meet the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation: 12	Building standards applicable to conversions
Comment:	Comments made in relation to the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	The products are acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	When detailed correctly, the products will enable a roof to meet the requirements of this Regulation. See section 8 of this Certificate.
Regulation: 30	Stability
Comment:	The incorporation of the products into a suitably-designed roof structure will not affect the structure's stability. See sections 6.1 to 6.3 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	The incorporation of the products into a roof classified as unrestricted will not affect the roof's classification under the requirements of this Regulation. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.3) and 11 *General* (11.3) of this Certificate.

NHBC Standards 2013

NHBC accepts the use of the Brick Fabrication GRP Chimneys, provided they are installed, used and maintained in accordance with this Certificate, in relation to Part 1 *General information*, Chapter 1.1 *Introduction to the Standards and Technical Requirements*, Technical Requirement R3.

Technical Specification

1 Description

1.1 Brick Fabrication GRP Chimneys consist of a range of glass-reinforced polyester (GRP) chimney stacks, including base aprons, flaunchings, aprons, and chimney pots, for use on roof ridges, mono pitch slopes and at gable ends. The chimneys are supplied with lifting eyes.

1.2 Chimneys are installed to the roof structure using stainless steel size 4 x 50 mm wood-screws with washers. The screws are supplied with the chimney unit.

1.3 The products are available in the following styles (see Figure 1):

Stack size (mm)

- Cader Iris — 440 x 552 x 900
- Scafell Pike — 552 x 777 x 1125
- Snowdon — 665 x 665 x 1125
- Ben Nevis — 665 x 890 x 1200

Roof position and pitch options

- mid range (roof ridge) — 30°, 35°, 40°, 45°
- mono pitch — 30°, 35°, 40°, 45°
- gable end — 30°, 35°, 40°, 45°

Style and colour

- stock buff
- stock red
- stock red multi
- dragwire buff
- dragwire red
- dragwire red multi
- render buff
- render grey

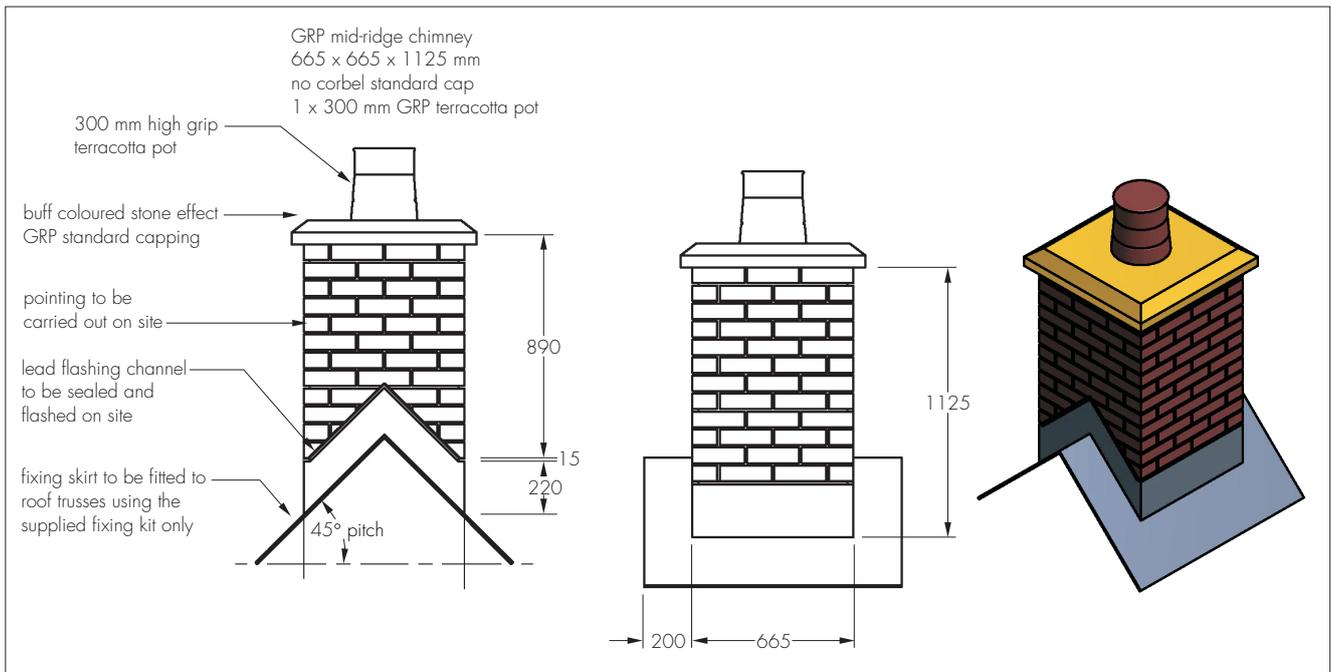
Capping options (colour)

- standard cap (buff or grey)
- flaunch cap (buff or grey)

Pot options

- height — 300 mm and 450 mm
- colour — terracotta or buff.

Figure 1 GRP mid-ridge chimney



1.4 The chimneys are available in standard and corbel variations.

1.5 The chimneys are used in conjunction with sheet lead flashing to BS EN 12588 : 2006 fitted in accordance with BS 6915 : 2001.

2 Manufacture

2.1 The chimney is manufactured by a hand lay-up method in moulds.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 Chimneys are delivered wrapped in plastic film and secured to pallets.

3.2 Each chimney carries a label bearing the customer's name, customer address, job number, customer order number, weight and the BBA logo incorporating the number of this Certificate.

3.3 Chimneys are placed onto the roof by crane using the lifting eyes provided in the chimney capping. Before lifting, it must be ensured that the lifting eyes are securely in place.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Brick Fabrication GRP Chimneys.

Design Considerations

4 General

4.1 Brick Fabrication GRP Chimneys are satisfactory for use as decorative false chimneys on new-build and existing pitched, slated or tiled roofs with a minimum pitch of 30°, installed either at the ridge or on the slope of the roof.

4.2 The use of the products with an active flue has not been assessed and is outside the scope of this Certificate.

4.3 Roof structures incorporating the products must be designed and constructed in accordance with the relevant clauses of BS 5534 : 2003 and BS EN 1995-1-1 : 2004 and its UK National Annex.

4.4 Roof fixtures such as satellite dishes and television aerials must not be fastened to the products.

5 Practicability of installation

Installation is designed to be carried out by competent carpenters, roofers and slaters/tilers experienced with this type of product.

6 Loading



6.1 Roof structures on which the products are to be installed must be suitably designed to allow the safe transfer of dead and imposed loads to the ground.

6.2 Dead and imposed loads should be calculated in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and their UK National Annexes.

6.3 The wind uplift forces acting on the chimneys are calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

6.4 Fixings are installed in accordance with section 12.7 of this Certificate, a total of 16 through the GRP apron into the roof structure.

7 Behaviour in relation to fire



The incorporation of the products into a roof classified as unrestricted under the national Building Regulations will not affect the classification of the roof.

8 Weathertightness



When installed in accordance with the Certificate holder's instructions and correctly detailed, the products will be weathertight and will not affect the compliance of a roof with the requirements of the national Building Regulations:

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.8

Northern Ireland — Regulation 28(b).

9 Maintenance



The products and surrounding roof area must be regularly inspected and maintained to ensure continued performance. Particular attention should be given to the flashing details to ensure that weathertightness is maintained.

10 Durability



10.1 Accelerated weathering tests confirm that satisfactory retention of physical properties is achieved. Available evidence indicates that the product will have a service life in excess of 25 years.

10.2 Results of test data confirm that the colourfastness of the GRP is satisfactory with a uniform discoloration of the materials.

Installation

11 General

11.1 Installation of the Brick Fabrication GRP Chimneys must be in accordance with the Certificate holder's instructions.

11.2 Slates and tiles should be installed in accordance with the relevant clauses of BS 5534 : 2003 and BS 8000-6 : 1990. Where applicable, flashing must be installed in accordance with BS 6915 : 2001.

11.3 When installing lead flashing, the conventional precautions for handling lead, as defined in the *Control of Lead at Work Regulations 2002*, the *Control of Lead at Work Regulations (Northern Ireland) 2003* and the HSE Approved Code of Practice and Guidance *Control of lead at work*, must be observed.

12 Procedure

12.1 The roof is prepared by installing suitably positioned horizontal timber noggings, 38 mm wide and 50 mm deep, between the rafters where the chimney will be seated, at a depth of 12 mm from the top of the rafters, using 8 mm diameter by 75 mm long screws. Exterior grade 12 mm thick plywood boards are fitted between the rafters, ensuring that the plywood is level with the top of the rafters, and that both ends are securely fastened to the noggings.

12.2 Three layers of roof tile underlay are installed on the roof over the area where the chimney will be seated. The underlay must extend beyond the area of the chimney apron in accordance with the Certificate holder's instructions. Underlay is installed over the remainder of the roof and lapped under the chimney felt.

12.3 For gable-end chimneys, the brickwork is constructed traditionally to the level where the width of the wall corresponds to the internal width of the proposed chimney. At this point, the gable wall brickwork and blockwork is constructed vertically to a dimension of 215 mm.

12.4 Lifting eyes provided with the chimney are screwed into the lifting eyes at the corners of the capping, and the chimney is lifted by crane and placed over the area of roof with the plywood support. For mono-pitched chimneys, the stack must be held securely in place until the fastenings are installed.

12.5 The lifting eyes are removed and the holes filled with the plastic bungs. A suitable sealant is applied around the bungs to ensure a watertight seal.

12.6 The chimney is secured through the apron outside the rain channel. The apron is pre-drilled with 3 mm holes at centres between 150 mm and 200 mm. In the case of the gable-end chimneys are secured through the one side apron and the lower apron. The chimney is secured, using the screws and washers supplied, through the pre-drilled holes and sealed with sealant provided.

12.7 Tiling battens are installed over the roof area and over the chimney's apron to the rain channel.

12.8 Slates/tiles are dressed to the sides of the chimney.

12.9 Lead flashing is installed by either of the following methods:

- the lead flashing channel is sealed around the chimney prior to fitting the lead, using a suitable sealant. The flashing is fitted in accordance with the recommendations of the Lead Sheet Association and sealed with a second application of the sealant around the chimney
- a lead support fillet is installed at the base of the apron to ensure the lead flashing is fully supported and on an uninterrupted downward fall. The lead flashing is dressed in accordance with traditional practice, over the row of slates/tiles immediately below the chimney and extending a minimum of 450 mm below the apron, 150 mm to either side of the apron and a minimum depth of 100 mm under the apron. Ends of the lead must be rolled to prevent water escape. Specific fitting instructions are supplied with each chimney.

13 Repair

In the event of major damage, the chimney unit must be replaced.

Technical Investigations

14 Tests

14.1 Tests were carried out on the Brick Fabrication Brick Clad Chimneys and the results assessed to determine:

- dimensions
- cross-breaking strength of GRP apron:
 - control
 - after UV ageing
 - after heat ageing
 - after two-hour water boil
- pull-through strength of screw fixing through GRP apron
- colour change after exposure to UV.

14.2 Independent test reports were assessed to determine:

- wind loading on the chimney
- pull-out strength of lifting eyes
- chimney lift test
- soak/flood testing of chimney
- pull-off strength of capping.

15 Investigations

15.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the composition of the materials used.

15.2 An assessment of wind loading of the chimneys was carried out.

15.3 Site visits were conducted to evaluate the ease of installation.

Bibliography

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

BS 6915 : 2001 *Design and construction of fully supported lead sheet roof and wall coverings — Code of practice*

BS 8000-6 : 1990 *Workmanship on building sites — Code of practice for slating and tiling of roofs and claddings*

BS EN 1991-1-1 : 2002 *Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

BS EN 1991-1-3 : 2003 *Eurocode 1 — Actions on structures — General actions — Snow loads*

NA to BS EN 1991-1-3 : 2003 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Snow loads*

BS EN 1991-1-4 : 2005 *Eurocode 1 — Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*

BS EN 1995-1-1 : 2004 *Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

NA to BS EN 1995-1-1 : 2004 *UK National Annex to Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

BS EN 12588 : 2006 *Lead and lead alloys — Rolled lead sheet for building purposes*

Conditions of Certification

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

16.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

16.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal.
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.