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Agrément Certificate

17/5415

Product Sheet 3

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ARCELORMITTAL COIL-COATED STEEL COIL AND SHEET

GRANITE HDX

This Agrément Certificate Product Sheet⁽¹⁾ relates to Granite⁽²⁾ HDX, a polyurethane coated steel coil and sheet for use as external roofing or cladding, or internal lining.

(1) Hereinafter referred to as 'Certificate'.

(2) Granite is a registered trademark of ArcelorMittal FCE Limited.

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

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

Properties in relation to fire — the product has a reaction to fire classification of A1 to EN 13501-1 : 2018 and an EXT.S.AA classification to BS 476-3 : 1958. Its use is restricted in some cases (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 and is capable of accommodating a 1.5T bend without damage (see section 10).

Durability — under normal conditions, the profiled product will perform effectively with a life expectancy in excess of 20 years. It will have an anticipated decorative life, in non-corrosive conditions, of at least 15 years (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: 23 May 2017

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Certificate amended on 14 January 2019 to include Regulation 7(2) for England and associated text.

Certificate amended on 28 April 2020 to include new regulatory guidance for fire in Scotland and Wales.

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

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Regulations

In the opinion of the BBA, Granite HDX, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying 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) (as amended)

Requirement:	A1	Loading
Comment:		The product can contribute to satisfying this Requirement. See section 7 of this Certificate.
Requirement:	B2(1)	Internal fire spread (linings)
Comment:		The product may be unrestricted under this Requirement. See sections 8.1 and 8.8 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The product is restricted under this Requirement. See section 8.2 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The product may be unrestricted by this Requirement. See sections 8.1 and 8.7 of this Certificate.
Requirement:	B4(2)	External fire spread
Comment:		The product may be unrestricted under this Requirement. See sections 8.4 to 8.6 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to meeting this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The product is acceptable. See section 12 of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The product is restricted by this Regulation. See sections 8.1 and 8.7 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The product can contribute to a construction meeting this Standard. See sections 11 and 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to 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
Standard:	2.3	Structural protection
Comment:		The product is unrestricted by these Standards with reference to clauses 2.1.12 ⁽²⁾ , 2.2.4 ⁽²⁾ , 2.2.5 ⁽²⁾ , 2.2.6 ⁽¹⁾ , 2.2.7 ⁽¹⁾ , 2.2.8 ⁽¹⁾ and 2.3.2 ⁽¹⁾⁽²⁾ . See sections 8.1 and 8.8 of this Certificate.

Standard:	2.4	Cavities
Comment:		The product is restricted by this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 8.2 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The product is restricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See sections 8.1 and 8.8 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is unrestricted by this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 8.1 and 8.7 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is unrestricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 8.1 and 8.7 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 8.4 and 8.6 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
		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 applicable to conversions
Comment:		Comments 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⁾⁽²⁾ .
(1) Technical Handbook (Domestic).		
(2) Technical Handbook (Non-Domestic).		



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	23(a)(i)(iii) b(i)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to ground moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	30	Stability
Comment:		The product can contribute to satisfying this Regulation. See section 7 of this Certificate.
Regulation:	34(a)(b)	Internal fire spread - Linings
Comment:		The product may be unrestricted under this Regulation. See sections 8.1 and 8.8 of this Certificate.
Regulation:	35(4)	Internal fire spread - Structure
Comment:		The product may be restricted under this Regulation. See section 8.2 of this Certificate.
Regulation:	36(a)	External fire spread

Comment:		The product may be unrestricted under this Regulation. See sections 8.1 and 8.7 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		The product may be unrestricted under this Regulation. See sections 8.4 to 8.6 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) 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 2017

NHBC accepts the use of Granite HDX, 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 Granite HDX consists of Z225 galvanized steel to BS EN 10346 : 2015, coated on the face side with a 25 µm thick primer and 30 µm thick polyurethane topcoat incorporating polyamide particles which give a textured surface finish.

1.2 The product is available in a range of standard colours.

1.3 The reverse side is typically coated with a 12 µm thick polyester paint, although a 10 µm thick alternative is also available to order.

1.4 Coils are available in widths of up to 1.85 m and thicknesses of between 0.20 and 3.00 mm.

2 Manufacture

2.1 In a coil-coating process, steel coil 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 in operation at the manufacturing locations are certified as meeting the requirements of EN ISO 9001 : 2008.

3 Delivery and site handling

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

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 must 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 must 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 Granite HDX.

Design Considerations

4 Use

4.1 Granite HDX, after roll-forming or brake-pressing, is satisfactory for external use as roofing and cladding, or internally as lining.

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

5 Practicability of installation

The product should be installed by operatives experienced with this type of product.

6 Weathertightness



The profiled 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.

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, will adequately resist wind loads likely to be encountered in the UK.

8 Properties in relation to fire



8.1 The product has an A1^[1] reaction to fire classification to BS EN 13501-1 : 2018 for thicknesses ≥ 0.467 mm and various colours with a back coat thickness not more than 12 μm , without substrate or any A1 or A2-s1, d0 substrate with a density ≥ 652 kg·m³ and a thickness ≥ 9 mm, or an air gap ≥ 80 mm. This classification may not be achieved by other specifications of the product and their classification should be established by testing or assessment by a laboratory suitably accredited for such testing.

(1) Report reference CSTB RA19-0152 dated 23 July 2019. Copies are available from the Certificate holder.

8.2 The Certificate holder has not declared a reaction to fire classification for the reverse side of the product (facing into a cavity). Cavity barriers should be provided in accordance with the requirements of the documents supporting the national Building Regulations taking this into account.

8.3 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.

External roofing



8.4 The Certificate holder has not declared a resistance to external fire exposure to BS EN 13501-5 : 2016, for the product.



8.5 In Wales and Northern Ireland, designers may refer to the relevant documents supporting the national Building Regulations for certain roof specifications that can achieve a notional B_{ROOF}(t4) designation without testing and are consequently unrestricted.



8.6 These ratings may not be achieved by other product specifications and can also be affected by other components of the roof, such as underlays and insulations. These specifications should therefore be evaluated by reference to the requirements of the documents supporting the relevant national Building Regulations and any consequent restrictions imposed by those documents, on a case by case basis. In the absence of a rating, the product should not be used within 20 metres of a boundary (24 m in Scotland).

External wall cladding



8.7 The product is not subject to any restriction on building height or proximity to boundaries.

Internal lining



8.8 The product is unrestricted with respect to surface spread of flames under the national Building Regulations.

9 Location

9.1 The extent of impact damage which the product may sustain in service will depend on its location, the design of the cladding and the nature of the supporting structure. The product is considered 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. The product is therefore suitable for use in categories C to F, as described 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	
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	

9.2 The impact resistance of the product is determined by the impact resistance of the steel 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. 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 can accommodate a 1.5T bend through 180° without damage.

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

11 Maintenance



11.1 Regular maintenance inspections should be carried out to ensure that rainwater goods are 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 interval 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 Granite HDX is suitable for use in all normal atmospheric conditions (including coastal and industrial) and will withstand considerable distortion of the metal without losing adhesion between the paint and coating and the substrate.

12.2 The Granite HDX coating and metal treatment will protect the steel substrate against corrosion for a period in excess of 20 years.

12.3 It will retain a satisfactory appearance for at least 15 years in non-corrosive environments, or at least 10 years in coastal or severe industrial environments.

12.4 Particular care should be taken during design to minimise the exposure of cut edges of the installed sheets. This could include the use of weltd seams, secret-fix systems or continuous ridge to eaves installation (ie without horizontal lap joints).

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 reverse side should have the same specification as the face side, or be overpainted.

13 Reuse and recyclability

The product contains steel, which can be recycled.

Installation

14 Procedure

14.1 The installation should be designed and carried out in accordance with:

- European Convention for the Construction of Steelwork (ECCS) *European Recommendations for Steel Construction*, Publication No 40 *The Design of Profiled Sheet* Publication No 41 *Good Practice in Steel Cladding and Roofing*
- The relevant parts of BS 5250 : 2011 and BS 5427 : 2016
- National Federation of Roofing Contractors *Profiled sheet metal roofing and cladding — A guide to good practice*
- MCRMA⁽¹⁾ Technical Paper No 5 *Metal Wall Cladding Detailing Guide*
- MCRMA⁽¹⁾ Technical Paper No 6 *Profiled Metal Roofing Design Guide*
- MCRMA⁽¹⁾ Technical Paper No 11 *Flashings for metal roof and wall cladding*
- MCRMA⁽¹⁾ Technical Paper No 12 *Fasteners for metal roof and wall cladding : Design, detailing and installation guide*.

(1) The Metal Cladding and Roofing Manufacturer's Association.

14.2 Fixings should be selected in accordance with ECCS Publication No 35 *Mechanical Fasteners for Use in Steel Sheet and Sections*, and must be corrosion-resistant (ie sherardized or galvanized steel, aluminium or stainless steel). Primary fixings must have a durable plastic or rubber washer to prevent water ingress. Electroplated carbon steel fixings must have an effective plastic capping; mild steel or copper fixings are unsuitable.

Technical Investigations

15 Tests

Tests were carried out and the results assessed to determine:

- abrasion resistance
- impact resistance
- scratch resistance
- effect of artificial weathering
- effect of salt spray
- effect of bending
- resistance to sulfur dioxide.

16 Investigations

16.1 Independent test data were examined relating to:

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

16.2 A visit was made to an established site where the product was in service.

16.3 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 476-3 : 1958 *External fire exposure roof test*

BS 476-6 : 1989 + A1 : 2009 *Fire tests on building materials and structures — Method of test for fire propagation for products*

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS 5427 : 2016 *Code of practice for the use of profiled sheet for roof and wall claddings on buildings*

BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products for cold forming — Technical delivery conditions*

EN ISO 9001 : 2008 *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 issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may 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.