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Agrément Certificate No 07/4470

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Designated by Government to issue European Technical Approvals

METROTILE ROOFING SYSTEM

Système d'étanchéité léger pour toitures
Dachabdichtungen

Product

- *THIS CERTIFICATE REPLACES CERTIFICATE No 00/3695 AND RELATES TO THE METROTILE ROOFING SYSTEM, A RANGE OF PREFORMED ROOFING TILES. THE PRODUCTS ARE MADE FROM STEEL COATED WITH ALUMINIUM-ZINC ALLOY AND EPOXY OR ACRYLIC PRIMER, FINISHED WITH A MINERAL-FILLED ACRYLIC FOLLOWED BY STONE GRANULES AND A CLEAR ACRYLIC GLAZE COAT.*
- *Accessories are available in the same finish.*

continued

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 tiling and profiled sheets with the Building Regulations. In the opinion of the BBA, the Metrotile Roofing System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	B3(2)	Internal fire spread (structure)
Comment:		The system meets this Requirement. See the tinted areas in the *Performance in relation to fire* section of these Front Sheets.
Requirement:	B4(2)	External fire spread
Comment:		The system is unrestricted under this Requirement. See the tinted areas in the *Performance in relation to fire* section of these Front Sheets.
Requirement:	C2(b)	Resistance to moisture
Comment:		The system meets this Requirement. See the tinted area in the *Weathertightness* section of these Front Sheets.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See the tinted area in the *Durability* section of these Front Sheets.

continued

- *The tiles are installed with a sarking felt or underlay, on timber or steel trusses at the minimum pitch angles given in the relevant Detail Sheet. The trusses must be properly secured to the structure.*
- *The products should only be installed by installers who have been trained and appointed by the Certificate holder.*
- *The products are manufactured by Metrotile Europe in Belgium.*

These Front Sheets must be read in conjunction with the accompanying Detail Sheets, which provide information on specific roof tiles.

2 The Building (Scotland) Regulations 2004 (as amended)

In the opinion of the BBA, the Metrotile Roofing System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	**8**	**Fitness and durability of materials and workmanship**
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See the tinted area in the *Durability* section of these Front Sheets and the *Installation* part of the accompanying Detail Sheets.
Regulation:	**9**	**Building standards — construction**
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The system can contribute to satisfying these Standards, with reference to clauses 2.1.16[2], 2.2.7[2] and 2.2.10[1], respectively. See the tinted areas in the *Performance in relation to fire* section of these Front Sheets.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The system is unrestricted under this Standard, with reference to clause 2.8.1[1][2]. See the tinted areas in the *Performance in relation to fire* section of these Front Sheets.
Standard:	3.10	Precipitation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.10.1[1][2] and 3.10.8[1][2]. See the tinted area in the *Weathertightness* section in these Front Sheets.
Regulation:	**12**	**Building standards — conversions**
Comment:		All comments given for this system under Regulation 9 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).

3 The Building Regulations (Northern Ireland) 2000 (as amended)

In the opinion of the BBA, the Metrotile Roofing System, 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 system is acceptable. See the tinted area in the *Durability* section of these Front Sheets.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The system meets the requirements of this Regulation. See the tinted area in the *Weathertightness* section of these Front Sheets.
Regulation:	E4	Internal fire spread — Structure
Comment:		The system meets the requirements of this Regulation. See the tinted area in the *Performance in relation to fire* section of these Front Sheets.
Regulation:	E5	External fire spread
Comment:		The system is unrestricted under this Regulation. See the tinted areas in the *Performance in relation to fire* section of these Front Sheets.

4 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 sections:	6 *Delivery and site handling* (6.1), and 12 *Maintenance* (12.1 and 12.2) of these Front sheets and 1 *Description* (1.2) and 2 *General* (2.8) of the appropriate Detail Sheet.

Technical Specification

5 Description

5.1 The Metrotile Roofing System roof tiles are pressed from coated steel sheet to a shape simulating conventional tiles or shakes/shingles.

5.2 The 0.45 mm or 0.9 mm thick steel sheet has a hot-dip AZ (aluminium-zinc at 55:45) coating of 185 gm^{-2} and is designated DX52D+AZ185 to BS EN 10327 : 2004. The sheet is coated on both sides with an epoxy or acrylic primer and finished with a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat.

5.3 The roof tiles are further described in the accompanying Detail Sheets.

5.4 Accessories with matching decorative surfaces are[1]:

- ridge/hip cap — to cover 1150 mm
- standard barge cover — to cover 1150 mm
- side flashing — to cover 1150 mm
- barrel cap/vee ridge — to cover 370 mm

(1) Additional flashings with matching decorative surfaces are available to order.

5.5 The Certificate holder can supply a guillotine and a tile-bending machine. Other accessories include:

- flat-headed tile-fixing nails 50 mm long by 2.8 mm diameter, serrated or annular grooved and painted (Metroshingle nails are 35 mm long by 2.7 mm diameter). Galvanized steel is normally used, except in coastal areas where stainless steel should be used
- finishing kit of pigmented, acrylic-based emulsion and matching granules for use on vertically driven nail heads and to restore damaged areas.

5.6 Other accessories available, but not covered by this Certificate, include:

- complete roof ventilation systems
- clear polycarbonate vision tiles
- gas flue ridge terminals.

5.7 Quality control is exercised over raw materials, during manufacture, and on the final products.

6 Delivery and site handling

6.1 Tiles are delivered to site on timber pallets 1370 mm long by 1080 mm wide. The maximum number of tiles per pallet is 400 for 0.45 mm thick tilesheets and 280 for 0.9 mm thick tilesheets, giving a total weight of approximately 1300 kg.

6.2 During transport the edges and corners of tiles must be protected to prevent damage.

6.3 On site the pallets should be stored on a firm, dry base away from the possibility of damage, covered to prevent water ingress, and as close as possible to the building where they are to be installed.

Design Data

7 General

7.1 The Metrotile Roofing System is suitable for use, in conjunction with a suitable underlay material, as a weatherproof and decorative covering on a conventional timber or steel structure. Minimum roof pitches are given in the appropriate product Detail Sheet.

7.2 Care should be taken when designing and installing features such as hips, valleys, rooflights and skew roofs, particularly at low roof pitches.

7.3 To prevent electro-chemical corrosion, direct contact with copper or its alloys should be avoided and copper roofs should not drain onto the installation.

8 Weathertightness

The system, with a proper underlay, has a satisfactory resistance to the passage of rain and snow.

9 Strength and stability

9.1 The system has good resistance to the effects of wind suction likely to be met in service.

9.2 The system weighs considerably less than conventional roofing materials, and must be securely attached to the structure to prevent wind uplift under adverse conditions.

10 Performance in relation to fire

10.1 Charcoal and antique red samples of the Metrotile Roofing System were tested to BS 476-3 : 2004 and achieved EXT.S.AA ratings.

10.2 The performances stated in 10.1 may not be achieved by other colours in the range. The performance of other colours should be confirmed by:

England and Wales

Test or assessment, in accordance with Approved document B, Appendix A, Clause 1

Scotland

Test to conform with Table to Annex 2C[1] and 2E[2] of Regulation 9.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland

Test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

11 Resistance to damage

11.1 The system will not be deformed by normal maintenance traffic.

11.2 The tiles may be deformed by impact. 0.9 mm thick tilesheets will be more resistant to impact damage than 0.45 mm thick tilesheets. Damaged tiles can be replaced relatively easily but care should be taken to prevent damage to adjacent tiles. The slight variation in colour between new and existing tiles should be acceptable.

12 Maintenance

12.1 For maintenance work, roof ladders or crawling boards should be used, but care is still required to prevent damage. Flat rubber-soled shoes must be worn when walking on the roof.

12.2 Small damaged areas should be re-coated using the touch-up kit comprising pigmented acrylic-based emulsion, with matching granules if required.

13 Durability

13.1 The acrylic and aluminium-zinc alloy coatings will protect the steel substrate against corrosion and will give the product an ultimate life in excess of 40 years.

13.2 Localised maintenance treatment may be necessary within 30 years to restore the appearance where chippings may have been lost or the coating eroded.

Installation

14 General

14.1 The standard of installation of the Metrotile Roofing System should comply with the requirements of BS 8000-6 : 1990.

14.2 Metrotile roof tiles can be installed at all temperatures likely to be met in roofing works. However, at temperatures below –10°C extra care is required, particularly when driving nails and cutting and bending tiles.

14.3 The roof construction must be adequate to resist the loadings detailed in BS 6399-1 : 1996 and BS 6399-2 : 1997.

14.4 The roof space must be adequately ventilated in accordance with BS 5250 : 1989.

14.5 The underlay must be to BS 747 : 2000, Type 1F or 5U, or covered by an Agrément Certificate and installed in accordance with that Certificate.

Technical Investigations

The following is a summary of the technical investigations carried out on the Metrotile Roofing System.

15 Tests

15.1 Assessments were made of tests carried out by independent laboratories to determine:

- durability of tiles
- strength of tiles
- resistance to rain penetration
- corrosion resistance
- watertightness
- loading
- resistance to wind uplift
- resistance to thermal shock.

15.2 Tests were carried out by the BBA to determine:

- resistance to chipping
- resistance to artificial weathering
- ease of forming.

16 Investigations

16.1 The manufacturing process was examined and details were obtained of the method of manufacture and quality controls conducted on intermediates and the final product.

16.2 An assessment was made of independent investigations to BS 476-3 : 2004.

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

Additional Information

Metrotile Europe has been assessed and registered as meeting the requirements of EN ISO 9001 : 2000 for the manufacture and sale of metal roofing sheets by Bureau Veritas Quality International (Certificate No 134697).

Bibliography

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

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

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 6399-1 : 1996 *Loading for buildings — Code of practice for dead and imposed loads*
BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

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

BS EN 10327 : 2004 *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming — Technical delivery conditions*

EN ISO 9001 : 2000 *Quality management systems — Requirements*

Conditions of Certification

17 Conditions

17.1 This Certificate:

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

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

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

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

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

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

17.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, the Metrotile Roofing System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 07/4470 is accordingly awarded to Metrotile UK Limited.

On behalf of the British Board of Agrément

Date of issue: 14th September 2007

Chief Executive

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Metrotile UK Limited

METROBOND 450 AND METROBOND 900

Certificate No 07/4470

DETAIL SHEET 2

Product

- *THIS DETAIL SHEET RELATES TO METROBOND 450 AND METROBOND 900, PREFORMED ACRYLIC-COATED, ALUMINIUM-ZINC ALLOY-COATED STEEL TILES WHICH SIMULATE EIGHT CONVENTIONAL ROOFING TILES.*
- *Metrobond 450 and Metrobond 900 tiles have a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat, and are available in 11 colours with a steel thickness of 0.45 mm and 0.9 mm respectively.*
- *The tiles may be installed on conventional steel or timber structures with a minimum pitch of 10°.*

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

Technical Specification

1 Description

1.1 Metrobond 450 and Metrobond 900 tiles are pressed from epoxy or acrylic-coated aluminium-zinc alloy-coated steel sheet to a shape simulating eight conventional tiles (see Figure 1). The tiles are finished with a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat (see Figure 2).

1.2 The tiles have the dimensions given in Table 1.

Table 1 Tile dimensions

Characteristic (unit)	Tile type	
	Metrobond 450	Metrobond 900
Thickness of sheet (mm)	0.45	0.9
Length of sheet (mm)	1330	1330
Cover length (mm)	1257	1257
Cover width (mm)	370	368
Upstand (mm)	24	25
Side lap (mm)	64	64
Weight of tile (kg)	2.8	4.6
Weight of tiled roof (kgm^{-2})	6.2	9.9

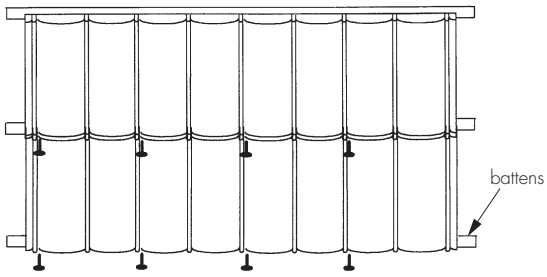
1.3 The tiles have a downturned lower edge and an upturned upper edge for interlocking purposes (see Figure 3).

1.4 Adjacent tiles are overlapped with side laps of one corrugation (see Figure 4).

1.5 The tiles are available in six standard colours:

- terracotta
- coffee
- brindle
- charcoal
- greenstone
- red.

Figure 1 Metrobond tiles and nailing points



nailing points 4 per tile

Figure 2 Section through tile

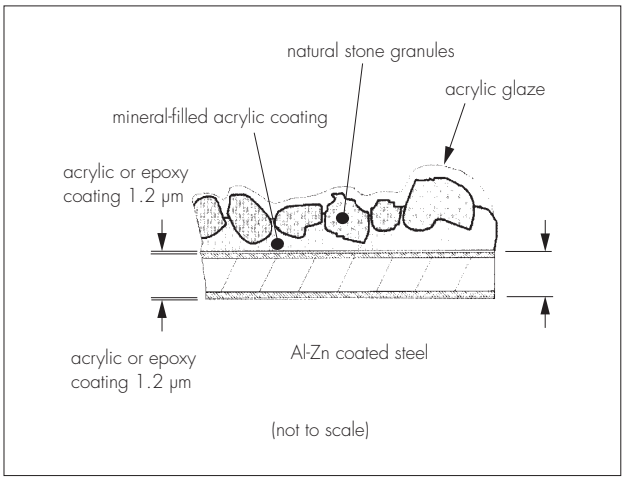


Figure 3 Spacing and fixing details

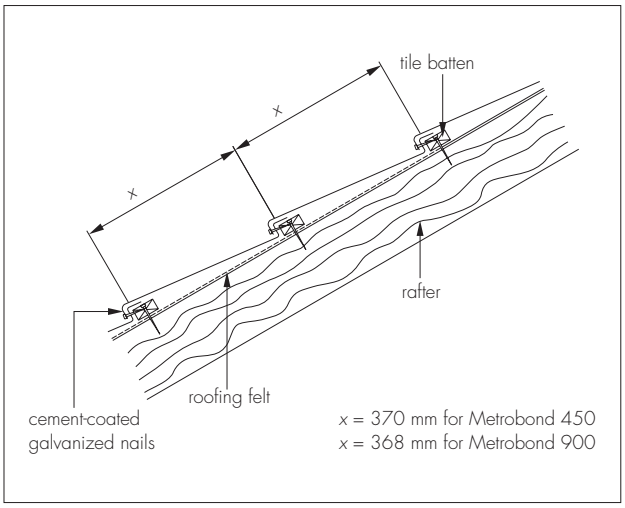


Figure 4 Overlap details

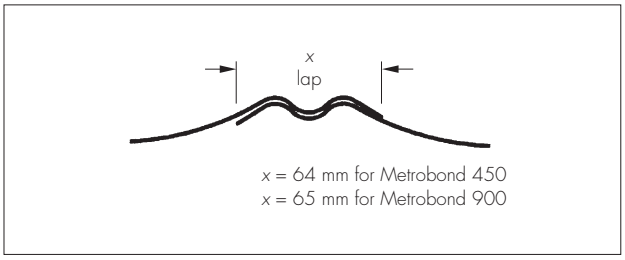
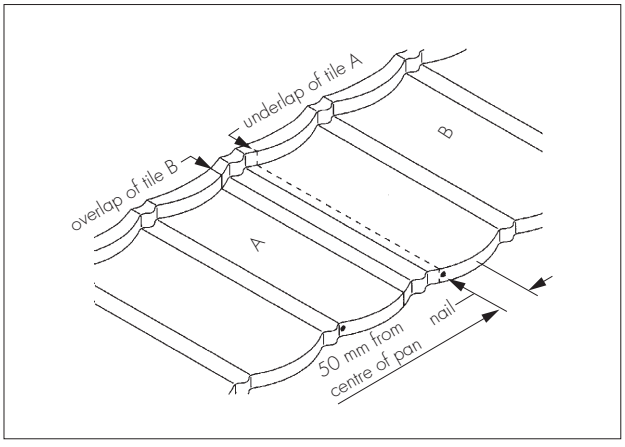


Figure 5 Overlap and nailing points



Installation

2 General

2.1 The required batten size for standard truss spacings is given in Table 2. The roof construction should be in accordance with the relevant requirements of BS 5534 : 2003

Table 2 Minimum permitted batten size for standard truss spacings

Tile profile batten size (mm)	Rafter/Truss spacing (mm)
50 x 25	450
50 x 40	600
50 x 40	900
50 x 50	1200

2.2 Where the rafters/trusses are spaced at 900 mm or 1200 mm centres, polypropylene or nylon tapes must be nailed to the rafters to support the underlay.

2.3 Rafters must be securely tied to the building structure with, for example, galvanized steel straps complying with BS 5628-3 : 2005.

2.4 Battens are secured over the underlay and roof trusses. The fixings used to secure the battens to the rafters must be adequate to resist predicted wind loads.

2.5 Where timber boarding is laid on the rafters, timber counter battens should be installed in accordance with BS 5534 : 2003.

2.6 Tiles are laid onto the battens with the upper and lower edges interlocking and with side laps of one small corrugation. Fixing is by nailing through the small corrugations adjacent to the battens on the down-turned nose and rear upstand interlocking edges using four 50 mm long by 2.8 mm diameter nails per tile (see Figures 1, 3 and 5). For Metrobond 900 it is recommended that nail positions are pre-punched to aid nail penetration through the thicker steel.

2.7 To avoid tearing the underlay fixings should not penetrate the bottom of the battens.

2.8 Tiles are preferably cut and formed with a guillotine and a tile-bending machine, but small quantities may, with care, be cut with tin snips or sheet metal cutters and bent by hand.

2.9 The accessories are cut, formed and installed as necessary to complete the installation.

Bibliography

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

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

On behalf of the British Board of Agrément

Date of issue: 14th September 2007

Chief Executive

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Metrotile UK Limited

METROSHAKE 450 AND METROSHAKE 900

Certificate No 07/4470

DETAIL SHEET 3

Product

- *THIS DETAIL SHEET RELATES TO METROSHAKE 450 AND METROSHAKE 900, PREFORMED ACRYLIC-COATED, ALUMINIUM-ZINC ALLOY-COATED, STEEL TILES WHICH SIMULATE IRREGULAR SHAPED SHAKE ROOFING TILES.*
- *Metroshake 450 and Metroshake 900 tiles have a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat, and are available in 11 colours with a steel thickness of 0.45 mm and 0.9 mm respectively.*
- *The tiles may be installed on conventional steel or timber structures with a minimum pitch of 12°.*

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

Technical Specification

1 Description

1.1 Metroshake 450 and Metroshake 900 tiles are pressed from epoxy- or acrylic-coated aluminium-zinc alloy-coated steel sheet to a shape simulating irregular shaped shake tiles (see Figure 1). The tiles are finished with a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat (see Figure 2).

1.2 The tiles have the dimensions given in Table 1.

Table 1 Tile dimensions

Characteristic	Tile type	
(unit)	Metroshake 450	Metroshake 900
Thickness of sheet (mm)	0.45	0.9
Length of sheet (mm)	1330	1330
Cover length (mm)	1257	1257
Cover width (mm)	370	370
Upstand (mm)	28 (at highest point)	28 (at highest point)
Side lap (mm)	64	64
Weight of tile (kg)	2.8	4.6
Weight of tiled roof (kgm^{-2})	6.2	9.9

1.3 The tiles have a downturned lower edge and an upturned upper edge for interlocking purposes (see Figure 3).

1.4 Adjacent tiles are overlapped with side laps of 64 mm (see Figure 4).

1.5 The tiles are available in five standard colours:

- terracotta
- coffee
- red.
- charcoal
- greenstone

Figure 1 Metroshake tiles and nailing points

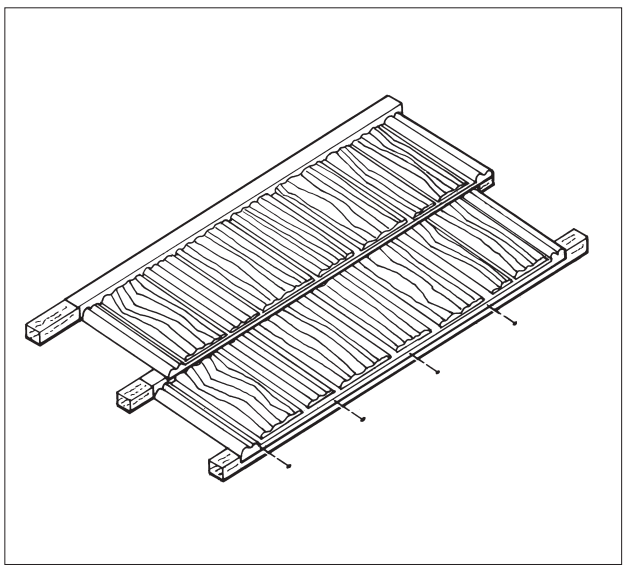


Figure 2 Section through tile

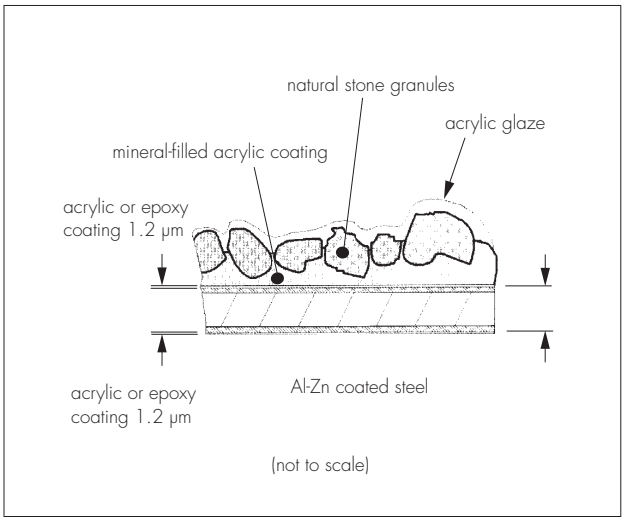


Figure 3 Spacing and fixing details

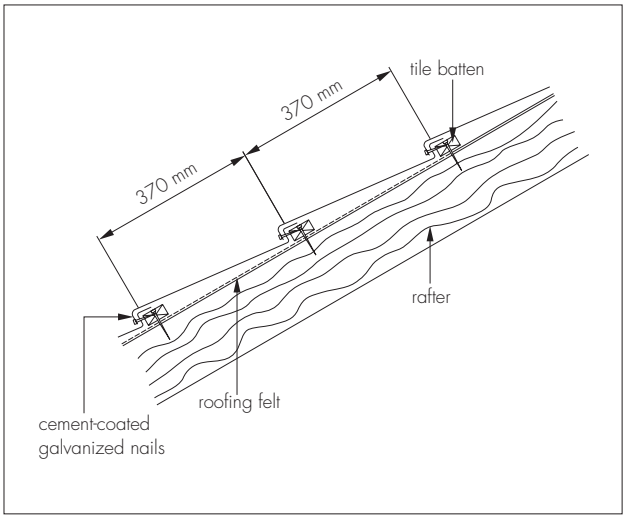


Figure 4 Overlap details

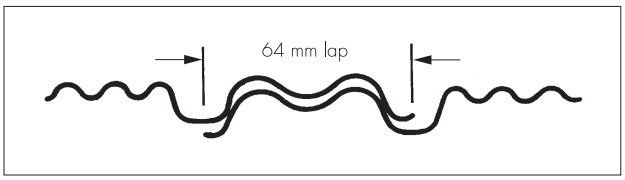
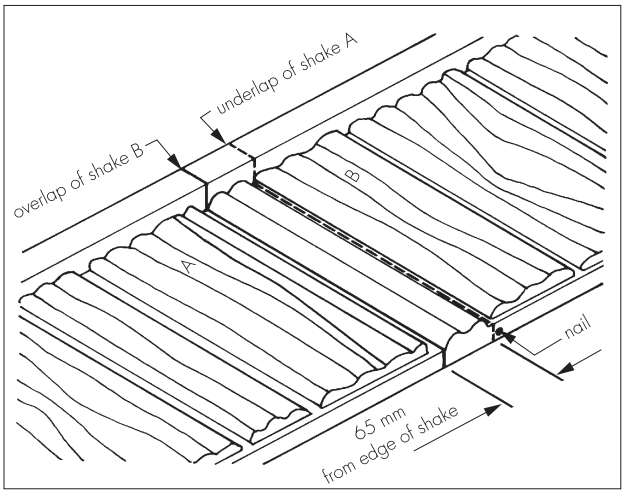


Figure 5 Overlap and nailing points



Installation

2 General

2.1 The required batten size for standard truss spacings is given in Table 2. The roof construction should be in accordance with the relevant requirements of BS 5534 : 2003

Table 2 Minimum permitted batten size for standard truss spacings

Tile profile batten size (mm)	Rafter/Truss spacing (mm)
50 x 25	450
50 x 40	600
50 x 40	900
50 x 50	1200

2.2 Where the rafters/trusses are spaced at 900 mm or 1200 mm centres, polypropylene or nylon tapes must be nailed to the rafters to support the underlay.

2.3 Rafters must be securely tied to the building structure with, for example, galvanized steel straps complying with BS 5628-3 : 2005.

2.4 Battens are secured over the underlay and roof trusses. The fixings used to secure the battens to the rafters must be adequate to resist predicted wind loads.

2.5 Where timber boarding is laid on the rafters, timber counter battens should be installed in accordance with BS 5534 : 2003.

2.6 Tiles are laid onto the battens with the upper and lower edges interlocking and with side laps of one small corrugation. Fixing is by nailing through the small corrugations adjacent to the battens on the down-turned nose and rear upstand interlocking edges using four 50 mm long by 2.8 mm diameter nails per tile (see Figures 1, 3 and 5). For Metroshake 900 it is recommended that nail positions are pre-punched to aid nail penetration through the thicker steel.

2.7 To avoid tearing the underlay fixings should not penetrate the bottom of the battens.

2.8 Tiles are preferably cut and formed with a guillotine and a tile-bending machine, but small quantities may, with care, be cut with tin snips or sheet metal cutters and bent by hand.

2.9 The accessories are cut, formed and installed as necessary to complete the installation.

Bibliography

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

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Metrotile UK Limited

METROROMAN

Certificate No 07/4470

DETAIL SHEET 4

Product

- *THIS DETAIL SHEET RELATES TO METROROMAN, A PREFORMED ACRYLIC-COATED, ALUMINIUM-ZINC ALLOY-COATED STEEL TILE WHICH SIMULATES FIVE CONVENTIONAL ROOFING TILES.*
- *MetroRoman tiles have a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat, and are available in 11 colours with a steel thickness of 0.45 mm.*
- *The tiles may be installed on conventional steel or timber structures with a minimum pitch of 10°.*

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

Technical Specification

1 Description

1.1 MetroRoman tiles are pressed from epoxy or acrylic-coated aluminium-zinc alloy-coated steel sheet to a shape simulating five conventional tiles (see Figure 1). The tiles are finished with a mineral filled acrylic coating followed by stone granules and a clear acrylic glaze coat (see Figure 2).

1.2 The tiles have dimensions of:

thickness of sheet (mm)	0.45
length of sheet (mm)	1280
cover length (mm)	1210
cover width (mm)	370
upstand (mm)	27
side lap (mm)	70
weight of tile (kg)	2.7
weight of tiled roof (kgm^{-2})	6.3

1.3 The tiles have a downturned lower edge and an upturned upper edge for interlocking purposes (see Figure 3).

1.4 Adjacent tiles are overlapped with side laps of 70 mm.

1.5 The tiles are available in five standard colours:

- terracotta
- charcoal
- coffee
- greenstone
- red.

Figure 1 MetroRoman tiles and nailing points

Figure 2 Section through tile

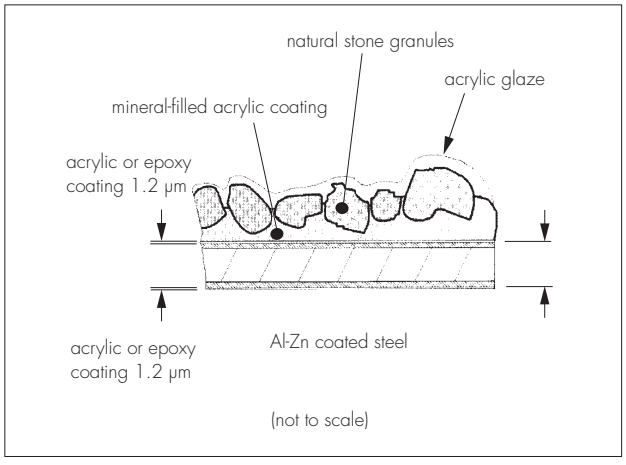
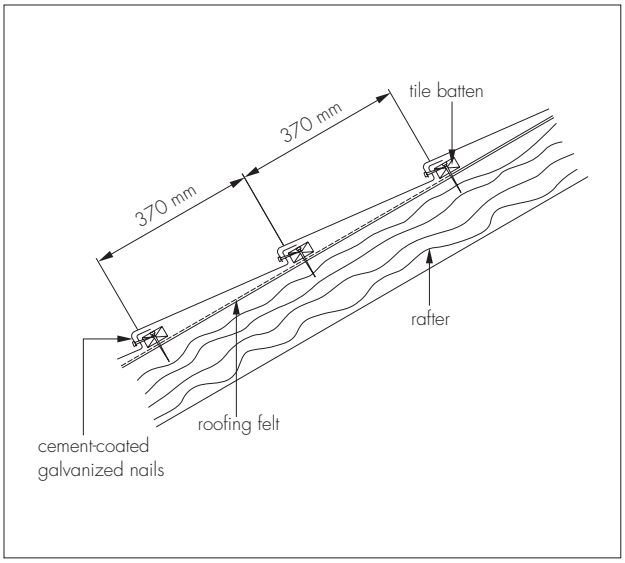


Figure 3 Spacing and fixing details



Installation

2 General

2.1 The required batten size for standard truss spacings is given in Table 1. The roof construction should be in accordance with the relevant requirements of BS 5534 : 2003.

Table 1 Minimum permitted batten size for standard truss spacings

Tile profile batten size (mm)	Rafter/Truss spacing (mm)
50 x 25	450
50 x 40	600
50 x 40	900
50 x 50	1200

2.2 Where the rafters/trusses are spaced at 900 mm or 1200 mm centres, polypropylene or nylon tapes must be nailed to the rafters to support the underlay.

2.3 Rafters must be securely tied to the building structure with, for example, galvanized steel straps complying with BS 5628-3 : 2005.

2.4 Battens are secured over the underlay and roof trusses. The fixings used to secure the battens to the rafters must be adequate to resist predicted wind loads.

2.5 Where timber boarding is laid on the rafters, timber counter battens should be installed in accordance with BS 5534 : 2003.

2.6 Tiles are laid onto the battens with the upper and lower edges interlocking and with side laps of one small corrugation. Fixing is by nailing through the small corrugations adjacent to the battens on the down-turned nose and rear upstand interlocking edges using four 50 mm long by 2.8 mm diameter nails per tile (see Figures 1 and 3).

2.7 To avoid tearing the underlay fixings should not penetrate the bottom of the battens.

2.8 Tiles are preferably cut and formed with a guillotine and a tile-bending machine, but small quantities may, with care, be cut with tin snips or sheet metal cutters and bent by hand.

2.9 The accessories are cut, formed and installed as necessary to complete the installation.

Bibliography

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

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

On behalf of the British Board of Agrément

Date of issue: 14th September 2007

Chief Executive

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TECHNICAL APPROVALS FOR CONSTRUCTION

Metrotile UK Limited

METROSHINGLE

Certificate No 07/4470

DETAIL SHEET 5

Product

- *THIS DETAIL SHEET RELATES TO METROSHINGLE, A PREFORMED ACRYLIC-COATED, ALUMINIUM-ZINC ALLOY-COATED STEEL TILE WHICH SIMULATES TRADITIONAL TIMBER ROOFING SHINGLES.*
- *Metroshingle tiles have a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat, and are available in three colours with a steel thickness of 0.45 mm.*
- *The tiles may be installed on conventional steel or timber structures with a minimum pitch of 15°.*

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

Technical Specification

1 Description

1.1 Metroshingle tiles are pressed from epoxy or acrylic-coated aluminium-zinc alloy-coated steel sheet to a shape simulating traditional timber shingles (see Figure 1). The tiles are finished with a mineral-filled acrylic coating followed by stone granules and a clear acrylic glaze coat (see Figure 2).

1.2 The tiles have the dimensions of:

thickness of sheet (mm)	0.45
length of sheet (mm)	1330
cover length (mm)	1255
cover width (mm)	235
side lap (mm)	75
weight of tile (kg)	1.7
weight of tiled roof (kgm^{-2})	5.9

1.3 The tiles have profiled edges top and bottom which interlock during installation (see Figure 3).

1.4 Adjacent tiles are overlapped with side laps of 75 mm (see Figure 4).

1.5 The product utilises a 'secret fix' system of installation with the result that fixings are covered by the product and therefore not visible on the finished roof.

1.6 The tiles are available in four standard colours:

- antique red
- ebony
- mossgreen
- burnt umber.

Figure 1 Metroshingle tile and nailing points

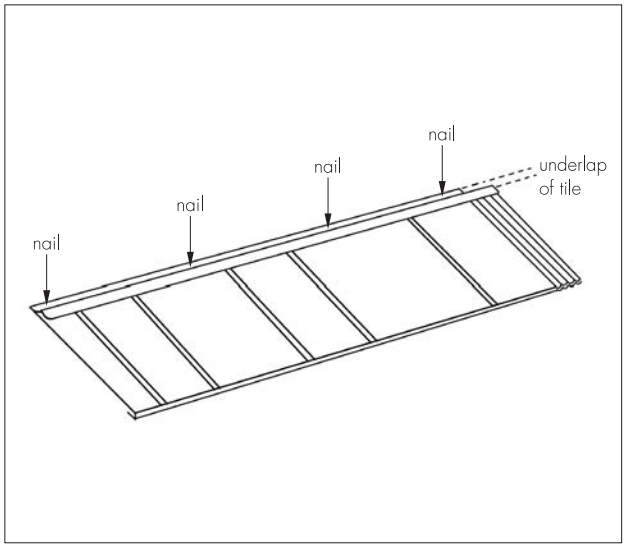


Figure 2 Section through tile

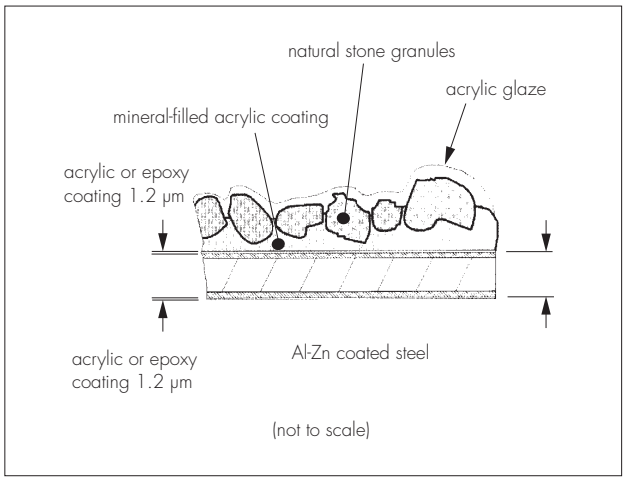


Figure 3 Spacing and fixing details

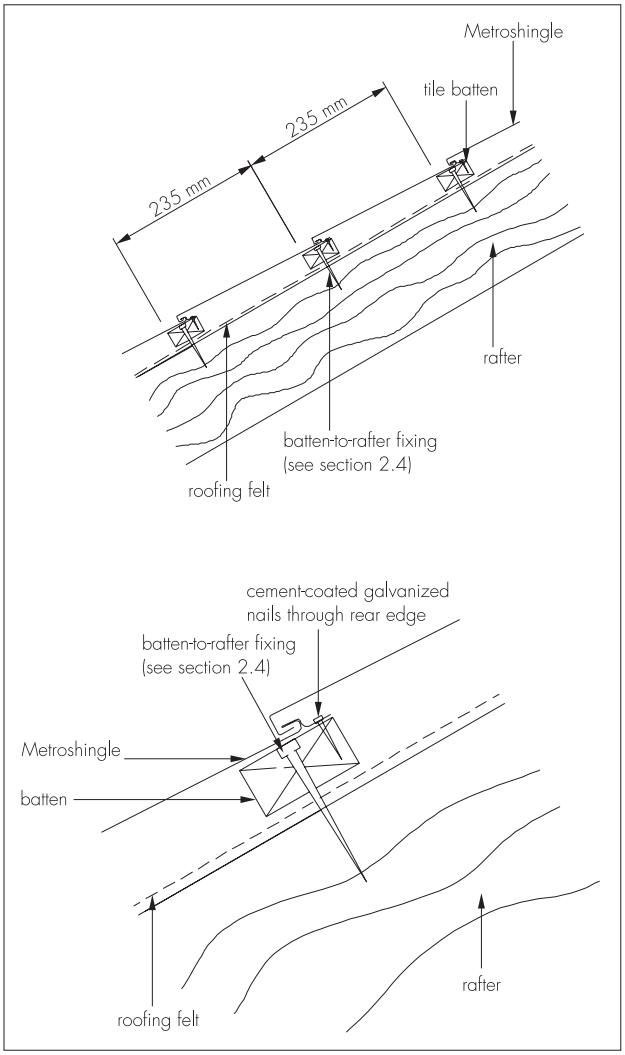
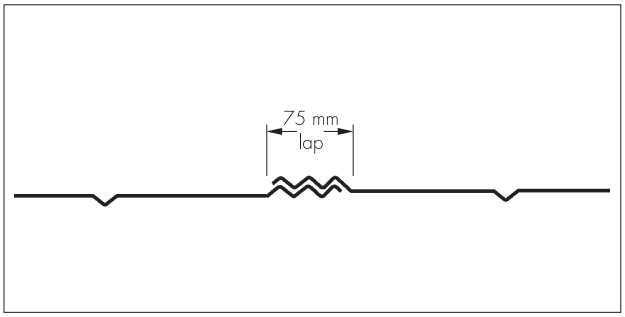


Figure 4 Overlap details



Installation

2 General

2.1 The required batten size for standard truss spacings is given in Table 1. The roof construction should be in accordance with the relevant requirements of BS 5534 : 2003.

Table 1 Minimum permitted batten size for standard truss spacings

Tile profile batten size (mm)	Rafter/Truss spacing (mm)
50 x 40	450
50 x 40	600
50 x 40	900
50 x 50	1200

2.2 Where the rafters/trusses are spaced at 900 mm or 1200 mm centres, polypropylene or nylon tapes must be nailed to the rafters to support the underlay.

2.3 Rafters must be securely tied to the building structure with, for example, galvanized steel straps complying with BS 5628-3 : 2005.

2.4 Battens are secured over the underlay and roof trusses. The fixings used to secure the battens to the rafters must be adequate to resist predicted wind loads.

2.5 Where timber boarding is laid on the rafters, timber counter battens should be installed in accordance with BS 5534 : 2003.

2.6 Starting at the bottom right-hand side of the roof, the tiles are fixed to the first batten through the back edge of the tile using four 35 mm long galvanized nails of diameter 2.7 mm per tile. When fixing the next course, the folded bottom edge of the tile is slotted firmly into the fold in the top edge of the lower course (see Figure 3). Firm upward pressure of the top tile should be maintained to ensure a good overlap fit whilst it is fixed to the next batten.

2.7 The last course of tiles before the ridge may need to be trimmed to fit. In this case, the nails are driven through the tile in such a position that they are covered by the ridge flashing which is subsequently fitted.

2.8 Galvanized screws may used instead of nails to fix the tiles, but they must be selected to give at least the same pull-out resistance as the nails.

2.9 To avoid tearing the underlay fixings should not penetrate the bottom of the battens.

2.10 Tiles are preferably cut and formed with a guillotine and a tile-bending machine, but small quantities may, with care, be cut with tin snips or sheet metal cutters and bent by hand.

2.11 The accessories are cut, formed and installed as necessary to complete the installation.

Bibliography

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

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