

Kalzip

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Agrément Certificate
08/4571
Product Sheet 1

KALZIP

FALZINC AND ALUPLUSZINC

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Falzinc and AluPlusZinc, zinc-coated aluminium coil, for external use in roofing and cladding applications.

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 investigation
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Weathertightness — the product has adequate resistance to the passage of moisture (see section 7).

Resistance to mechanical damage — the aluminium substrate is satisfactorily robust but the zinc coating has a low resistance to mechanical damage (see section 8).

Properties in relation to fire — the product is non-combustible and makes no contribution to fire or its spread (see section 9).

Durability — the product will perform effectively as a roofing or cladding with an ultimate life of at least 40 years. A shorter service life will be experienced if particular local conditions are chemically corrosive. The surface appearance will change with time, as the zinc coating is first converted to corrosion products and then eroded, from a blue grey finish to one slightly darker than the appearance of weathered aluminium (see section 13).

The BBA has awarded this Agrément 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: 26 August 2008

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, Falzinc and AluPlusZinc, 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)
Requirement:	B3(2)(4)	Internal fire spread (structure)
Requirement:	B4(1)(2)	External fire spread
Comment:		The product is unrestricted under these Requirements. See section 9 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 7 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See sections 13.1 to 13.4 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 product can contribute to a construction satisfying this Regulation. See sections 12, 13.1 to 13.4 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.4	Cavities
Standard:	2.5	Internal linings
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product can contribute to satisfying these Standards, with reference to clauses 2.1.15 ⁽²⁾ , 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ , 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.3 ⁽²⁾ , 2.4.7 ⁽¹⁾ , 2.4.9 ⁽²⁾ , 2.5.1 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ , 2.6.6 ⁽²⁾ , 2.7.1 ⁽¹⁾⁽²⁾ and 2.8.1 ⁽¹⁾⁽²⁾ respectively. See section 9 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 3.10.8 ⁽¹⁾⁽²⁾ . See section 7 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 13.1 to 13.4 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product is acceptable. See section 12 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 7 of this Certificate.
Regulation:	E3(a)	Internal fire spread – Linings
Regulation:	E4(3)(4)	Internal fire spread – Structure
Regulation:	E5(a)(b)	External fire spread
Comment:		The product is unrestricted under these Regulations. See section 9 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* (3.5).

Non-regulatory Information

NHBC Standards 2007

NHBC accepts the use of Falzinc and AluPlusZinc, when installed and used in accordance with this Certificate, in relation to *NHBC Standards Chapters 6.9 Curtain walling and cladding* and *7.2 Pitched roofs*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the use of Falzinc and AluPlusZinc, when installed and used in accordance with this Certificate, are capable of satisfying the requirements of the *Zurich Building Guarantee Technical Manual, Section 4 Superstructure, Sub-sections External walls — render/cladding/curtain walling, External walls — steel frame and Pitched roofs.*

General

This Certificate relates to Falzinc and AluPlusZinc, zinc-coated aluminium coil for external use in roofing and cladding applications.

The product is suitable for roll forming, or may be used as flat sheet.

Technical Specification

1 Description

1.1 Falzinc and AluPlusZinc are zinc-coated aluminium coils, electroplated on both sides with a 3 µm layer of zinc and phosphate treated. The product is available in a range of widths and thicknesses, depending on the alloy and temper chosen. Typically, it can be slit to size up to maximum widths of between 600 mm and 670 mm and is supplied in thicknesses of 0.7 mm and 1.0 mm.

1.2 Both versions of the product are capable of roll forming (see section 10) and have the characteristics of:

- AluPlusZinc — supplied in a range of high-strength alloys and tempers for use in the manufacture of self-supporting roofing and cladding sheets (such as the Kalzip standing seam system — see BBA Certificate No 98/3481) and to fabricate flashings and trims
- Falzinc — has a greater formability and is primarily used for fully supported roofing and cladding applications (see Table 1).

Table 1 Mechanical properties⁽¹⁾

Product	Alloys	Temper	Rp0.2 Nmm ⁻²	Rp0.2 Nmm ⁻²
Falzinc	EN AW 3005/ EN AW 3105	H22/H111	80–100	≥135
AluPlusZinc	EN AW 3004 EN AW 3005	H32/H34/H36	≥185 or ≥145 ⁽²⁾	≥220 or ≥190–240 ⁽²⁾

(1) As supplied prior to processing, to BS EN 573-3 : 2007.

(2) To special order, where increased formability is required, eg for the fabrication of flashings and trims.

1.3 The coils are supplied with a stripable protective coating of either polyethylene or paper.

2 Manufacture

2.1 During manufacture by a continuous process, aluminium alloy coils are pre-treated, zinc electroplated and phosphate treated.

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

3 Delivery and site handling

3.1 Falzinc is delivered as coils to specialist companies for roll forming into standing seam sheets or forming into panels, flashing and trims.

3.2 AluPlusZinc is generally supplied in coil widths to suit the manufacture of Kalzip standing seam sheets.

3.3 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.

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

3.5 It is essential that the sheets are transported and stored in dry, well-ventilated and dust-free conditions, with separating layers between each sheet. The sheets must be handled with care to prevent damage to the surface finish.

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

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

3.8 Any unprotected surfaces must be handled using clean cotton or linen gloves. In such situations, the use of bare hands should be avoided as this may lead to permanent staining of the product.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Falzinc and AluPlusZinc.

Design Considerations

4 Use

Falzinc and AluPlusZinc are satisfactory for roll-forming and for external use as roofing and cladding materials, including standing seam constructions.

5 General

The zinc coating adheres well to the aluminium substrate, and the product can be worked by conventional techniques without detriment. However, the surface finish is easily damaged and care must be taken with all aspects of handling (see sections 3, 8 and 10).

6 Practicability of installation

The product should be installed by operatives experienced with this type of product, provided care is taken to handle the product in accordance with the manufacturer's instructions and this Certificate.

7 Weathertightness



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

8 Resistance to mechanical damage

8.1 The aluminium substrate is satisfactorily robust for use as roofing or cladding but the zinc coating has a low resistance to damage by scratching, chipping or abrasion. Its use as cladding should be restricted to areas where there is little possibility of mechanical 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 BS 8200 : 1985, Table 2, which is reproduced (in part) in Table 2.

Table 2 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.	Wall 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.	
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.	

8.2 On impact, the product will deform in the same way as the uncoated aluminium sheet without adhesive failure of the coating under the conditions likely to be experienced in normal service.

8.3 Walking on the product surface can cause damage to the surface finish and should be avoided. During construction, use should be made of load spreading devices such as clean timber scaffolding boards. Consideration should be given to the installation of permanent walkways on the finished roof in trafficked areas such as access points.

9 Properties in relation to fire



The product is non-combustible and makes no contribution to fire or its spread.

10 Workability

10.1 The product may be worked by conventional metalworking techniques including brake-pressing, roll-forming, bending, drilling and punching, but care must be taken to ensure that the protective film is present and undamaged

prior to forming. The Certificate holder can advise on a suitable combination of alloy and temper for a given application. It is essential that the correct tools, in good condition, are used and that any swarf is removed.

10.2 When tested for formability to BS EN ISO 1519 : 2002, a sample of Falzinc achieved a 2T result and AluPlusZinc a 2.5T result.

11 Compatibility

11.1 The product is compatible with most materials likely to be encountered in service. However, the aluminium substrate will be corroded by contact with, or water run-off from, copper, its alloys, or lead in any environment.

11.2 Timber treated with fire retardants or waterborne wood preservatives, mortar or other alkali bearing materials are also corrosive to the substrate. An intermediate barrier of plastic, bitumen felt or bitumen paint must be used to prevent direct contact with these materials.

11.3 Fixing devices must be of, or compatible with aluminium.

12 Maintenance



In industrial and coastal areas, it may be necessary to clean the installation periodically to remove corrosive deposits. This can be carried out by hosing with water using a neutral detergent. It may be necessary to clean soffits and the area sheltered by overhanging eaves in any environment.

13 Durability



13.1 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 and copper foundries).

13.2 The product will perform effectively as a cladding or roofing material with an ultimate life of at least 40 years. A shorter service life will be given if particular local conditions are chemically corrosive (see section 13.1).

13.3 The product has a dark blue/grey initial appearance similar to that of conventional zinc sheet but the thin zinc surface layer will weather and change appearance with exposure, as the zinc forms a mixture of adherent conversion products. This layer will be eroded, the rate of which will depend on the environment of the site, the roof pitch and the climatic conditions experienced. Under normal circumstances, the surface layer can be expected to be retained for at least 10 years, but in time, as it is lost, the appearance will gradually change to one slightly darker than that of weathered aluminium.

13.4 Welding of the product should be avoided wherever possible as it will damage the zinc surface layer. In such cases, it will be necessary to remove the zinc layer from around the area to be welded and to subsequently overcoat with either an organic coating or a zinc-rich paint. The Certificate holder can advise on suitable products for this purpose but it should be noted that differential weathering will make it likely that sections so treated will take on a different appearance from the surrounding roof area.

Installation

14 Procedure

14.1 The installation of Falzinc and AluPlusZinc should be designed and carried out in accordance with the Certificate holder's instructions and:

- CP 143-1 : 1958 and relevant parts of:
 - BS 5427-1 : 1996
 - BS 5250 : 2002
 - BS 8200 : 1985
- *Profiled sheet metal roofing and cladding — A guide to good practice* (National Federation of Roofing Contractors)
- MCRMA Technical Paper No 3 — *Secret Fix Roofing Design Guide*
- MCRMA Technical Paper No 5 — *Metal Wall Cladding Detailing Guide*
- MCRMA Technical Paper No 6 — *Profiled Metal Roofing Design Guide*
- MCRMA Technical Paper No 11 — *Metal Fabrications: Design, Detailing and Installation Guide*
- MCRMA⁽¹⁾ Technical Paper No 12 — *Fasteners for metal roof and wall cladding : Design, detailing and installation guide*

(1) The Metal Cladding and Roofing Manufacturers' Association.

14.2 On completion of the installation, the protective film should be removed, taking care not to damage the finish (see section 8).

Technical Investigations

The following is a summary of the technical investigations carried out on Falzinc and AluPlusZinc

15 Tests

Tests were carried out to determine:

- resistance to artificial weathering
- resistance to sulfur dioxide
- resistance to abrasion
- resistance to impact
- resistance to neutral salt spray
- effect of water immersion
- resistance to scratching
- resistance to marking and staining
- resistance to acetic acid salt spray
- adhesion to substrate
- resistance to chipping
- ease of forming.

16 Investigations

16.1 The manufacturing process and quality control procedures were examined and details were obtained of the quality and composition of the materials used.

16.2 A visit was made to an existing site where the product had been in service for seven years.

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

16.4 A survey of known users of the product was carried out to establish its performance in service.

Additional Information

The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2000 by Tüv Cert (Certificate No LS 71 111 D 006).

Bibliography

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

BS 5250 : 2002 *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 claddings on buildings — Design*

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

BS EN 573-3 : 2007 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN ISO 1519 : 2002 *Paints and varnishes — Bend test (cylindrical mandrel)*

ISO 9001 : 2000 *Quality management systems — Requirements*

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.

