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Agrément Certificate
87/1964
Product Sheet 2

REYNOLUX COATED ALUMINIUM SHEET AND COIL

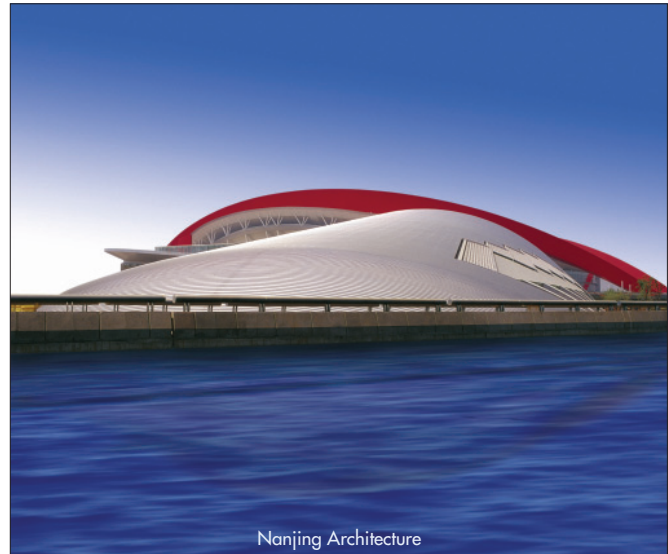
REYNOLUX PVF₂-COATED ALUMINIUM SHEET AND COIL

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Reynolux PVF₂-Coated Aluminium Sheet and Coil, for use as; external roofing, cladding or internal lining, brake-pressed associated flashings and fittings, or used as flat sheet.

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 formed product has adequate resistance to the passage of moisture (see section 6).

Properties 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 7).

Location — the formed product is suitable for use in external locations where there is little possibility of impact or abrasion damage (see section 8).

Workability — the product can be worked by conventional techniques and is capable of accommodating a 1T bend without damage, depending on the aluminium alloy, temper and thickness (see section 9).

Durability — under normal conditions, the formed product will perform effectively with a life expectancy in excess of 40 years. It will have an anticipated decorative life of at least 15 years in heavily polluted areas and 20 years in other areas (see section 12).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. The 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 9 October 2009

Originally certificated on 17 December 1987

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, Reynolux PVF₂-Coated Aluminium Sheet and Coil, 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: B2(1)	Internal fire spread (linings)
Comment:	The product may be unrestricted under this Requirement. See sections 7.2 and 7.3 of this Certificate.
Requirement: B3(4)	Internal fire spread (structure)
Comment:	The product may be unrestricted under this Requirement. See sections 7.1 to 7.4 of this Certificate.
Requirement: B4(1)(2)	External fire spread
Comment:	The product may be unrestricted under this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product can contribute to meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See sections 12.1 to 12.5 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 product can contribute to a construction meeting this Standard. See sections 11.1 and 11.2 and 12.1 to 12.5 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards – construction
Standard: 2.1	Compartmentation
Standard: 2.2	Separation
Comment:	The product may contribute to satisfying these Standards, with reference to clauses 2.1.15 ⁽²⁾ , 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ . See sections 7.1 and 7.3 of this Certificate.
Standard: 2.4	Cavities
Comment:	The product may contribute to satisfying 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 7.1 to 7.4 of this Certificate.
Standard: 2.5	Internal linings
Comment:	The product may contribute to satisfying this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See sections 7.2 to 7.4 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 7.2 and 7.3 of this Certificate.
Standard: 2.8	Spread from neighbouring buildings
Comment:	The product may contribute to satisfying this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.3 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.
Regulation: 12	Building standards – conversions
Comment:	All comments given for this product 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).



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

Regulation: B2	Fitness of materials and workmanship
Comment:	The product is acceptable. See sections 12.1 to 12.5 and the <i>Installation</i> part of this Certificate.
Regulation: B3(2)	Suitability of certain materials
Comment:	The product is acceptable. See sections 11.1 and 11.2 of this Certificate.
Regulation: C4(a)(b)	Resistance to ground moisture and weather
Comment:	The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation: E3(a)(b)	Internal fire spread – Linings
Comment:	The product may be unrestricted under this Regulation. See sections 7.2 and 7.3 of this Certificate.
Regulation: E4(2)(3)	Internal fire spread – Structure
Comment:	The product may be unrestricted under this Regulation. See sections 7.1 to 7.4 of this Certificate.
Regulation: E5(a)(b)	External fire spread
Comment:	The product may be unrestricted under this Regulation. See sections 7.1 to 7.3 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 obligation under these Regulations.

See section: 3 *Delivery and site handling* (3.4).

Non-regulatory Information

NHBC Standards 2008

In the opinion of the BBA, the use of Reynolux PVF₂-Coated Aluminium Sheet and Coil, when installed and used in accordance with this Certificate, is capable of satisfying the requirements of *NHBC Standards*, Chapters 6.3 *Internal walls*, 6.9 *Curtain walling and cladding*, 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Reynolux PVF₂-Coated Aluminium Sheet and Coil, when installed and used in accordance with this Certificate, is capable of satisfying the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-sections *External walls — timber frame*, *External walls — render/cladding/curtain walling*, *External walls — steel frame*, *Pitched roofs* and *Flat roofs*.

Technical Specification

1 Description

1.1 Reynolux PVF₂-Coated Aluminium Sheet and Coil is coated on the face side with primer and PVF₂ paint to a total nominal coating thickness of 28 µm, and the reverse side with either a 5 µm lacquer coating or with the same specification as the face side.

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

1.3 Coils are available in standard sizes 0.45 mm to 2 mm thick and up to 2 m wide. Other thicknesses are available, but are not usually used in building.

2 Manufacture

2.1 In a coil-coating process, aluminium coil (grade EN AW-3004 or EN AW-3105 to BS EN 573-3 : 2009, or an agreed alternative specification) is degreased, chemically pre-treated and then coated to the specification given in section 1.1.

2.2 Quality control is exercised over raw materials, during manufacture and on the final product.

3 Delivery and site handling

3.1 The product is not normally delivered to site in coil form⁽¹⁾, but is formed into profiled sheets and flashings by specialist forming companies.

(1) In exceptional circumstances, specialist companies may roll-form the product on site.

3.2 The profiled sheet is usually 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 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 Reynolux PVF₂-Coated Aluminium Sheet and Coil.

4 Use

4.1 Reynolux PVF₂-Coated Aluminium Sheet and Coil, 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 that these are sufficiently robust and properly secured).

5 Practicability of installation

The product may be readily installed by operatives experienced with this type of material.

6 Weathertightness



The formed product, when incorporated into a roofing or cladding system designed and installed in accordance with conventional good practice and section 13, will adequately resist the passage of moisture.

7 Properties in relation to fire



7.1 When tested to BS 476-3 : 1958, a beige sample of the product had an EXT.S.AA rating.

7.2 When tested to BS 476-6 : 1981, a beige sample of the product had an index of performance (I) of 1.5, and a sub-index (i₁) of 0.5. When tested to BS 476-7 : 1971, a similar sample achieved a Class 1 result. The product, therefore, had a Class 0 or 'low risk' surface as defined in the various national Building Regulations.

7.3 These performances may not be achieved by other colours of the product and the designations of a particular colour 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 the Table to Annex 2C⁽¹⁾ or 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.

7.4 The reverse side specification is also a Class 0 or 'low risk' surface.

8 Location

The formed 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 areas are described as categories C to F of Table 2 in BS 8200 : 1985, which is reproduced (in part) in Table 1.

Table 1 BS 8200 Table 2 — 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 area.
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.	
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 higher positions than those defined in E above.	

9 Workability

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

9.2 The coating can accommodate a bend radius of 1T without damage. The achievable bend radius on the final product is dependent on the aluminium alloy, temper and thickness.

9.3 Some care is necessary when handling the material on site to prevent accidental damage to the coating.

10 Compatibility

To prevent electro-chemical corrosion, direct contact with other metals (particularly copper) should be avoided. Fixing devices must be of, or compatible with, aluminium. Precautions must also be taken (eg by using a strip sealant) to prevent direct contact with timber preserved with copper or fluoride compounds or treated with a fire retardant.

11 Maintenance



11.1 In some areas (eg 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.

11.2 Damaged panels may be replaced using normal installation techniques.

12 Durability



12.1 The aluminium substrate is durable and will perform 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, copper foundries).

12.2 The formed product will perform effectively as a cladding or roofing with an ultimate life of at least 40 years.

12.3 The performance of the coating will depend upon the colour chosen, its environment, location, aspect faced and use (ie roofing or 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 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 an aggressive environment, or if there are corrosive conditions inside it, the specification of the reverse side coating should be discussed with the Certificate holder.

Installation

13 Procedure

The installation of Reynolux PVF₂-Coated Aluminium Sheet and Coil is designed and carried out in accordance with:

- CP 143-1 : 1958 or relevant parts of:
 - BS 5427-1 : 1996
 - BS 8200 : 1985
- *Profiled sheet metal roofing and cladding — A guide to good practice* (National Federation of Roofing Contractors).

Technical Investigations

14 Tests

Tests were carried out in accordance with MOAT No 34 : 1986 to determine:

- impact resistance
- resistance to chemicals, marking and staining
- fire roof exposure rating
- effect of salt spray
- scratch resistance
- surface spread of flame
- damage in handling
- effect of bending
- abrasion resistance
- fire propagation
- effect of artificial weathering
- resistance to sulfur dioxide.

15 Investigations

15.1 Factory visits were made to examine the manufacturing process and obtain details of the raw material specifications and quality control procedures.

15.2 Visits were made to established sites to determine the performance of the product in use.

Additional Information

The management systems of Alcoa Architectural Products has been assessed and registered as meeting the requirements of EN ISO 9001 : 2008 by BSI (Certificate No FM 90850).

Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 476-6 : 1981 *Fire tests on building materials and structures — Method of test for fire propagation for products*
- BS 476-7 : 1971 *Fire tests on building materials and structures — Surface spread of flame tests for materials*
- BS 5427-1 : 1996 *Code of practice for the use of profiled sheet for roof and wall claddings 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*
- MOAT No 34 : 1986 *Precoated metal sheet roofing and cladding*
- CP 143-1 : 1958 *Code of practice for sheet roof and wall coverings — Aluminium, corrugated and troughed*
- EN ISO 9001 : 2008 *Quality management systems — Requirements*

16 Conditions

16.1 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.

16.2 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.

16.3 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.

16.4 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.

16.5 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.

