

SIG GRP FLASHINGS

TIL-R GRP VALLEY TROUGHS FOR TILED ROOFS

This Agrément Certificate Product Sheet⁽¹⁾ relates to TIL-R GRP Valley Troughs for Tiled Roofs, for use in tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2014. The products provide a weatherproof junction where there are changes in direction or material in a tiled roof structure.

(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

Watertightness — as part of a complete roof, the products will resist the passage of moisture into the interior of the building (see section 6).

Properties in relation to fire — the products, when used as part of a complete roof, will be unrestricted under the national Building Regulations (see section 7).

Strength — the products have adequate strength to resist the normal loads and impacts associated with installation of the roof (see section 8).

Durability — under normal service conditions, the products will have a service life in excess of 20 years (see section 10).



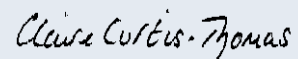
The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément



Date of First issue: 18 September 2019

John Albon
Chief Scientific Officer



Claire Curtis-Thomas
Chief Executive

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.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

Regulations

In the opinion of the BBA, TIL-R GRP Valley Troughs for Tiled Roofs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying 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:	B4(2)	External fire spread
Comment:		The products, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products will contribute to a roof satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the products satisfies the requirements of this Regulation. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		The products can be regarded as having low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard, and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 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 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 (as amended)

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The products will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.

Regulation: 36(b)

Comment:

External fire spread

The products, when used as part of a complete roof construction, will not affect the fire rating of the roof construction. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015**Construction (Design and Management) Regulations (Northern Ireland) 2016**

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information**NHBC Standards 2019**

In the opinion of the BBA, TIL-R GRP Valley Troughs for Tiled Roofs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying to relevant requirements in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

Technical Specification**1 Description**

1.1 TIL-R GRP Valley Troughs for Tiled Roofs are glass fibre reinforced polyester laminates to the profiles illustrated in Figures 1 to 4. Mortar bonding strips are provided along the upper surface of each edge as a key for bedding the roof tiles in mortar, where necessary.

Figure 1 Mortared Valley Troughs

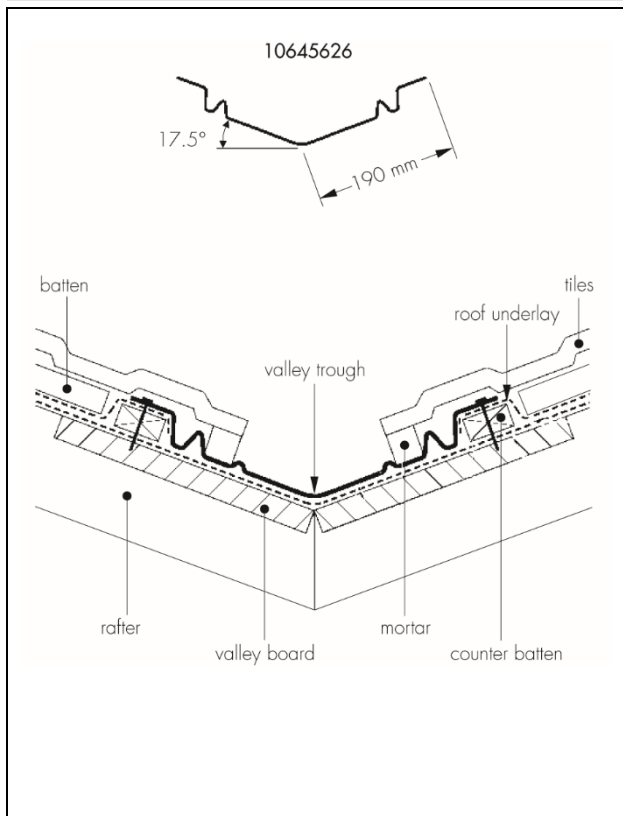


Figure 2 Dry Fix Valley Troughs

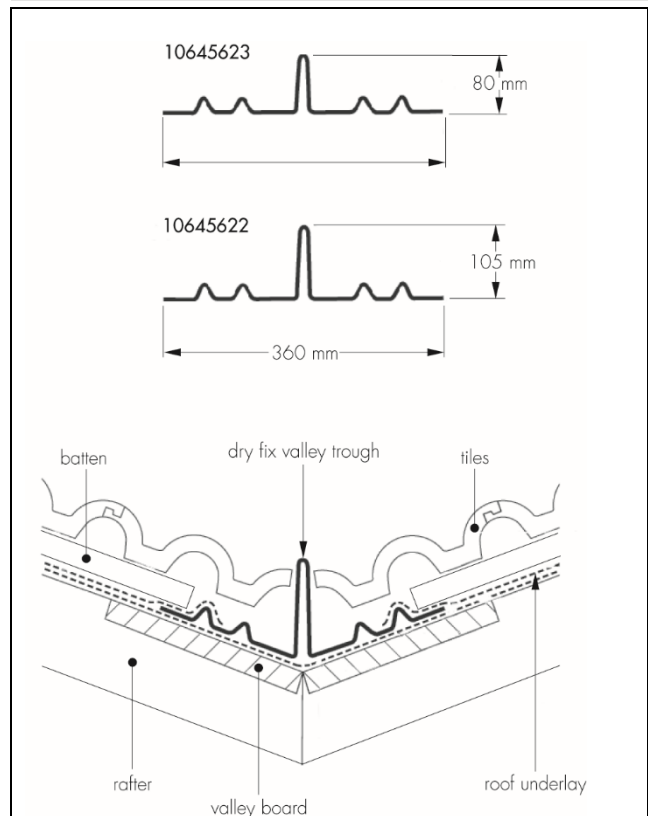


Figure 3 Over Batten Dry Fix Valley Troughs — 10645628

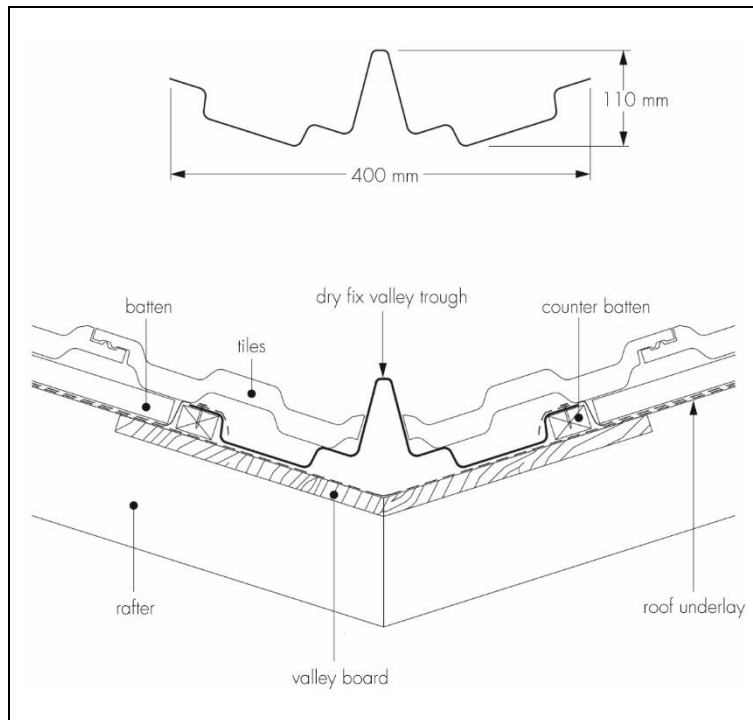
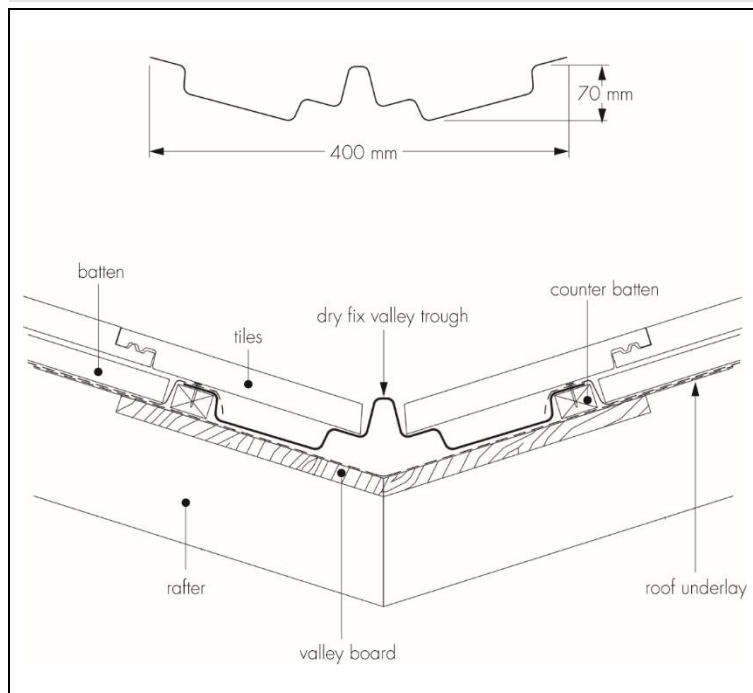


Figure 4 Over Batten Dry Fix Valley Troughs — 0645627



1.2 The product codes are:

- 10645626 (TIL-R Valley 380 mm by 3 m Lead Grey colour)
- 10645622 (TIL-R High Profile Dry Fix Valley Trough Tile 3 m)
- 10645623 (TIL-R Low Profile Dry Fix Tile Valley 3 m)
- 10645627 (TIL-R Over Batten Valley Trough Low Profile 3 m) (Over Batten Dry Fix Valley Trough)
- 10645628 (TIL-R Over Batten Valley Trough High Profile 3 m) (Over Batten Dry Fix Valley Trough).

1.3 The mortared product is finished in one width (10645626) and two lengths (2.4 and 3 m). They are produced with a pitch of 17.5° but can be adapted by bending to accommodate roof pitches from 17.5 to 60°, and a maximum of 20° unequal pitch. The standard dry fix troughs are produced to a flat profile (see Figure 2).

1.4 The products are finished in Standard Lead Grey (other colours are available to order). They are also available with a laminated film on the upper surface which improves the weather resistance of the GRP (glass fibre-reinforced polyester).

2 Manufacture

2.1 Glass fibre mats are impregnated with resin and are laminated with a polyester carrier film and a weather protection film to the required profile.

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 The products are delivered in packs of 5 or 10 units, each marked with the product code, size, the application and the BBA logo incorporating the number of this Certificate.

3.2 The packs should be stored flat or on end, on a smooth, clean, dry surface, under cover and protected from sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on TIL-R GRP Valley Troughs for Tiled Roofs.

Design Considerations

4 Use

TIL-R GRP Valley Troughs for Tiled Roofs, when designed and installed in accordance with the relevant parts of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2013, are satisfactory for use as valley troughs in tiled pitched roofs to provide a weatherproof finish where there are changes in direction or material in a roof structure.

5 Practicability of installation

The products are designed to be installed by roofers experienced with these types of products.

6 Weathertightness



The products will adequately resist the passage of moisture to the interior of the building and so satisfy the requirements of the national Building Regulations.

7 Properties in relation to fire



Samples of GRP, representative of that used in the manufacture of the products, when tested in accordance with BS 476-3 : 2004, achieved an EXT.S.AB rating.

8 Strength

The products will resist the normal loads and impacts associated with installation and use.

9 Maintenance

Minimal maintenance is necessary and the smooth finish will restrict and inhibit mould and fungal growth.

10 Durability



The products, when subjected to normal conditions of exposure and use, will have a service life in excess of 20 years.

Installation

11 General

Installation of TIL-R GRP Valley Troughs for Tiled Roofs must be in accordance with this Certificate, the Certificate holder's instructions and the relevant recommendations of BS 5534 : 2014, BS 8000-0 : 2014, BS 8000-6 : 2013 and the NFRC Technical Bulletin 28.

12 Procedure

Product codes 10645626 TIL-R Valley Troughs

12.1 The troughs must be fixed onto counter battens, and onto new or existing valley boards. It is recommended that valley boards are used for all valley details, either 6 mm continuous ply boards laid over the rafters and supported on timber noggin or 12 mm ply (or 19 mm softwood) set between the rafters supported on bearers.

12.2 The valley must first be lined longitudinally with BS 8747 : 2007 Type 1F or BBA-approved roofing underlay, for the width of the valley boards. The pitch angle of the valley trough will adapt to suit pitches from 17.5 to 60°.

12.3 Counter battens of the same depth as the tiling battens must be fitted onto the valley boards over the underlay at an appropriate distance from the valley centre to accommodate the trough, and nailed through into the main rafters/trusses below.

12.4 The lengths of trough must be firmly pressed down onto the valley board and then nailed to the counter batten at a maximum of 500 mm centres, using clout head nails or nails of a quality acceptable in good roofing practice.

12.5 The roof tile underlay must then be laid and dressed over the counter batten. Tiling battens must be fitted with the ends firmly located onto the valley boards, positioned close to the counter batten, and taking care not to damage the underlay. The roof tile underlay can then be laid over or under the trough. If laid over the trough, it must not extend beyond the outer water channel.

12.6 The fascia board must be cut to allow the trough to pass through and discharge into the gutter without flattening out. Using a fine-toothed hacksaw, the end of the trough must be trimmed to the approximate centre line of the gutter. Alternatively, a soaker of minimum Code 4 lead, or BBA/third party approved lead replacement flashing material, may be fitted and dressed into the gutter. The troughs must then be carefully fitted, starting at the foot of the valley, ensuring that they are located centrally on the valley boards, before nailing the sides into the counter battens at 500 mm centres maximum and allowing a 150 mm overlap when measured vertically.

12.7 At the head of the valley, a lead saddle (minimum Code 4), or BBA/third party approved lead replacement flashing material of sufficient length, must be fixed to lap over the trough by the same length of lap required between the two valley trough units.

12.8 At dormers, a lead soaker must be used at the base of the valley to dress onto the adjacent tiling. At sprocketed eaves or mansards, separate lengths of trough must be fitted above and below, with a lead saddle of sufficient lap length to link the two parts.

12.9 The tiles must then be laid dry, the cut line marked and the tiles removed before cutting. They can then be re-laid in position, and bedded onto mortar on the bonding strip, ensuring no blockage of the water channels behind the bedding line occurs.

Product codes 10645622 TIL-R High Profile and 10645623 TIL-R Low Profile Dry Fix Valley Troughs

12.10 The troughs must be fixed onto counter battens, and onto new or existing valley boards. It is recommended that valley boards are used for all valley details, either 6 mm continuous ply boards laid over the rafters and supported on timber noggins, or 12 mm ply (or 19 mm softwood) set between the rafters supported on bearers.

12.11 The valley must first be lined longitudinally with BS 8747 : 2007 Type 1F or BBA-approved roofing underlay one metre wide, allowing for overlapping into the rainwater gutter. A length of the trough must be both firmly pressed down on to the valley board, as well as pressed together to minimise the gap in the central upstand section. The troughs will hinge to suit roof pitches of 17.5 to 60° and a maximum of 20° unequal pitch.

12.12 The underlay and battens are fitted in the normal manner, ensuring that the underlay is laid over the outer water bar of the valley. Alternative methods may also be used. Battens must be cut so that they locate onto the flat fixing edges of the valley and are nailed through into the supporting boards.

12.13 The fascia board must be cut to allow the trough to pass through and discharge into the gutter. The end of the trough must be trimmed using a fine-toothed hacksaw, to the approximate centre line of the gutter.

12.14 The troughs must be fitted, starting at the foot of the valley. Care must be taken to ensure that they are located centrally on the valley boards, before nailing the sides at a maximum of 500 mm centres to the valley boards using clout nails of a quality acceptable in good roofing practice.

12.15 Consecutive lengths of the troughs must be laid, allowing a minimum overlap of 150 mm when measured vertically. Where troughs intersect, they must be trimmed with a fine-toothed saw to form a mitred joint and dressed with a lead saddle (minimum Code 4) or BBA/third party approved lead replacement flashing material.

12.16 At the head of the valley, the troughs should be mitred together and a lead saddle (minimum Code 4) or BBA/third party approved lead replacement flashing material of sufficient length dressed over the troughs, and by the same length of lap required between the two valley trough units, if a flashing material without self-adhesive backing is used.

12.17 The tiles must be laid in accordance with the manufacturer's instructions. The tiles must be cut to the rake into the valley and abutted against the raised centre section. To avoid distortion, care must be taken not to force the tiles too heavily against it.

12.18 A support bridge (code HD DVBP) to fit over the inner water bar is available to coincide with small cuts of tile that need supporting. Alternatively, a proprietary anti-corrosive tile clip (code HD DVC) may be used.

Product codes 10645628 TIL-R Over Batten Valley Trough High Profile and 10645627 TIL-R Over Batten Valley Trough Low (Over-Batten Dry Fix Valley Troughs)

12.19 The troughs must be fixed onto counter battens, and onto new or existing valley boards. It is recommended that valley boards are used for all valley details, either 6 mm continuous ply boards laid over the rafters and supported on timber noggins, or 12 mm ply (or 19 mm softwood) set between the rafters supported on bearers.

12.20 The valley must first be lined longitudinally with roofing underlay, either Type 1F in accordance with

BS 8747 : 2007 or BBA/third party approved, for the width of the valley boards. The pitch angle of the valley trough will adapt to suit pitches from 17.5 to 60°, and for a pitch differential of up to 20° on either side of the valley.

12.21 Counter battens of the same depth as the tiling battens must be fitted onto the valley boards over the underlay, at an appropriate distance from the valley centre to accommodate the trough and are nailed through into the main rafters/trusses below.

12.22 The lengths of trough are firmly pressed down onto the valley board and nailed to the counter batten at a maximum of 500 mm centres, using clout head nails of a quality acceptable in good roofing practice, allowing a 150 mm overlap when measured vertically.

12.23 The roof tile underlay is laid and dressed over the counter batten. Tiling battens must be fitted with the ends firmly located onto the valley boards, positioned close to the counter batten, and taking care not to damage the underlay. The roof tile underlay may be laid over or under the trough. If laid over the trough, it must not extend or drape into the water channel.

12.24 The fascia board must be cut to allow the trough to pass through and discharge into the gutter without flattening out. Using a fine-toothed hacksaw, the end of the trough should be trimmed to the approximate centre line of the gutter. Alternatively, a soaker of minimum Code 4 or BBA/third party approved lead replacement flashing material may be fitted below the trough and dressed into the gutter.

12.25 At the head of the valley, the troughs should be mitred together and a lead saddle (minimum Code 4) or BBA/third party approved lead replacement flashing material of sufficient length dressed over the troughs, and by the same length of lap required between the two valley trough units, if a flashing material without self-adhesive backing is used.

12.26 At dormers, a soaker must be used at the base of the valley to dress onto the adjacent tiling. At sprocketed eaves or mansards, separate lengths of trough must be fitted above and below, with a saddle flashing of sufficient lap length to link the two parts depending upon the change in pitch.

12.27 The tiles are laid in accordance with the manufacturer's instructions. The tiles are cut to the rake into the valley and abutted close or touching the raised centre section. To avoid distortion, care must be taken not to force the tiles or slates too heavily against it.

Note: 10645627 troughs are also suitable for use with slates if required.

12.28 Where small cuts of single lap tiles require additional support, especially on the left side of the valley, a proprietary tile lap clip (code HD DVC) may be used. Packing pieces and strips are not recommended. To avoid small cuts of slate or double lap tiles occurring that are difficult to fix, it is recommended that a tile and a half or wider slate is used.

13 Finishing

Roof tiling must be carried out in accordance with the relevant parts of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2013.

14 Repair

Damaged lengths can be replaced without having to remove adjacent lengths.

15 Tests

Tests were carried out and the results assessed to determine:

- density
- glass/resin ratio
- dimensional checks
- hardness
- cross-breaking strength
- impact resistance
- effect of elevated temperatures
- effect of water soak.

16 Investigations

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

16.2 An assessment was made of the results of a fire test in accordance with BS 476-3: 2004.

16.3 Visits were made to sites in progress to assess the practicability of installation.

16.4 A survey of users was carried out to assess performance in use.

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 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Part 0 : Introduction and general principles*

BS 8000-6 : 2013 *Workmanship on building sites — Code of practice for slating and tiling of roofs and walls*

BS 8747 : 2007 *Reinforced bitumen membranes (RSMs) for roofing — Guide to selection and specification*

NFRC Technical Bulletin 28 : 2002 *Inclined preformed GRP valley troughs*

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.