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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

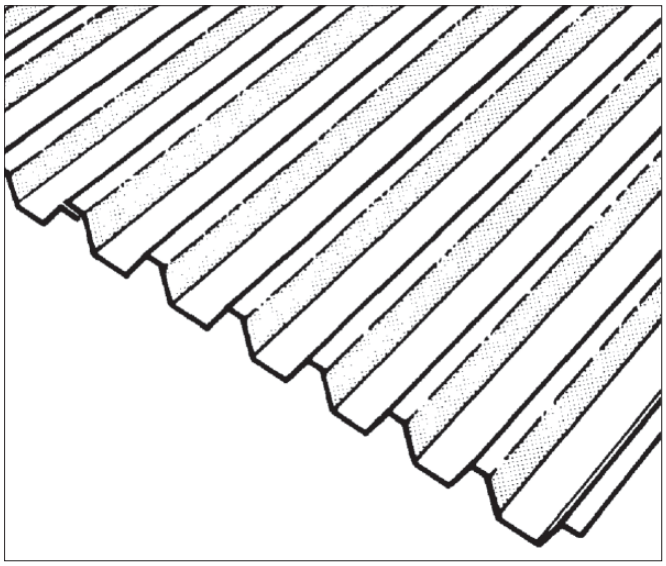
Agrément Certificate
93/2922
Product Sheet 2

EURAMAX COIL-COATED ALUMINIUM ALLOY COIL AND SHEET

EURAMAX PVF_2-COATED ALUMINIUM ALLOY COIL AND SHEET

This Agrément Certificate Product Sheet(1) relates to Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet, for use in its profiled form as external roofing, cladding or internal lining.

(1) Hereinafter referred to as 'Certificate'.



CERTIFICATION INCLUDES:

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

KEY FACTORS ASSESSED

Weathertightness — the profiled product has adequate resistance to the passage of moisture into the building (see section 6).

Resistance to wind uplift — the profiled product can adequately resist the effects of wind suction (see section 7).

Performance in relation to fire — the product is not classified as 'non-combustible', but may achieve a Class 0 or 'low risk' classification as defined in the national Building Regulations (see section 8).

Location — the product is suitable for use in locations where there is little possibility of impact or abrasion damage (see section 9).

Workability — the product can be worked by conventional techniques into profiles and is capable of accommodating a 1½T bend without damage (see section 10).

Durability — under normal conditions, the profiled product will perform effectively with a service life in excess of 40 years. It will have an anticipated decorative life of at least 15 years in marine or severe industrial environments and 20 years in other areas (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 16 October 2012
Originally certificated on 30 June 1993

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

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

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

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Regulations

In the opinion of the BBA, Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales)

Requirement:	A1	Loading
Comment:		The product can contribute to satisfying this Requirement. See section 7 of this Certificate.
Requirement:	B2(1)	Internal fire spread (lining)
Comment:		The product may be unrestricted under this Requirement. See sections 8.2 and 8.3 of this Certificate.
Requirement:	B3(2)(4)	Internal fire spread (structure)
Comment:		The product may be unrestricted under this Requirement. See sections 8.1 to 8.4 of this Certificate.
Requirement:	B4(1)(2)	External fire spread
Comment:		The product may be unrestricted under this Requirement. See sections 8.1 to 8.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 12 and the *Installation* 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 product can contribute to a construction satisfying this Regulation. See sections 11 and 12 and the *Installation* part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	1.1(a)(b)	Structure
Comment:		The product can contribute to satisfying this Standard. See section 7 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The product may be unrestricted under these Standards, with reference to clauses 2.1.15[2], 2.2.7[2] and 2.2.10[1]. See sections 8.1 to 8.3 of this Certificate.
Standard:	2.4	Cavities
Comment:		The product may be unrestricted under this Standard, with reference to clauses 2.4.2[1][2], 2.4.3[2], 2.4.7[1] and 2.4.9[2]. See sections 8.1 to 8.4 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The product may be unrestricted under this Standard, with reference to clause 2.5.1[1][2]. See sections 8.2 to 8.4 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The product is not classified as 'non-combustible' and is therefore restricted under these Standards, with reference to clauses 2.6.4[1][2], 2.6.5[1], 2.6.6[2] and 2.7.1[1][2]. See sections 8.2 and 8.3 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product may be unrestricted under this Standard, with reference to clause 2.8.1[1][2]. See sections 8.1 and 8.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1[1][2], 3.10.5[1][2], and 3.10.7[1][2]. See section 6 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards — conversions
Comment:		Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[1][2] and Schedule 6.

(1) 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 product is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product is acceptable. See section 11 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.

Regulation:	D1	Stability
Comment:		The product can contribute to satisfying this Regulation. See section 7 of this Certificate.
Regulation:	E3(a)(b)	Internal fire spread — Lining
Comment:		The product may be unrestricted under this Regulation. See sections 8.2 and 8.3 of this Certificate.
Regulation:	E4(2)(3)	Internal fire spread — Structure
Comment:		The product may be unrestricted under this Regulation. See sections 8.1 to 8.4 of this Certificate.
Regulation:	E5(a)(b)	External fire spread
Comment:		The product may be unrestricted under this Regulation. See sections 8.1 to 8.3 of this Certificate.

Construction (Design and Management) Regulations 2007

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

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

See section: 3 *Delivery and site handling* (3.2 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2011

NHBC accepts the use of Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.3 *Internal walls*, 6.9 *Curtain walling and cladding*, 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

Technical Specification

1 Description

1.1 Euramax PVF_2-Coated Aluminium Alloy Coil and Steel is coated on the face side with a primer and a class 1 polyvinylidene fluoride/acrylic paint to a total coating thickness of 25 µm.

1.2 The reverse side is coated with a 2 µm lacquer coating, a 6 µm chromated epoxy coating, or to the same specification as the face side.

1.3 The product is available in a range of colours and gloss levels, details of which may be obtained from the Certificate holder.

1.4 Coils can be supplied stucco-embossed.

1.5 Coils are available in widths of up to 1.525 m and thicknesses of between 0.35 mm to 2.0 mm.

2 Manufacture

2.1 In a coil-coating process aluminium coil to BS EN 573-3 : 2009 is degreased, chemically pre-treated and coated on the face and reverse sides.

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

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

2.3 The management systems of Euramax Coated Products Limited have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by the British Board of Agrément (Certificate 10/Q017).

3 Delivery and site handling

3.1 The products are not normally delivered to site in coil form, but are formed into profiled sheets and flashings by specialist forming companies.

3.2 The profiled sheet is normally delivered to site on trailers and unloaded by crane. The site must have adequate access and a suitable surface for this traffic.

3.3 During transport, the edges and corners of the sheets must be protected against damage and the sheets should be restrained to prevent abrasion.

3.4 On site, sheets should be stored on a firm, dry base, on bearers at a maximum spacing of 900 mm, away from the possibility of damage, and covered to prevent the ingress of water. They should be stored as close as possible to the building where they are to be installed, and should be handled in accordance with the *Manual Handling Operations Regulations 1992*.

3.5 When required for installation the sheets should be lifted from the stack rather than dragged across it.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet.

Design Considerations

4 General

4.1 Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet, after roll-forming or brake-pressing, is suitable for external use as roofing or cladding, or for internal use as a lining.

4.2 The product may be used as plain sheet for such purposes as small infill panels, provided these are sufficiently robust and properly secured.

4.3 The product may be brake-pressed into the associated flashings and fittings.

4.4 The metallic coatings are directional. To avoid contrast it is important to ensure all sheets are fixed in the same (machine) direction and not inverted. Each elevation should be clad with material from the same batch.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Weathertightness

The profiled product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 14 of this Certificate, will adequately resist the passage of moisture.

7 Resistance to wind uplift

The profiled product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 14 of this Certificate, can adequately resist wind loads likely to be encountered in the UK.

8 Performance in relation to fire

8.1 A sample of the Iron Red coloured product, when tested to BS 476-3 :1958, achieved an EXT.S.AA rating.

8.2 When tested to BS 476-6 : 1968 a sample of the Iron Red coloured product achieved an index of performance (I) of 2.0 with sub-index (i_1) of 1.1 and when tested to BS 476-7: 1971 it had a Class 1 surface. It therefore has a Class 0/'low risk' surface as defined in the various national Building Regulations.

8.3 The performances stated in sections 8.1 and 8.2 may not be achieved by other colours in the range. The performance of other colours should be confirmed, as required by the relevant national Building Regulation

8.4 The reverse side specifications are also Class 0 surfaces.

9 Location

9.1 The product is suitable for use in areas where there is little possibility of impact or abrasion damage, ie at low levels in areas with restricted access, or at higher levels in public areas. These are as described in categories C to F of Table 2 of BS 8200 : 1985, which is reproduced (in part) in Table 1.

Table 1 Access categories

Category	Description	Examples
C	Accessible primarily to those with some incentive to exercise care. Some chance of accident occurring and of misuse	Walls adjacent to private open gardens. Back walls of balconies (zone of wall up to 1.5 m above pedestrian or floor level)
D	Only accessible (but not near a common route) to those with high incentive to exercise care. Small chance of accident occurring or of misuse	Walls adjacent to small fenced decorative gardens with no through paths (zone of wall up to 1.5 m above pedestrian or floor level)
E	Above zone of normal impacts from people but liable to impacts from thrown or kicked objects	1.5 m to 6 m above pedestrian or floor level in public areas
F	Above zone of normal impacts from people and not liable to impacts from thrown or kicked objects	Wall surfaces at positions higher than those defined in E

9.2 The impact resistance of the product is determined by the impact resistance of the aluminium on which it is based. No adhesion failure of the coating will occur, although hairline cracks may occur in areas of high stress.

10 Workability

10.1 The product may be worked by conventional techniques including brake-pressing, roll-forming, bending, drilling and punching into profiles. It is essential that the correct tools, in good condition, are used to prevent any damage to the coating, and that any swarf is removed.

10.2 The coating, when applied to 3105 alloy H25, can accommodate a 1½T bend through 180° without damage to the coating, when tested to BS EN 13523-7 : 2001. The performance of the finished product will depend on the grade and temper of the substrate used.

10.3 Some care is necessary when handling the product to prevent damage to the coating.

11 Maintenance

11.1 Regular maintenance inspections should be carried out to ensure that rainware is present and in good order, that flashings are secure and that fixings are present and secure.

11.2 Maintenance painting should be considered at the intervals defined in section 12.3, or earlier if a high aesthetic standard is required. The Certificate holder can recommend a suitable paint and maintenance system.

11.3 In some areas (eg coastal and industrial areas, and where cladding is sheltered directly beneath a soffit), it may be necessary to clean the installation periodically, both to restore its appearance and to remove potentially corrosive deposits. This can be done by hosing with water, using a neutral detergent.

12 Durability

12.1 The product performs satisfactorily in all normal atmospheric conditions (including coastal and industrial, but excluding the immediate vicinity of, and down wind from, sources of abnormal corrosive contaminants, such as chemical works, cement works and copper foundries).

12.2 The profiled product will perform effectively as a cladding or roofing with a service life in excess of 40 years.

12.3 The performance of the coating will depend upon the colour chosen, its environment, location, aspect face and use (ie roofing and cladding). It will retain a good appearance for at least 20 years in non-corrosive environments, and at least 15 years in severe industrial environments.

12.4 A planned maintenance cycle (see section 11) should be introduced if an extended design life is required. The Certificate holder can recommend a suitable system for maintenance painting.

12.5 If the building has an exposed eaves detail, and is in a aggressive environment, or if there are corrosive conditions inside it, the Certificate holder should be consulted with regard to the specification of the reverse side of the product.

13 Re-use and recyclability

The product comprises aluminium, which can be recycled.

Installation

14 Procedure

Installation of Euramax PVF_2-Coated Aluminium Alloy Coil and Sheet should be designed and carried out in accordance with:

- CP 143-1 : 1958
- the relevant parts of BS 5427-1 : 1996
- the relevant parts of BS 5250 : 2011
- the National Federation of Roofing Contractors *Profiled Sheet Metal Roofing and Cladding — A Guide to Good Practice*
- the Metal Cladding and Roofing Manufacturer's Association (MCRMA) Technical Paper No. 5 *Metal Wall Cladding Detailing Guide*, Technical Paper No. 6 *Profiled Metal Roof Design Guide*, Technical Paper No. 11 *Flashings for Metal Roof and Wall Cladding* and Technical Paper No. 12 *Fasteners for Metal Roof and Wall Cladding : Design, Detailing and Installation Guide*.

Technical Investigations

15 Tests

Tests were carried out, and the results evaluated, to determine:

- abrasion resistance
- impact resistance
- scratch resistance
- effect of artificial weathering
- effect of salt spray
- effect of bending
- resistance to sulphur dioxide
- resistance to chemicals, marking and staining.

16 Investigations

16.1 An evaluation was made of independent test reports relating to:

- surface spread of flame
- fire propagation
- fire exposure rating.

16.2 Visits were made to existing sites to assess the performance of the product in service.

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
BS 476-6 : 1968 *Fire tests on building materials and structures — Fire propagation test for materials*
BS 476-7 : 1971 *Fire tests on building materials and structures — Surface spread of flame tests for materials*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 5427-1 : 1996 *Code of practice for the use of profiled sheet for roof and wall cladding on buildings — Design*

BS 8200 : 1985 *Code of practice for design of non-loadbearing external vertical enclosures of buildings*

BS EN 573-3 : 2009 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN 13523-7 : 2001 *Coil coated metals — Test methods — Resistance to cracking on bending (T-bend test)*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

CP 143-1 : 1958 *Code of practice for sheet roof and wall coverings — Aluminium, corrugated and troughed*

17 Conditions

17.1 This Certificate:

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

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

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

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

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

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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