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Agrément Certificate No 87/1915
*Fourth issue**

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Designated by Government to issue European Technical Approvals

HAMBLESIDE DANELAW GRP FLASHINGS

Produit d'étanchéité pour toitures — PRV
Dachabdichtungen — GFX

Product

- *THIS CERTIFICATE REPLACES AND EXTENDS CERTIFICATE No 84/1398 AND RELATES TO HAMBLESIDE DANELAW GRP FLASHINGS.*
- *Each product is for use in slated or tiled roofs constructed in accordance with the relevant requirements of BS 5534-1 : 1997.*
- *The products are for use to provide a weatherproof junction at changes of direction, materials.*

These Front Sheets must be read in conjunction with the relevant accompanying Detail Sheets, which provide information specific to particular products.

Regulations — Detail Sheet 1

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

The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of roof waterproofing systems with the Building Regulations. In the opinion of the BBA, Hambleside Danelaw GRP Flashings, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	B4(2)	External fire spread
Comment:		When tested to BS 476-3 : 1958, samples of GRP, representative of that used in the manufacture of the products, achieved an EXT.S.AB rating. See section 9 of these Front Sheets.
Requirement:	C4	Resistance to weather and ground moisture
Comment:		Tests for water resistance on the products indicate that the flashings meet this Requirement. See section 8 of these Front Sheets.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable materials. See section 11 of these Front Sheets.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

In the opinion of the BBA, Hambleside Danelaw GRP Flashings, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standards:	B2.1 and B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The products comply with these Standards. See section 11 of these Front Sheets.
Regulation:	12	Structural fire precautions
Standard:	D9.1	Fire spread from an adjoining building
Comment:		When tested to BS 476-3 : 1958 samples of GRP, representative of that used in the manufacture of the products, achieved an EXT.S.AB rating. This Standard imposes no restrictions upon the use of these products. See section 9 of these Front Sheets.
Regulation:	17	Resistance to moisture
Standard:	G3.1	Resistance to precipitation — Resistance to precipitation
Comment:		Tests for water resistance of the products indicate that the use of the products can contribute towards enabling a roof to satisfy the requirements of this Standard. See section 8 of these Front Sheets.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, Hambleside Danelaw GRP Flashings, 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 comprise acceptable materials. See section 11 of these Front Sheets.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		Tests for water resistance indicate that the use of the products can contribute towards enabling a roof to satisfy the requirements of this Regulation. See section 8 of these Front Sheets.
Regulation:	E5	External fire spread
Comment:		When tested to BS 476-3 : 1958 samples of GRP, representative of that used in the manufacture of the products, achieved an EXT.S.AB rating. This Regulation imposes no restrictions upon the use of the products. See section 9 of these Front Sheets.

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 section: 1 *Description* (1.2) of the relevant Detail Sheets.

Technical Specification

5 Delivery and site handling

The products are delivered to site in packs of 10. Each item bears the BBA identification mark incorporating the number of this Certificate. Packs should be stored flat on a clean, level surface.

Design Data

6 General

6.1 The valley troughs are satisfactory for use on tiled or slated roofs constructed in accordance with the relevant requirements of BS 5534-1 : 1997.

6.2 The products should be cut to size with a fine-toothed saw and can accept holes being drilled using a sharp drill.

7 Strength

The products have adequate strength to resist impacts likely to occur during installation and use.

8 Weathertightness

Data confirm that the products will adequately resist the passage of moisture to the inside of the building and so meet or comply with the relevant requirements of the national Building Regulations thus:

England and Wales

Approved Document C, Requirement C4, Section 5.1.

Scotland

Regulation 17, Standard G3.1.

Northern Ireland

Regulation C4.

9 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 : 1958, achieved an EXT.S.AB rating.

10 Maintenance

Minimum maintenance is required and the smooth surface finish will inhibit the build-up of foreign matter. Damaged lengths can be replaced without having to remove adjacent lengths.

11 Durability

Available test data and knowledge of the material suggest that the products should have a life of at least 20 years.

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

Conditions of Certification

12 Conditions

12.1 This Certificate:

(a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;

(b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;

(c) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;

(d) is copyright of the BBA.

12.2 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, shall be construed as references to such publication in the form in which it was current at the date of this Certificate.

12.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabricating process(es) thereof:

(a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked by the BBA or its agents; and

(c) are reviewed by the BBA as and when it considers appropriate.

12.4 In granting this Certificate, the BBA makes no representation as to:

(a) the presence or absence of any patent or similar rights subsisting in the product or any other product;

(b) the right of the Certificate holder to market, supply, install or maintain the product; and

(c) the nature of individual installations of the product, including methods and workmanship.

12.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do 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 recommendations 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 installation and use of this product.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, Hambleside Danelaw GRP Flashings are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 87/1915 is accordingly awarded to Hambleside Danelaw Ltd.

On behalf of the British Board of Agrément

Date of Fourth issue: 28th February 2003

Chief Executive

**Original Front Sheets issued 20th September 1987. This amended version includes Certificate holders' revised telephone and facsimile numbers, and reference to revised national Building Regulations, and CDM Regulations (Northern Ireland).*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Hambleside Danelaw Ltd

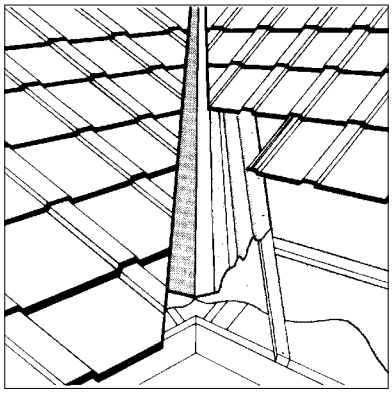
HAMBLESIDE DANELAW GRP VALLEY TROUGHS FOR TILED ROOFS

Certificate No 87/1915

DETAIL SHEET 2

*Fourth issue**

Product



- *THIS DETAIL SHEET RELATES TO HAMBLESIDE DANELAW GRP VALLEY TROUGHS FOR USE ON TILED ROOFS.*
- *Tiled roofs must be constructed in accordance with the relevant requirements of BS 5534-1 : 1997.*
- *The products are available in two sizes, Danelaw 400 and Danelaw 360 and as codes DVT1 and 2, and DVLPT1 and 2, and HD361 and 2, HD401 and 2, RP3 and 4. The HD361 and 2, HD401 and 2, RP3 and 4 are branded as Stormforce 225.*

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

Technical Specification

1 Description

1.1 The Hambleside Danelaw GRP Valley Troughs for Tiled Roofs are manufactured from glass-fibre/polyester laminates in a continuous process to the profiles illustrated (see Figures 1 and 2). Where necessary, mortar bonding strips are provided along the upper surface of each edge to provide a key for bedding the roof tiles in mortar.

1.2 The products are finished in two width sizes, Hambleside Danelaw 400 and Hambleside Danelaw 360 and lengths of 2.4 m 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°. The dry valley is produced to a flat profile (see Figure 2).

1.3 The products are finished in the standard colour 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.

1.4 Quality control of the product includes visual inspection and checks on weight and dimensions.

Figure 1 Hambleside Danelaw Mortared Valley Troughs

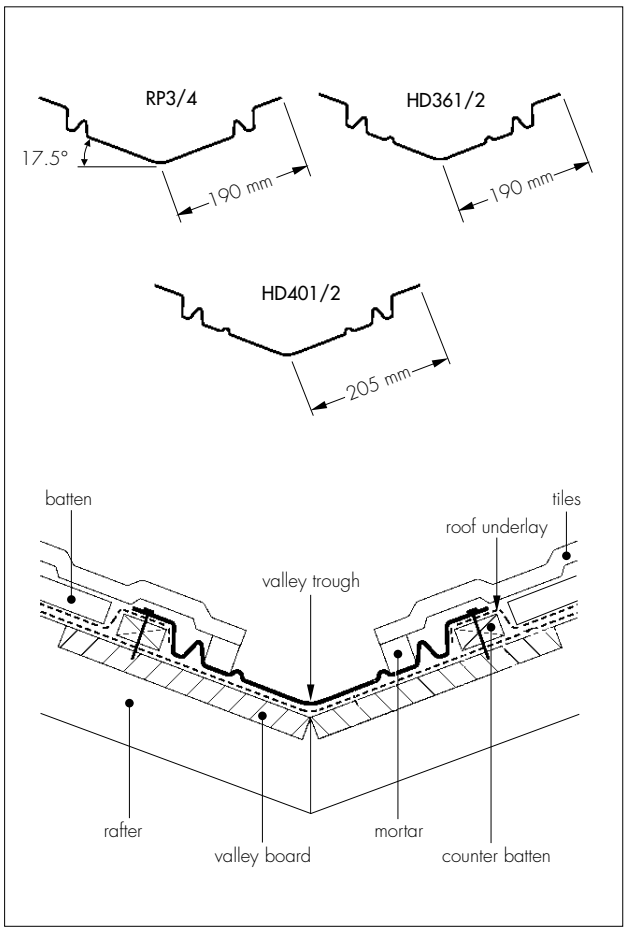
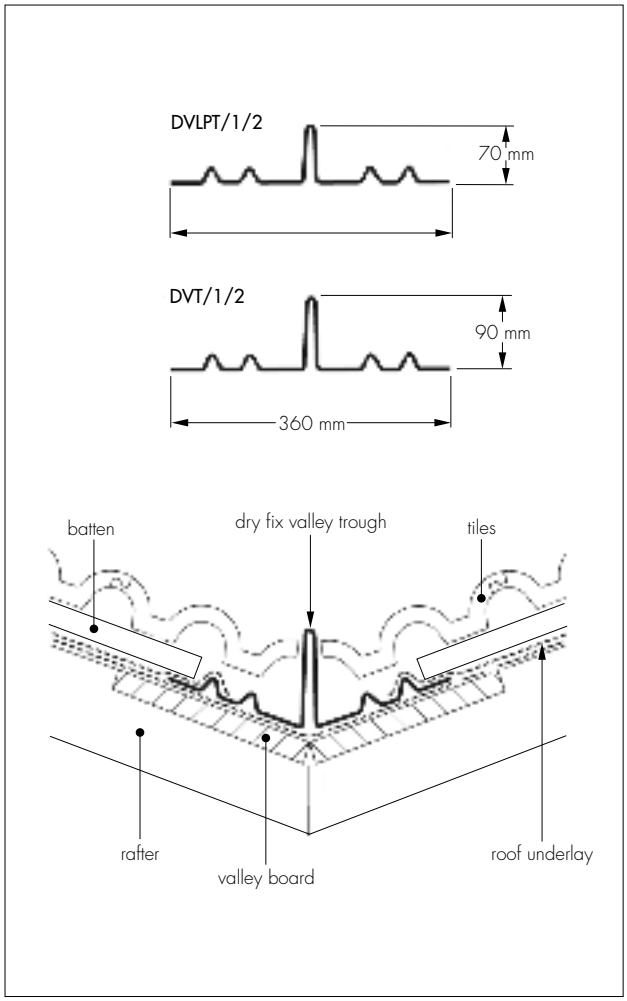


Figure 2 Hambleside Danelaw Dry Valley Troughs



Installation

2 General

Installation of Hambleside Danelaw GRP Valley Troughs for Tiled Roofs should be in accordance with the Certificate holder's instructions, the product label and the relevant recommendations of BS 5534-1 : 1997, BS 8000-6 : 1990 and NFRC Technical Bulletin 28.

3 Procedure

Product codes HD and RP

3.1 The valley troughs (HD and RP) should be fixed onto counter battens or onto either 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 or 12 mm ply (or 19 mm softwood) set between the rafters and supported on timber noggings.

3.2 The valley should first be lined longitudinally with a BS 747 : 2000 Type 1F or BBA approved roofing underlay for the width of the valley boards. The pitch angle of the valley trough, originally 17.5°, will adapt to suit pitches from 17.5° to 60°.

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

3.4 The lengths of the valley trough should be firmly pressed down on to the valley board to support the base. The valley troughs should be nailed, through pre-drilled holes at a maximum of 500 mm centres, to the counter batten using nails of a quality acceptable in good roofing practice.

3.5 The roof tile underlay should then be laid and dressed over the counter batten. Roofing battens should be fitted with the ends firmly located onto the valley boards, positioned close to the counter batten with care taken to avoid damaging the underlay. The roof tile underlay can then be laid either under or over the GRP valley trough. If laid over the valley trough, it should not extend beyond the outer water channel.

3.6 The fascia board should be cut to allow the GRP valley trough to pass through and discharge into the gutter without flattening out. The end of the valley trough should be trimmed using a fine-toothed hacksaw to the approximate centre line of the gutter. Alternatively, a soaker of minimum Code 4 lead may be fitted and dressed into the gutter. The GRP valley troughs should then be fitted, starting at the foot of the valley, with care taken to ensure 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 minimum overlap when measured vertically.

3.7 At the head of the valley, a lead saddle (minimum Code 4) of sufficient length should be fixed to lap over the valley trough by the same length of lap required between the two GRP valley trough units.

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

3.9 The tiles should then be laid dry, the cut line marked and the tiles removed before cutting. They can be then re-laid in position, bedded onto mortar on the bonding strip with care taken to ensure no blockage of the water channels behind the bedding line occurs.

Product codes DVT and DVLPT

3.10 The Dry Valley Troughs (DVTs and DVLPTs) are designed to fit directly onto either existing or new valley boards in accordance with section 3.1.

3.11 The valley should first be lined longitudinally with a BS 747 : 2000 Type 1F or BBA approved underlay material one metre wide allowing for overlapping into the rainwater gutter. A length of the DVT should be both firmly pressed down on to the valley board to support its base, as well as pressed together to minimise the gap in the central upstand section. The Dry Valleys for tiles will hinge to suit a minimum of 17.5° to 60° roof pitch and a maximum of 20° unequal pitch.

3.12 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 are cut so that they locate onto the flat fixing edges of the valley and nailed through into the supporting boards.

3.13 The fascia board should be cut to allow the GRP Valley trough to pass through and discharge into the gutter. The end of the valley trough should be trimmed using a fine-toothed hacksaw to the approximately centre line of the gutter. Alternatively, a lead soaker (minimum Code 4) may be fitted and dressed into the gutter.

3.14 The DVTs and DVLPTs should be fitted, starting at the foot of the valley. Care should 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 nails of a quality acceptable in good roofing practice.

3.15 Consecutive lengths of these valley troughs should be laid allowing a minimum overlap of 150 mm when measured vertically. Where valleys intersect, they should be trimmed with a fine-toothed saw to form a mitred joint and dressed with a lead saddle (minimum Code 4).

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

3.17 A support bridge fitting over the inner water bar is available to coincide with small cuts of tile which need supporting. Alternatively, a proprietary anti-corrosive tile clip may be used.

Technical Investigations

The following is a summary of the technical investigations carried out on Hambleside Danelaw GRP Valley Troughs for Tiled Roofs.

4 Tests

4.1 As part of the assessment leading to the issue of Certificate No 84/1398, tests were carried out in accordance with MOAT No 9 : 1973 to determine:

impact resistance
density
glass/resin ratio
cross-breaking strength
hardness
effect of elevation temperature
effect of water.

4.2 As part of this assessment the following properties were re-examined:

density
glass/resin ratio
hardness
cross-breaking strength.

5 Investigations

5.1 The results of fire tests in accordance with BS 476-3 : 1958, carried out by an independent test authority, were assessed.

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

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

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

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 747 : 2000 *Reinforced bitumen sheets for roofing — Specification*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

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

MOAT No 9 : 1973 *UEAtc Directive for the Assessment of Glass-Reinforced Polyester for use in Building*

On behalf of the British Board of Agrément

Date of Fourth issue: 28th February 2003

Chief Executive

**Original Detail Sheet issued 28th September 1987. This revised Detail Sheet includes revised* Technical Specification *and* Installation *information.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Hambleside Danelaw Ltd

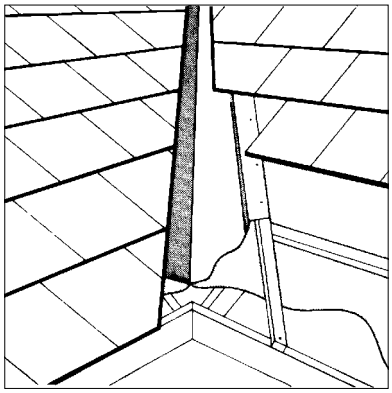
HAMBLESIDE DANELAW GRP VALLEY TROUGHS FOR SLATED ROOFS

Certificate No 87/1915

DETAIL SHEET 3

*Fourth issue**

Product



- *THIS DETAIL SHEET RELATES TO HAMBLESIDE DANELAW GRP VALLEY TROUGHS FOR USE ON SLATED ROOFS.*
- *Slated roofs must be constructed in accordance with the relevant requirements of BS 5534-1 : 1997.*
- *The products are available as product codes SVT, SVTU, SSVT, DVS1 and DVS2. The SVT, SVTU and SSVT are branded as Stormforce 225.*

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

Technical Specification

1 Description

1.1 The Hambleside Danelaw GRP Valley Troughs for Slated Roofs are manufactured from a glass-fibre/polyester laminate in a continuous process to the profiles illustrated (see Figures 1, 2 and 3).

1.2 The profiles are supplied in 3 m lengths (DVS is also available in 2.4 m lengths) and are produced with a pitch of 17.5° but can be adapted by bending to accommodate roof pitches from 17.5° to 60°. The SSVT is produced with a pitch of 22°. The dry valley trough is produced to a flat profile.

1.3 The products are finished in the standard colour lead grey with other colours available to order. They are also available with a laminated film on the upper surface which improves the weather resistance of the GRP.

1.4 Quality control of the products includes visual inspection and checks on weight and dimensions.

Figure 1 Hambleside Danelaw Slate Valley Troughs

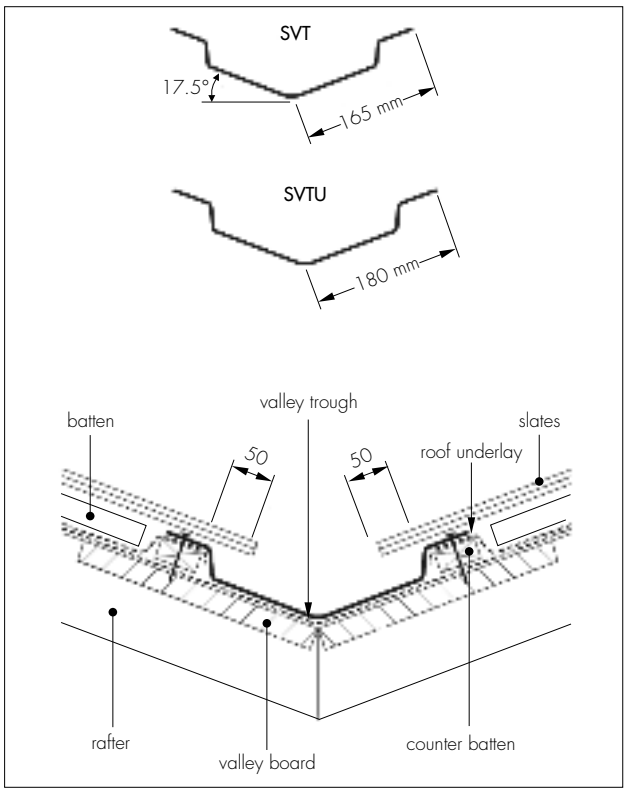


Figure 2 Hambleside Danelaw Dry Valley for Slates

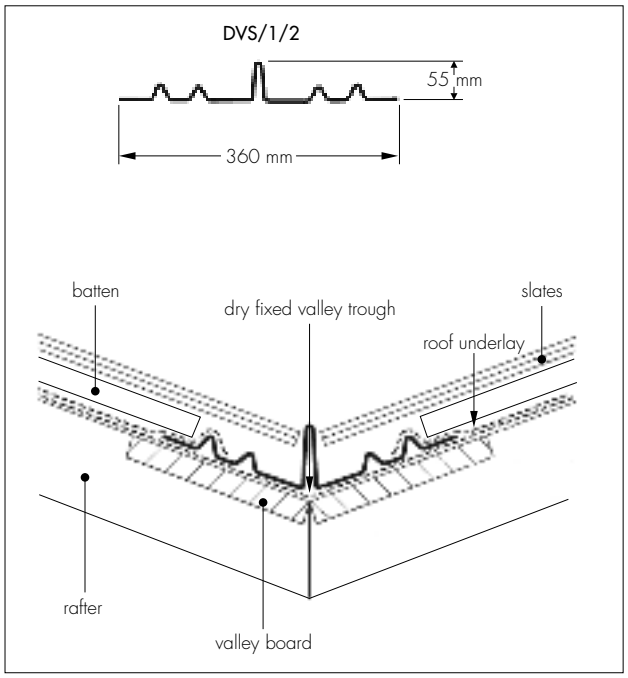
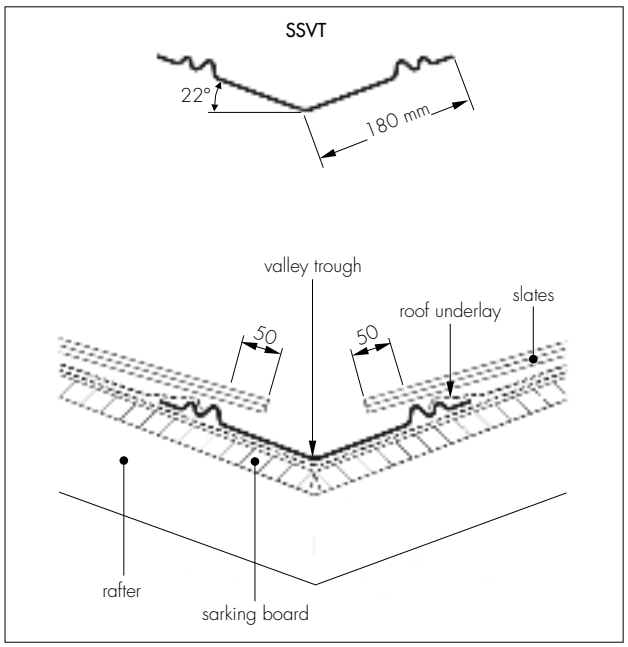


Figure 3 Hambleside Danelaw Scottish Slate Valley Trough



Installation

2 General

Installation of Hambleside Danelaw GRP Valley Troughs for Slated Roofs should be in accordance with the Certificate holder's instructions, the product label, and the relevant recommendations of BS 5534-1 : 1997, BS 8000-6 : 1990 and NFRC Technical Bulletin 28.

3 Procedure

Product code SVT and SVTU

3.1 The valley troughs (SVT and SVTU) are fixed onto counter battens either to 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 or 12 mm ply (or 19 mm softwood) set between the rafters and supported on timber noggings.

3.2 The valley should first be lined longitudinally with a BS 747 : 2000 Type 1F or BBA approved underlay for the width of the valley boards. The pitch angle of the valley trough, originally 17.5°, will adapt to suit pitches from 17.5° to 60°.

3.3. Counter battens of the same depth as the slating battens should be fitted onto the valley boards over the underlay at the appropriate distance from the valley centre to accommodate the GRP valley trough and nailed through into the main rafters/trusses below.

3.4 The lengths of the valley troughs should be firmly pressed down onto the valley boards to support the base. The valley troughs should be nailed, though pre-drilled holes at a maximum of 500 mm centres, to the counter battens using nails of a quality acceptable in good roofing practice.

3.5 The slating underlay should then be laid and dressed over the counter battens. Roofing battens should be fitted with ends firmly located onto the valley boards, positioned close to the counter batten. Care should be taken to avoid damaging the slating underlay. The underlay can then be laid either under or over the GRP valley trough. If laid over the valley trough, it should not extend beyond the outer water channel.

3.6 The fascia board should be cut to allow the GRP valley trough to pass through and discharge into the gutter without flattening out. The end of the valley trough should be trimmed using a fine-toothed hacksaw to the approximate centreline of the gutter. Alternatively, a soaker of lead (minimum Code 4) may be fitted and dressed into the gutter. The GRP valley troughs should then be fitted, starting at the foot of the valley. Care should be taken to ensure 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.

3.7 At the head of a valley, a lead saddle (minimum Code 4) of sufficient length should be fixed to lap over the valley trough by the same length required between the two GRP valley trough units.

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

3.9 The slates should be installed in accordance with the manufacturers instructions allowing a 50 mm overhang into the valley trough.

Product codes DVS1 and DVS2

3.10 The Dry Valley Troughs for slates DVS1 and DVS2 are designed to fit directly onto either new or existing valley boards in accordance with section 3.1.

3.11 The valley should first be lined longitudinally with a BS 747 : 2000 Type 1F or BBA approved underlay material one metre wide allowing for overlapping into the rainwater gutter. A length of the DVS should be both firmly pressed down onto the valley board to support its base, as well as pressed together to minimise the gap in the central upstand section. The Dry Valley for tiles will hinge to suit a minimum of 17.5° to 60° roof pitch and a maximum of 20° unequal pitch.

3.12 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 be used. Battens are cut so that they locate onto the flat fixing edges of the valley and nailed through into the supporting boards.

3.13 The fascia board should be cut to allow the GRP valley trough to pass through and discharge into the gutter. The end of the valley trough should be trimmed using a fine-toothed hacksaw to the approximate centreline of the gutter. Alternatively, a lead soaker (minimum Code 4) may be fitted and dressed into the gutter.

3.14 The DVS should be fitted, starting at the foot of the valley, with care taken to ensure they are located centrally on the valley boards before nailing the sides at a maximum of 500 mm centres to the valley boards using nails of a quality acceptable in good roofing practice.

3.15 Consecutive lengths of these valley troughs should be laid allowing a minimum overlap of 150 mm when measured vertically. Where valleys intersect, they should be trimmed with a fine-toothed saw to form a mitred joint and dressed with a lead saddle (minimum Code 4).

3.16 The slates should be installed in accordance with the manufacturer's instructions. The slates should be cut as normal into the valley and abutted against the raised centre section. To avoid distortion, care should be taken not to force the slates too heavily against it.

Product code SSVT

3.17 The Scottish Slate Valley Trough (SSVT) is designed to comply with Scottish roofing practice, which is generally that of nailing slates directly onto sarking boards.

3.18 The valley should first be lined longitudinally with a BS 747 : 2000 Type F or BBA approved roofing underlay one metre wide. A length of the SSVT should be pressed to achieve a snug fit into the valley board. The SSVT will adapt to suit pitches from as low as 17.5° up to 60°.

3.19 The fascia board should be cut to allow the GRP valley trough to pass through and discharge into the gutter. The end of the valley trough should be trimmed using a fine-toothed hacksaw to the approximate centreline of the gutter. Alternatively, a lead soaker (minimum Code 4) may be fitted and dressed into the gutter.

3.20 The SSVT should be fitted, starting at the foot of the valley, with care taken to ensure that it is located centrally in the valley before nailing the sides at a maximum of 500 mm centres to the sarking boards using nails of a quality acceptable in good roofing practice.

3.21 The slates should be laid in accordance with the manufacturer's recommendations and BS 5534-1: 1997.

3.22 At the ridges, the SSVT should be weathered with a lead saddle (minimum Code 4).

Technical Investigations

The following is a summary of the technical investigations carried out on Hambleside Danelaw GRP Valley Troughs for Slated Roofs:

4 Tests

Tests were carried out by the BBA to examine the following properties:

impact resistance
density
glass/resin ratio
cross-breaking strength
hardness
effect of elevation temperature
effect of water.

5 Investigations

5.1 The results of fire tests in accordance with BS 476-3 : 1958, carried out by an independent test authority, were assessed.

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

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 747 : 2000 *Reinforced bitumen sheets for roofing — Specification*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

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

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Fourth issue: 28th February 2003

Chief Executive

**Original Detail Sheet issued 28th September 1987. This revised version includes revised* Technical Specification *and* Installation *information.*

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For additional information about the Certificate, tel: 01923 665300. For information about Agrément Certificate validity and scope, tel: Hotline 01923 665400, or check the BBA website.

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Hambleside Danelaw Ltd

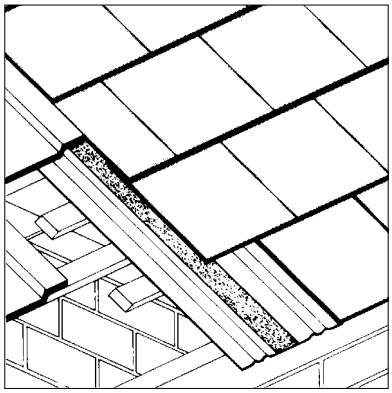
HAMBLESIDE DANELAW GRP BONDING GUTTERS

Certificate No 87/1915

DETAIL SHEET 4

*Fifth issue**

Product



- *THIS DETAIL SHEET RELATES TO HAMBLESIDE DANELAW GRP BONDING GUTTERS, COMPRISING HAMBLESIDE DANELAW GRP BONDING GUTTER[1] (BG) AND HAMBLESIDE DANELAW DRY FIX BONDING GUTTER (DBG1 AND DBG2) EACH FOR USE AS A WEATHERPROOF JOINTING METHOD AT THE JUNCTION OF DIFFERENT SLATE AND/OR TILED ROOF COVERINGS IN THE SAME PLANE.*
- *Roofs must be constructed in accordance with the relevant requirements of BS 5534 : 2003.*
- *The product can be used at joints on tiled and/or slated roofs.*

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

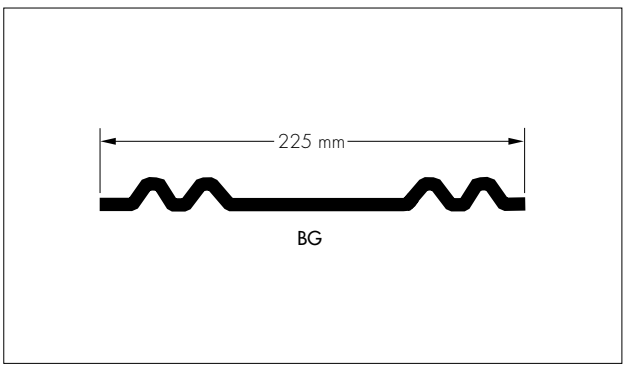
(1) Hambleside Danelaw GRP Bonding Gutter is a Registered trademark.

Technical Specification

1 Description

1.1 Hambleside Danelaw Bonding Gutter (BG) is manufactured from a glass-fibre/polyester laminate in a continuous process to the profile illustrated (see Figure 1). A mortar bonding strip is provided along the centre line of the upper surface to provide a key for bedding the roof tiles/slates in mortar.

Figure 1 Danelaw Bonding Gutter



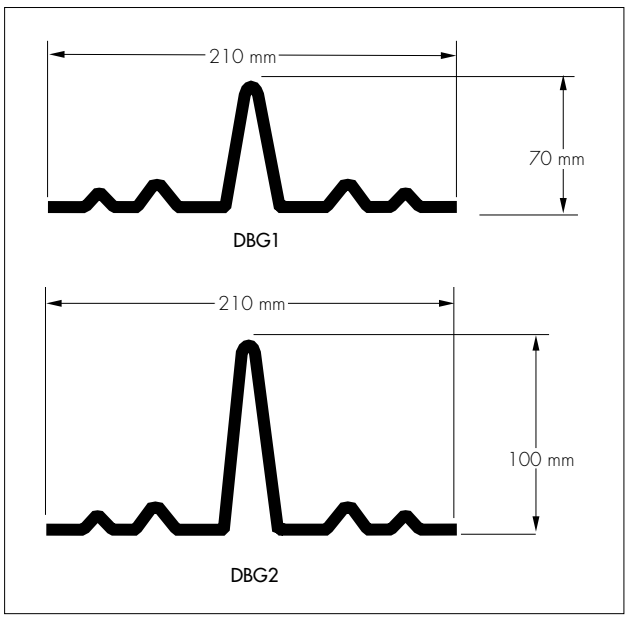
1.2 The Hambleside Danelaw Dry Fix Bonding Gutter (DBG1 and DBG2) is manufactured from a glass-fibre/polyester laminate in a continuous process to the profiles (see Figure 2), and has a plain finish. The DBG1 profile incorporates a central upstand of 70 mm high to suit slates and flat interlocking and plain tiles, and the DBG2 a profile of 100 mm high to suit profiled tiles on one or both sides and typical Scottish practice where tiling battens may occur on one side only.

1.3 The profiles are supplied in 3 metre lengths and in widths (mm) of:

BG	225
DBG1	210
DBG2	210

1.4 The products are finished in the standard colour lead grey and have a laminated film on the upper surface giving a gloss finish which improves the weather resistance of the GRP.

Figure 2 Dry fix bonding gutter (DBG1 and DBG2 profiles)



1.5 Quality control of the product includes visual inspection and checks on weight and dimensions.

Installation

2 General

Installation of Hambleside Danelaw GRP Bonding Gutters should be in accordance with the Certificate holder's instructions, the product label and the relevant recommendations of BS 5534 : 2003 and BS 8000-6 : 1990.

3 Procedure

3.1 The underlay and battens over the joint area of the party-wall should be made good. Battens may cross over the party-wall without trimming.

3.2 The adjoining roof should be prepared by marking and cutting the tiles or slates to a straight line midway over the party-wall and renewing or replacing any defective or decayed underlay, battens and nails back to the nearest appropriate rafter.

3.3 The bonding gutter should be positioned and nailed to the battens (or sarking boards in Scottish practice) through the outer flanges only and at 500 mm centres maximum, using nails of a quality acceptable in good roofing practice.

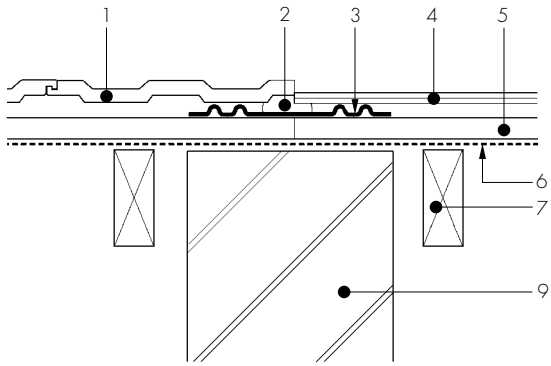
3.4 Consecutive lengths of bonding gutter should be laid allowing a 150 mm overlap when measured vertically at the joints and extending over the fascia board into the gutter.

3.5 With the BG bonding gutter, the tiles or slates should then be fixed with a butt joint over the centre of the bonding gutter and bedded onto mortar or mastic laid on the mortar bonding strip. The water channels must be left free from mortar or mastic (see Figure 3).

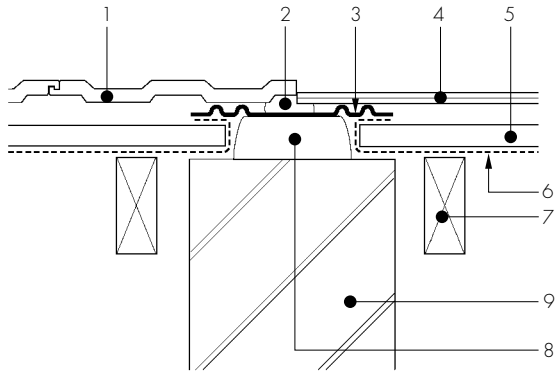
3.6 With the DBG1 and DBG2 bonding gutters, the sides of the central upstand should be pinched together when nailing and the slates or tiles should be laid close to or touching the central upstand on both sides (see Figure 4). Care should be taken to:

- avoid any pressure or distortion
- maintain the straight line appearance of the profile
- when fixing, avoid nailing into or between the water channels.

Figure 3 Typical installation using the BG Gutter



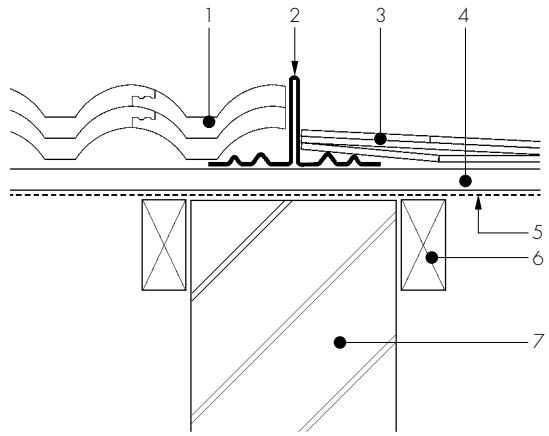
Bonding of adjacent roofs — GRP



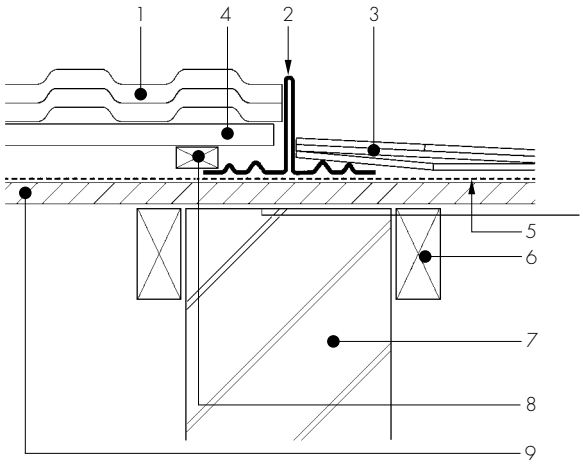
Bonding with fire break — GRP

1 tiles
2 mortar bed
3 bonding gutter
4 slates
5 batten
6 roof underlay
7 rafter
8 mortar barrier
9 party-wall

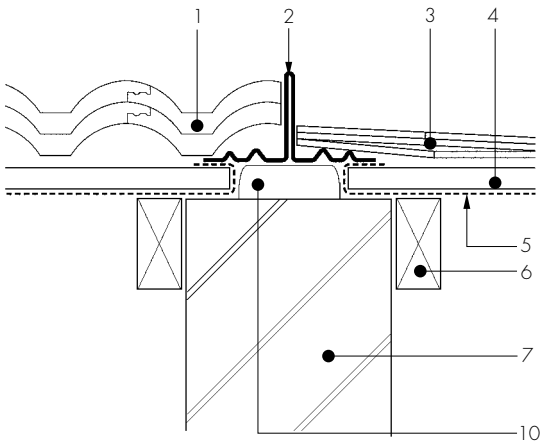
Figure 4 Typical installation using the DBG1 and DBG2 Gutter



Bonding of adjacent roofs — Dry Fix



Typical Scottish installation



Bonding with fire break — Dry Fix

1 tiles
2 bonding gutter
3 slates
4 batten
5 roof underlay
6 rafter
7 party-wall
8 counter batten
9 sarking board
10 mortar barrier

Technical Investigations

The following is a summary of the technical investigations carried out on Hambleside Danelaw GRP Bonding Gutters.

4 Tests

4.1 As part of the assessment leading to the issue of Certificate No 84/1398, tests were carried out in accordance with MOAT No 9 : 1973, to determine:

- impact resistance
- density
- glass/resin ratio
- cross-breaking strength
- hardness
- effect of elevation temperature
- effect of water.

4.2 As part of the original assessment the following properties were re-examined:

- density
- glass/resin ratio
- hardness
- cross-breaking strength.

5 Investigations

5.1 The results of fire tests in accordance with BS 476-3 : 1958, carried out by an independent test authority, were assessed.

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

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

5.4 A survey of known users was carried out to assess the performance of the products in use.

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

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

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

MOAT No 9 : 1973 *UEAtc Directive for the Assessment of Glass-Reinforced Polyester for use in Building*

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Fifth issue: 8th October 2004

Chief Executive

**Original Detail Sheet issued 28th September 1987. This revised version includes the additional product details, addition of the Dry Fix profiles and Scottish Installation and reference to revised Standards.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

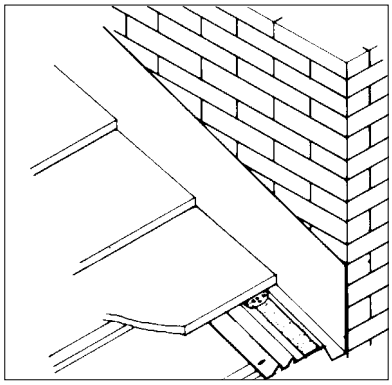
Hambleside Danelaw Ltd

HAMBLESIDE DANELAW GRP CONTI-SOAKERS

Certificate No 87/1915

DETAIL SHEET 5
*Fourth issue**

Product



- *THIS DETAIL SHEET RELATES TO HAMBLESIDE DANELAW GRP CONTI-SOAKERS FOR USE AS CONTINUOUS SOAKERS ON TILED OR SLATED ROOFS.*
- *Roofs must be constructed in accordance with the relevant requirements of BS 5534-1 : 1997.*
- *The products are available in two forms, one for use with tiles and another for slates, both are available without a lip for use with stepped lead flashing.*

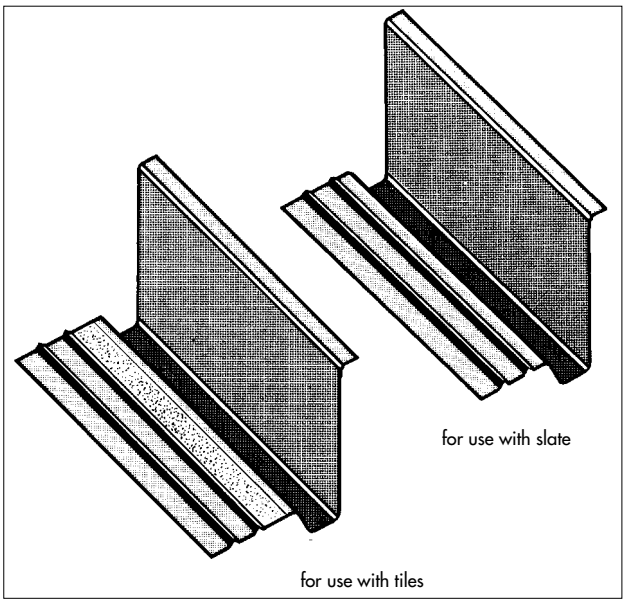
This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

Technical Specification

1 Description

1.1 The Hambleside Danelaw GRP Conti-soakers are manufactured from glass-fibre/polyester laminates in a continuous process to the profiles illustrated, one for use with tiles and another for slates (see Figure 1). A mortar bonding strip is provided on the upper surface of the tile soaker to provide a key for bedding the tiles in mortar.

Figure 1 Hambleside Danelaw GRP Conti-soakers



1.2 The profiles are supplied in 3 metre lengths.

1.3 Normally a lip along the upper edge is included to provide fitment into a groove cut in the abutment. However, soakers without this lip may be supplied for use with GRP or stepped lead cover flashings.

1.4 The products are finished in the standard colour lead grey and normally have a matt finish. However, they are also available with a laminated film on the upper surface giving a gloss finish which improves the weather resistance of the GRP.

1.5 Quality control of the product includes visual inspection and checks on weight and dimensions.

Installation

2 General

The Hambleside Danelaw GRP Conti-soakers must be installed in accordance with the Certificate holder's instructions, the product label and the relevant recommendations of BS 5534-1 : 1997 and BS 8000-6 : 1990.

3 Procedures

Lipped Conti-soakers

3.1 The roof and abutment should be made good, and the underlay run up the abutment approximately 100 mm. Battens should be cut short to allow a 60 mm gap between the counter batten and the abutment and supported by noggings or bearers as necessary.

3.2 Using a Conti-soaker as a measure, the abutment should be marked and routed to a depth of 30 mm.

3.3 The Conti-soakers should be cut to length, allowing a 150 mm overlap when measured vertically at each joint. An additional overlapped joint may be necessary to accommodate the change in roof angle near the soffit.

3.4 The Conti-soaker should be laid along the abutment and its outside edge nailed to the battens through pre-drilled holes.

3.5 The lipped edge should be wedged or fixed securely and sealed into the chase using a high quality external grade sealant or mastic.

3.6 Slates should be laid in the normal manner directly over the soaker water bars. Tiles should be bedded onto mortar laid along the mortar bonding strip. In each case a minimum gap of 25 mm must be left over the water channel (see Figures 2 and 3).

Figure 2 Slate installation

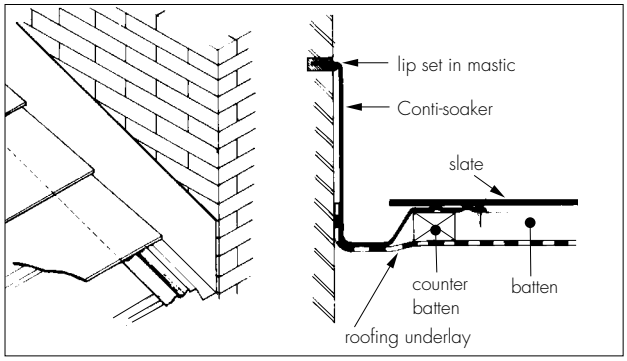
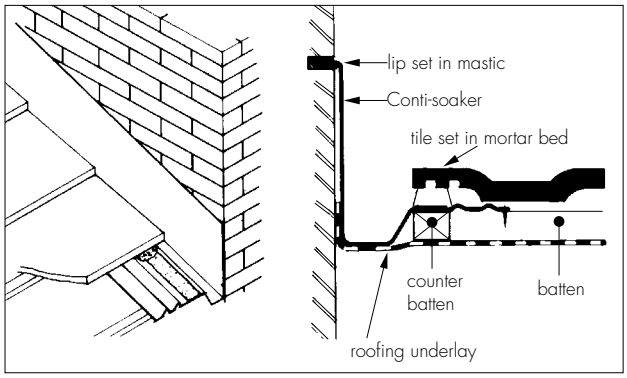


Figure 3 Tile installation



Unlipped Conti-soakers

3.7 The roof and abutment should be made good and the underlay run up the abutment approximately 100 mm. Battens should be cut short to allow a 60 mm gap between the counter batten and abutment and supported by noggings or bearers as necessary.

3.8 The Conti-soakers should be cut to length, allowing a 150 mm overlap when measured vertically at each joint. An additional overlapped joint may be necessary to accommodate the change in roof angle near the soffit.

3.9 The Conti-soaker should be laid along the abutment and its outside edge nailed to the batten through pre-drilled holes.

3.10 The upstand face of the Conti-soaker should have stepped or continuous lead or GRP cover flashing fitted into the abutment wall, and dressed over to provide adequate cover.

3.11 Slates should be laid in the normal manner directly over the soaker water bars. Tiles should be bedded onto mortar laid along the mortar bonding strip. In each case a minimum gap of 25 mm must be left over the water channel (see Figures 2 and 3).

Technical Investigations

The following is a summary of the technical investigations carried out on Hambleside Danelaw GRP Conti-soakers.

4 Tests

Tests were carried out by the BBA to examine the following properties:

impact resistance
density
glass/resin ratio
cross-breaking strength
hardness
effect of elevation temperature
effect of water.

5 Investigations

5.1 The results of fire tests in accordance with BS 476-3 : 1958, carried out by an independent test authority, were assessed.

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

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

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

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Fourth issue: 28th February 2003

Chief Executive

**Original Detail Sheet issued 28th September 1987. This revised version includes change of* Technical Specification *and* Installation *information.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Hambleside Danelaw Ltd

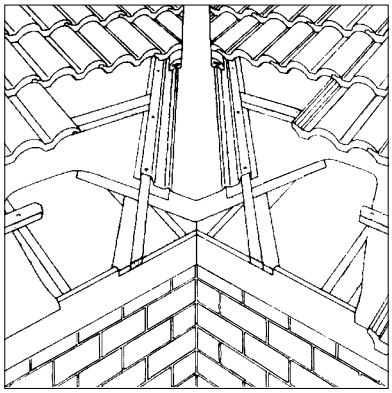
DANELAW GRP VALLEY TROUGH FOR INTERLOCKING TILED ROOFS

Certificate No 87/1915

DETAIL SHEET 6

*Fourth issue**

Product



- *THIS DETAIL SHEET RELATES TO HAMBLESIDE DANELAW GRP VALLEY TROUGH FOR USE ON TILED ROOFS USING INTERLOCKING TILES ONLY.*
- *Tiled roofs must be constructed in accordance with the relevant requirements of BS 5534-1 : 1997.*

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification.

Technical Specification

1 Description

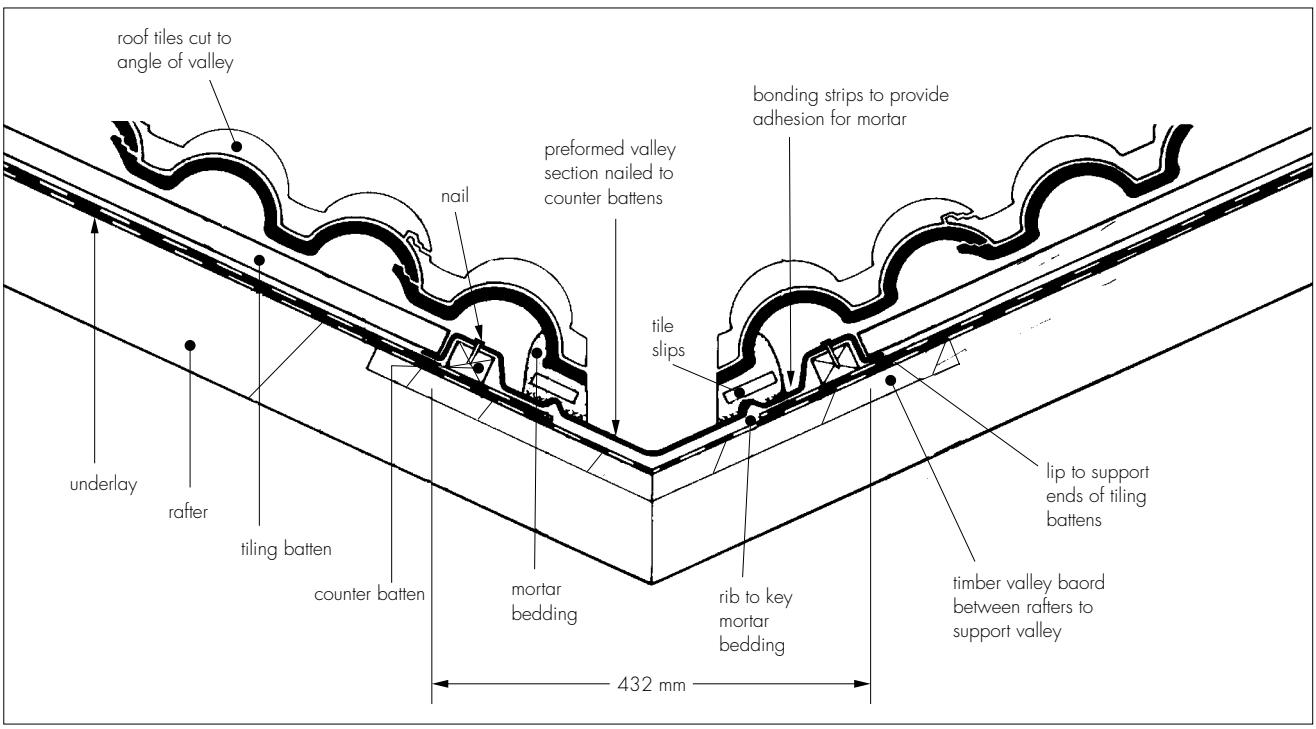
1.1 The Danelaw GRP Valley Trough for Interlocking Tiled Roofs is manufactured from glass-fibre/polyester laminate in a continuous process to the profile illustrated (see Figure 1). Mortar bonding strips are provided along the upper surface of the trough, at the positions shown, to provide a key for bedding the roof tiles in mortar.

1.2 The profile is supplied in 3 m lengths and is produced with a pitch of 21° but can be adapted by bending to accommodate roof pitches from 22.5° to 45°.

1.3 The product is finished in the standard colour lead grey.

1.4 Quality control of the product includes visual inspection and checks on weight and dimensions.

Figure 1 Standard valley section



Installation

2 General

Installation of Danelaw GRP Valley Trough for Interlocking Tiled Roofs should be in accordance with the Certificate holder's instructions, those on the product label and the relevant recommendations of BS 5534-1 : 1997 and BS 8000-6 : 1990.

3 Procedure

3.1 Installation should be carried out prior to application of the tile battens.

3.2 Valley boards should be used and be lined longitudinally with reinforced underlay one metre wide. Counter battens of similar size to those to be used for the tiling battens should be fixed on both sides, along the length of the valley. The profiled valley trough should be fitted over the battens and nailed into place. The valley trough can be bent to fit a range of pitch angles (see section 1.2).

3.3 Commencing at the foot, the valley trough should be nailed to the counter battens through drilled holes at 600 mm centres, using nails of a quality acceptable in good roofing practice.

3.4 Consecutive lengths of valley trough should be laid with a 150 mm overlap when measured vertically at the joints, and fixed with two aluminium nails per side, finally trimming the head and foot of the valley using a fine-toothed saw.

3.5 The tiling battens are fixed and cut to the angle of the valley trough, the ends supported by the projecting lips.

3.6 The tiles are laid and then cut to the rake of the valley, leaving a 125 mm central channel. The cut tiles are bedded in mortar applied over the sanded strip provided for keying and then neatly pointed. With deep profiled interlocking tiles, tile slips are used to reduce the risk of mortar shrinkage.

Technical Investigations

The following is a summary of the technical investigations carried out on Hambleside Danelaw GRP Valley Trough For Interlocking Tiled Roofs.

4 Tests

Tests were carried out by the BBA to examine the following properties:

density
glass/resin ratio
cross-breaking strength
hardness
effect of elevation of temperature
effect of water.

5 Investigations

5.1 An assessment was made of the results of existing fire tests in accordance with BS 476-3 : 1958, carried out by an independent test authority.

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

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

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

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TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Fourth issue: 28th February 2003

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