

## A Steadman & Son

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Agrément Certificate  
**99/3641**  
Product Sheet 1

## A STEADMAN & SON ROOFING SYSTEMS

### META-SLATE AND META-SLATE PLUS

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Meta-Slate, a lightweight metal roofing sheet finished with a polyester coating and pre-formed to simulate the appearance of natural slate, for use on a conventional timber or steel structure, with a minimum pitch angle of 10°. The product can also be used over the Steadman AS35 Insulated Roofing Panel, where it is referred to as the Meta-Slate Plus Roofing System.

#### AGRÉMENT 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

**Weathertightness** — the systems have satisfactory resistance to the passage of rain and snow (see section 5).

**Strength and stability** — the systems have satisfactory resistance to the effects of wind loading likely to be met in service (see section 6).

**Performance in relation to fire** — the systems can achieve an EXT.S.AA fire roof rating to BS 476-3 : 1958, and are, therefore, unrestricted under the national Building Regulations (see section 7).

**Durability** — under normal conditions the systems will have an ultimate life in excess of 20 years (see section 10).



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

On behalf of the British Board of Agrément

Simon Wroe  
Head of Approvals — Materials

Greg Cooper  
Chief Executive

Date of Third issue: 20 January 2010

Originally certificated on 20 September 1999

*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](http://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.*

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# Regulations

In the opinion of the BBA, Meta-Slate and Meta-Slate Plus, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



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

Requirement:	B3(2)	Internal fire spread (structure)
Requirement:	B4(2)	External fire spread
Comment:		The systems are unrestricted under these Requirements. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The systems meet this Requirement. See section 5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The systems are acceptable. See sections 10.1 and 10.2 and the <i>Installation</i> part of this Certificate



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

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The use of the systems satisfy the requirements of this Regulation. See sections 9.1 to 9.4, 10.1 and 10.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The systems can contribute to satisfying these Standards, with reference to clauses 2.1.15 <sup>(2)</sup> , 2.2.7 <sup>(2)</sup> and 2.2.10 <sup>(1)</sup> , respectively. See section 7 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The systems are unrestricted under this Standard, with reference to clause 2.8.1 <sup>(1)(2)</sup> . See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The systems can contribute to satisfying this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.8 <sup>(1)(2)</sup> . See section 5 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for these systems under Regulation 9 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

Regulation:	B2	Fitness of materials and workmanship
Comment:		The systems are acceptable. See sections 10.1 and 10.2 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The systems are acceptable. See sections 9.1 to 9.4 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The systems meet the requirements of this Regulation. See section 5 of this Certificate.
Regulation:	E4(2)	Internal fire spread – Structure
Regulation:	E5(b)	External fire spread
Comment:		The systems are unrestricted under these Regulations. See section 7 of this Certificate.

### Construction (Design and Management) Regulations 2007

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

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

See sections: 1 *Description* (1.3), 2 *Delivery and site handling* (2.2), 9 *Maintenance* (9.1) and 12 *Procedure* (12.5).

## Non-regulatory Information

### NHBC Standards 2007

NHBC accepts the use of Meta-Slate and Meta-Slate Plus, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

# Technical Specification

## 1 Description

1.1 Meta-Slate and Meta-Slate Plus panels are manufactured from galvanized steel Z275 to BS EN 10346 : 2009, coated with a primer and polyester topcoat. The system has a steel thickness of 0.7 mm and a total organic coating thickness of 50 µm. The product is also available with a total organic coating thickness of 27 µm.

1.2 The product is supplied as standard in a matt slate blue colour at a gloss level of 10%, other colours are available subject to order.

1.3 The coated steel coil is slit into widths, roll formed to the appropriate profile, indented to produce a natural looking slate finish and cut to length.

1.4 The following accessories are available:

- starter clip
- ridge flashing
- barge flashing
- apron flashing
- fixing screws
- joining plate
- spring ridge clip
- hip flashing
- gable trim
- touch-up paint to repair scratched coating.
- butyl strip sealant (3 mm x 50 mm) (for use on joining plate)
- channel section (20 mm x 20 mm)
- eaves gutter

1.5 The various flashings are formed to the appropriate profile and length.

1.6 The Steadman AS35 Insulated Roof Panel consists of two coated steel profiles bonded to a core of PIR insulation. The metal sheets are made from either Z275 galvanized steel or AZ150 aluminium-zinc coated steel to BS EN 10346 : 2009. The top profile is 0.5 mm thick, and the internal liner 0.4 mm thick, and are both covered by a choice of one of several organic coatings. The system is normally supplied in lengths between 1.8 m and 12 m<sup>(1)</sup>, in thicknesses of 40, 60, 80 and 100 mm, and with a cover width of 1 m.

(1) Other lengths available on request.

## 2 Delivery and site handling

2.1 The systems are supplied in panels of cover width 300 mm at a standard length of 6 m and weight of 2.2 kg·m<sup>-1</sup>, although lengths up to 7.5 m are available on request.

2.2 The panel lengths are packed with a layer of polyethylene foam packaging sheet in between each sheet and galvanized reinforcement to the corners of the pack.

2.3 The panels are delivered to site in containers of between 30 to 35 panels. A container of 35, 6 m long panels gives a total weight of 462 kg (exclusive of galvanized reinforcement).

2.4 On delivery, the packs should be stored in single stacks only, on a firm dry base away from the possibility of damage.

2.5 When manually handling the individual panels, care must be taken to keep the edges of the panels straight and free from deformations, as these will make the interlock between panels more difficult to achieve during installation.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Meta-Slate and Meta-Slate Plus.

## Design Considerations

### 3 General

3.1 Meta-Slate is satisfactory for use, in conjunction with a suitable underlay material, as a weatherproof and decorative covering on a timber or steel structure at a minimum pitch angle of 10°. The product can also be used over the Steadman AS35 Insulated Roofing Panel where it is referred to as Meta-Slate Plus (it is assumed that the AS35 will be adequately installed on the roof and able to withstand the relevant loads likely to be met in service).

3.2 The systems can be fitted to roof structures with a maximum rafter spacing of 1 m. Due to the method of fixing the panels, battens are not required.

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

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

## 4 Practicability of installation

The systems can be installed readily by operatives experienced with these type of systems.

## 5 Weathertightness



Meta-Slate with a suitable underlay, and Meta-Slate Plus have satisfactory resistance to the passage of rain and snow.

## 6 Strength and stability

6.1 The systems have satisfactory resistance to the effects of wind loading likely to be met in service.

6.2 The systems weigh considerably less than conventional roofing materials. Hence, the roof must be securely attached to the structure to prevent wind uplift under adverse conditions.

## 7 Properties in relation to fire



When tested to BS 476-3 : 1958, without an underlay, the systems can achieve a T.S.AA rating.

## 8 Resistance to damage

The systems will not be deformed by normal maintenance traffic.

## 9 Maintenance



9.1 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.

9.2 Maintenance painting may be necessary at intervals referred to in section 10.2, or earlier, if a high aesthetic standard is required. The Certificate holder can recommend a suitable overcoating system.

9.3 Small scratched and damaged areas may be re-coated using the touch-up paint supplied by the Certificate holder.

9.4 Edge corrosion of roofing sheets can take place, but this can be minimised if the edges are painted using the touch-up paint supplied by the Certificate holder.

## 10 Durability



10.1 The polyester and metal treatment will protect the steel substrate against corrosion and give the systems an ultimate life in excess of 20 years in normal, industrial and rural environments.

10.2 They will retain good appearance for at least 15 years in non-corrosive environments, and at least 10 years in coastal or severe industrial environments. Colour changes, in general, will be slight.

# Installation

## 11 General

11.1 The standard of installation of Meta-Slate and Meta-Slate Plus should comply with the requirements of BS 8000-6 : 1990.

11.2 The roof construction must be adequate to resist the loadings detailed in BS 6399-1 : 1996 and BS 6399-2 : 1997 (or equivalent Eurocodes BS EN 1991-1-1 : 2002, NA to BS EN 1991-1-1 : 2002 and BS EN 1991-1-4 : 2005, NA to BS EN 1991-1-4 : 2005). The roof construction should be in accordance with the relevant requirements of BS 5534 : 2003.

11.3 The roof must be adequately ventilated in accordance with BS 5250 : 2002.

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

11.5 The underlay must be to BS 8747 : 2007 Annex B, Type 1F or 5U, or covered by an Agrément Certificate and installed in accordance with that Certificate.

11.6 Where the rafters/trusses are spaced at greater than 600 mm centres, polypropylene or nylon tape is nailed across the rafters to support the underlay.

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

11.8 Battens are not necessary as the Meta-Slate System can be fixed directly to the rafters/purlins, at a maximum spacing of 1 m, and the Meta-Slate Plus System is fixed directly to the AS35 Insulated Roof Panel.

## 12 Procedure

### Meta-Slate Roofing System — Fixing directly to rafters/purlins

12.1 Following the installation of the underlay, the starter clip lengths are fixed to the rafters at the eaves. The first length of roof panel is then locked into the starter clip and fixed to each rafter using fixing screws supplied by the Certificate holder. Subsequent lengths of roof panel are staggered to simulate the normal coursing of slates, interlocked into the existing panels using a rubber-faced hammer and wooden spreader bar, and screwed into the rafters. The screws fixing a length of roofing panel to the rafter are subsequently covered by the next panel (see Figure 1).

12.2 Where the length of the roof exceeds the maximum length of the roof panels, jointing plates are used to connect two panels. These consist of a backing plate, made from the same material as the panel, and a butyl strip sealant (see Figure 2). The jointing plates are self-supporting and do not have to be positioned over a rafter.

Figure 1 Panel fixing detail

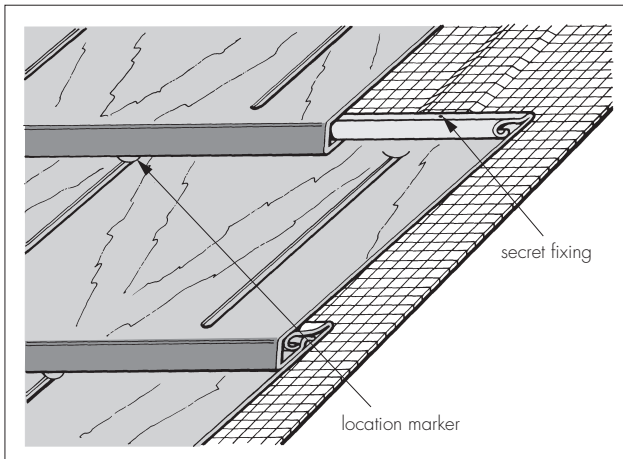
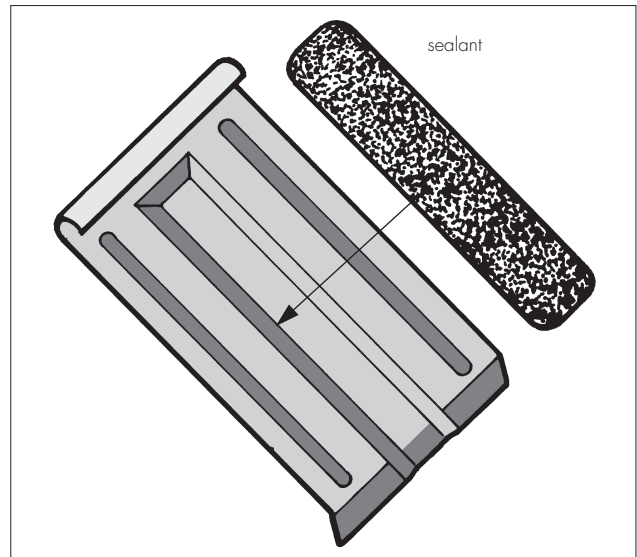


Figure 2 Joining plate and sealant



12.3 The roof should be designed to avoid or minimise the number of jointing plates necessary, to ensure that the positions of jointing plates on successive courses are staggered, and to ensure that all joints are made between the ends of sheets as manufactured, rather than with ends cut on site.

12.4 Joints in panels are made before the panel is fixed to the rafters. A strip of 3 mm by 50 mm butyl sealant, running from top to bottom, is stuck centrally to the fixing plate. The release paper is removed and the jointing plate is slid onto the first panel so that the edge of the panel reaches halfway across the jointing plate (see Figure 3). The end of the second panel is slid onto the jointing plate to make a butt joint with the first panel and both panels are pressed firmly down to make good contact with the butyl sealant. The panels can now be fixed to the existing panels in the usual way. It is not necessary to make joints at truss/rafters, as the jointing plates do not require fixing to the roof.

12.5 The roof is completed with Steadmans ridge flashing held in place with a spring ridge clip, and the detailing is carried out using various profiles and flashings available from the manufacturer (see Figure 4). These items can be cut on site using a power circular saw, jig saw, hacksaw or electric nibbler. After cutting care should be taken to remove all swarf as this can cause rust stains if left in contact with the product.

Figure 3 Installation of jointing plate

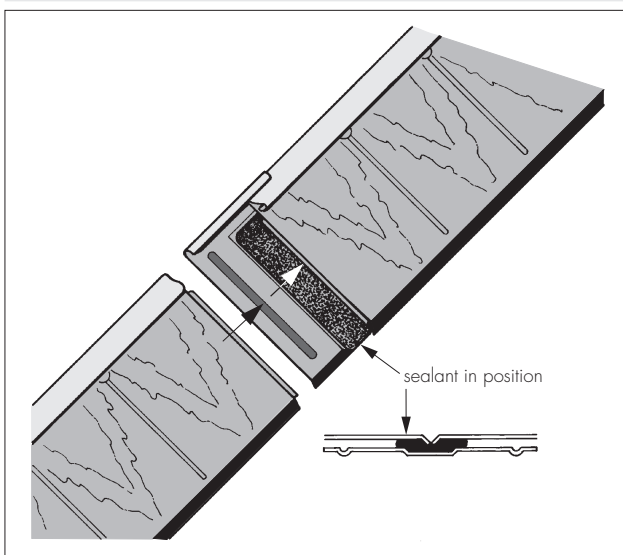


Figure 4 Typical application



12.6 Cut edges, scratches and scuffs should be treated using touch-up paint supplied by the Certificate holder.

### Meta-Slate Plus Roofing System — Fixing over an AS35 Insulated Roofing Panel (see Figure 5)

12.7 Once the AS35 deck has been securely fixed to the roof substructure in accordance with the Certificate holder's instructions, the Meta-Slate panels can be fixed in place.

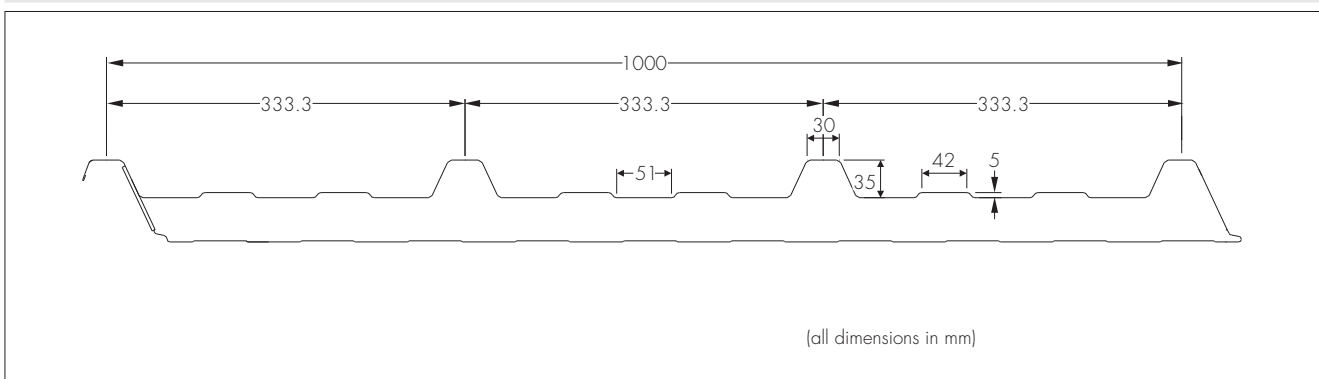
Figure 5 View of Meta-Slate Plus being installed



12.8 The installation of the panels over the AS35 deck is very similar to the installation over rafter/purlins. The panels are fixed to every third raised section of the AS35 profile using 5.5 by 25 mm self-drilling screws. The screws should be fixed through the overlap between panels so that the screw is driven through two thicknesses of the metal top sheet (see Figure 6), ie fixed at a maximum of one per metre of panel length.

12.9 The frequency of fixing can be increased around the edges of the installation or where special detailing is required.

Figure 6 Cross-sectional view of the AS35 Insulated Roof Panel



## Technical Investigations

### 13 Tests

13.1 Tests were carried out by the BBA to determine:

- resistance to artificial weathering
- resistance to wind uplift of Meta-Slate Plus.
- integrity of joints

13.2 An assessment was made of tests carried out by an independent laboratory to determine:

- resistance to wind-driven rain
- resistance to wind uplift of Meta-Slate.

### 14 Investigations

14.1 The manufacturing process was examined and details were obtained of the method of manufacture and the quality controls conducted on the incoming materials and finished products.

14.2 An assessment was made of independent investigations to BS 476-3 : 1958.

14.3 A visit was made to a site in progress to assess the practicability of installation.

14.4 Visits were made to a number of existing sites where the product is in service.

14.5 An assessment was made of existing data relating to polyester coil-coated steel.

## Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 5250 : 2002 *Code of practice for control of condensation in buildings*
- 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*
- 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 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*
- BS EN 1991-1-1 : 2002 *Eurocode 1 — Actions on structures — General actions — Densities, self weight, imposed loads for buildings*
- NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
- BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*
- NA to BS EN 1991-1-4 : 2005 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*
- BS EN 10346 : 2009 *Continuously hot-dip coated steel flat products — Technical delivery conditions*

## 15 Conditions

15.1 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.

15.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

15.3 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.

15.4 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.

15.5 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.