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ETEX (EXTERIORS) UK FACADE PANELS

EQUITONE [NATURA]

This Agrément Certificate Product Sheet⁽¹⁾ relates to EQUITONE [natura], fibre-reinforced cement panels for use as exterior non-load bearing, decorative cladding panels on timber or metal vertical supports over timber stud, masonry, or steel framework walls.

(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

Strength and stability — the product can accept the wind loading likely to be met in service in the UK (see section 6).

Behaviour in relation to fire — the product has an A2-s1, d0 reaction to fire classification in accordance with EN 13501-1 : 2007 (see section 7).

Air and water penetration — the installed product is not weathertight and where necessary, must be used in conjunction with a suitable vapour permeable membrane (see section 8).

Durability — the product is durable and can be expected to have a service life in excess of 30 years (see section 10).

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 Second issue: 21 March 2019

Originally certificated on 18 September 2006.

Paul Valentine Technical Excellence Director

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

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Claure Curtus - Thomas

Claire Curtis-Thomas

Chief Executive



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Agrément Certificate

06/4355

Product Sheet 3

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Regulations

In the opinion of the BBA, EQUITONE [natura], 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:	<u>.</u>	The product is acceptable for use as set out in sections 6.4 to 6.6 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:	55(4)	The product can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
Poquiromont:	B4(1)	External fire spread
Requirement: Comment:	D4(1)	The product is unrestricted by this Requirement. See sections 7.1 and 7.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product does not provide a watertight or airtight facing, but will resist the passage of rainwater to the supporting structure. See sections 8.1 to 8.3 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The product is acceptable. See sections 10.1 to 10.3 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship (applicable in England only)
	- (-)	
Comment:		The product is unrestricted by this Regulation. See sections 7.1 to 7.3 of this Certificate.
Comment:	The Building	
5323	-	Certificate.
Regulation: Comment:	The Building 8(1)(2)	Certificate.
Regulation:	8(1)(2) 9	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See
Regulation: Comment: Regulation: Standard:	8(1)(2)	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure
Regulation: Comment: Regulation:	8(1)(2) 9	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction
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Regulation: Comment: Regulation: Standard: Comment:	8(1)(2) 9 1.1(a)(b)	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure The product is acceptable for use, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.4 to 6.6 of this Certificate.
Regulation: Comment: Regulation: Standard: Comment:	8(1)(2) 9 1.1(a)(b)	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure The product is acceptable for use, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.4 to 6.6 of this Certificate. Cavities The product can contribute to satisfying this Standard with reference to clauses
Regulation: Comment: Standard: Comment: Standard: Comment:	8(1)(2) 9 1.1(a)(b) 2.4	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure The product is acceptable for use, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.4 to 6.6 of this Certificate. Cavities The product can contribute to satisfying this Standard with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ and 2.4.4 ⁽¹⁾ of this Standard. See section 7.2 of this Certificate.
Regulation: Comment: Comment: Standard: Comment: Standard: Comment: Standard: Standard:	8(1)(2) 9 1.1(a)(b) 2.4	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure The product is acceptable for use, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.4 to 6.6 of this Certificate. Cavities The product can contribute to satisfying this Standard with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ and 2.4.4 ⁽¹⁾ of this Standard. See section 7.2 of this Certificate. Spread to neighbouring buildings The product can contribute to satisfying this Standard with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ of this Standard. See sections 7.1 and 7.3 of this
Regulation: Comment: Standard: Comment: Standard: Comment: Standard: Comment:	8(1)(2) 9 1.1(a)(b) 2.4 2.6	Certificate. (Scotland) Regulations 2004 (as amended) Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 to 10.3 and the <i>Installation</i> part of this Certificate. Building standards applicable to construction Structure The product is acceptable for use, with reference to clause $1.1.1^{(1)(2)}$ of this Standard. See sections 6.4 to 6.6 of this Certificate. Cavities The product can contribute to satisfying this Standard with reference to clauses $2.4.2^{(1)(2)}$ and $2.4.4^{(1)}$ of this Standard. See section 7.2 of this Certificate. Spread to neighbouring buildings The product can contribute to satisfying this Standard with reference to clauses $2.6.4^{(1)(2)}, 2.6.5^{(1)}$ and $2.6.6^{(2)}$ of this Standard. See sections 7.1 and 7.3 of this Certificate.

Standard: Comment:	3.10	Precipitation The product does not form a watertight facing but will resist the passage of rainwater to the supporting structure, with reference to clause 3.10.5 ⁽¹⁾⁽²⁾ of this Standard. See sections 8.1 to 8.3 of this Certificate.
Standard: Comment:	7.1(a)(b)	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: Comment:	12	 Building standards applicable to conversions All comments given for 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: Comment:	23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship The product is acceptable. See sections 10.1 to 10.3 and the <i>Installation</i> part of

		this Certificate.
Regulation: Comment:	28(b)	Resistance to moisture and weather The product does not form a watertight facing but will resist the passage of rainwater to the supporting structure. See sections 8.1 to 8.3 of this Certificate.
Regulation: Comment:	30	Stability The product is acceptable for use as set out in sections 6.4 to 6.6 of this Certificate.
Regulation: Comment:	35(4)	Internal fire spread – Structure The product can contribute to satisfying this Regulation. See section 7.2 of this Certificate.
Regulation: Comment:	36(a)	External fire spread The product can contribute to satisfying this Regulation. See sections 7.1 and 7.3 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 sections: 1 Description (1.3), 3 Delivery and site handling (3.1 and 3.2) and 12 Precautions of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, EQUITONE [natura], if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Superstructure* (excluding roofs), Chapter, 6.9 *Curtain walling and cladding*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 12467 : 2012. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 EQUITONE [natura] are fibre-reinforced cement panels, satisfying the requirements of Category A, Class 3 to BS EN 12467 : 2012.

1.2 The panels are supplied with a factory-applied coating in a range of colours. A factory-applied anti-graffiti (PRO) coating is also available.

1.3 The panels have the following nominal characteristics:

Thickness (mm)	8, 12
Width (mm)	1250
Length (mm)	2500, 3100
Weight (kg·m ^{−2})	15.4, 22.8
Mechanical resistance*	Category A, Class 3 ⁽¹⁾ .

 Category A — sheets intended for applications where they may be subjected to heat, high moisture and severe frost. Class 3 — minimum Modulus of Rupture (MOR) in the wet condition is 13 MPa.

1.4 The specification of the fixings is as follows:

- Aluminium UNI-Rivets 4 x 18 mm and 4 x 25 mm K15 with a 15 mm diameter head
- Stainless Steel UNI-Rivets 4 x 18 mm, 4 x 20 mm, 4 x 22 mm and 4 x 24 mm K15 with a 15 mm diameter head (AISI 304)
- UNI-Rivet Sleeve Green sleeve used with all UNI-Rivets to form sliding/go point. Red sleeve used with UNI-Rivets to form fixed points when fixing the panel
- UNI-screws 5.5 x 35 mm or 5.5 x 45 mm A2 stainless steel (AISI 304) with a 15 mm diameter head.

1.5 Ancillary components for use with the panels, but which are outside the scope of this Certificate, are:

- horizontal joint profile an aluminium joint profile inserted behind the panels, to provide baffle joints
- corner profiles available as structural and non-structural elements
- foam tape self-adhesive strip for use when rivet fixing to metal supports
- timber battens preservative-treated 50 or 100 mm x 38 mm, or 50 or 100 mm x 50 mm (depending on cavity width) for use as framing on timber stud and masonry walls fixed vertically and spaced at maximum 600 mm centres
- support rail aluminium or steel, for use on masonry or steel framework
- sheathing of a suitable material used in conjunction with timber and metal framework substrates
- wall breather membrane UV durable to BS EN 13859-2 : 2014 used in conjunction with sheathing on framed applications
- fixings and brackets used to attach the sub-frame to the substrate wall.

2 Manufacture

2.1 The panels are manufactured by a batch-blending operation, followed by the Hatschek process and are compressed. After drying for a minimum of 28 days, the panels are coated on their reverse side and face side with an acrylic coating.

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 system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by TUV (Certificate 12 100/104 6728/03 TMS).

3 Delivery and site handling

3.1 The panels are delivered on wrapped pallets weighing up to approximately 1800 kg for 8 mm thick panel and 3100 x 1250 mm sheet size. They can be off-loaded either by mechanical handling equipment or by manually removing individual panels.

3.2 The pallets should be stored flat, under cover and on a dry, level surface. Stacks of loose panels must not exceed one metre in height.

3.3 The pallets must be stored in a ventilated environment to prevent moisture penetrating between stored sheets which may cause permanent staining in the form of efflorescence.

3.4 Each panel is marked with the product name, dimensions and code on the reverse side.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on EQUITONE [natura].

Design Considerations

4 Use

4.1 EQUITONE [natura] panels are satisfactory for use as exterior non-load bearing, decorative cladding panels on timber stud masonry or steel frame walls of new and existing buildings. The panels are attached to timber battens or metal rail supports. It is essential that walls are designed and constructed incorporating the normal precautions to prevent moisture penetration. Where the panels are used in conjunction with combustible materials (eg timber battens) their use is restricted to buildings up to 18 metres in height (see section 7.4).

4.2 The substrate wall and the sub-frame to which the panels are fixed must be structurally sound and satisfy the requirements of the relevant national Building Regulations and Standards.

4.3 For new substrate walls, the designer must ensure:

- brickwork or blockwork walls are constructed in accordance with the relevant sections of BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their UK National Annexes, and PD 6697 : 2010 or one of the technical specifications given in the relevant national Building Regulations guidance
- timber stud walls are constructed in accordance with the relevant sections of BS EN 1995-1-1 : 2004 and its UK National Annex, and preservative-treated, in accordance with BS 8417 : 2011. Guidance on recommended wood preservation is also given in *NHBC Standards* 2018, Part 3 *General*, Chapter 3.3 *Timber preservation (natural solid timber)*
- metal framework walls are constructed in accordance with the relevant sections of BS EN 1993-1-1 : 2005 and it's UK National Annex. The installation of vertical timber battens or metal support rails must be aligned and fixed directly through to the vertical structural metal framework.

4.4 Studding and framing must be adequately supported by noggings to ensure rigidity.

4.5 Ventilation and drainage must be provided behind the cladding. All ventilation openings around the periphery of the system should be suitably protected with mesh to prevent the ingress of birds, vermin and insects. Additional

guidance on minimum recommended cavity widths is given in *NHBC Standards* 2019, Chapters 6.2 and 6.9 (see also section 8.2 of this Certificate).

4.6 When fixing the panels to timber supports, these must be preservative-treated, good-quality timber battens aligned vertically at maximum 600 mm centres.

4.7 Care should be taken to ensure that sufficient time is allowed for complete fixing or drying of the preservative before the panels are fixed.

5 Practicability of installation

The panels are designed to be installed by competent contractors experienced with this type of product.

6 Strength and stability

6.1 Design wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Due consideration should be given to higher pressure coefficients applicable to corners of the building as recommended in this Standard. In accordance with BS EN 1990 : 2002, it is recommended that a wind load factor of 1.5 is used to determine the ultimate wind load to be resisted by the system.

6.2 The supporting wall must be able to take the full wind and any racking loads on its own. It can be assumed that the panels do not contribute in this regard.

6.3 A suitably qualified engineer must check the design and installation of the cladding and ensure the support battens/rails must be designed to limit mid-span deflections (ie length span deflections to L/200, and cantilever length span deflections to L/150).



6.4 Under wind loading, the most likely mode of failure is by pull-through at the fixings (see section 1.4) owing to wind suction.

6.5 The design wind load resistance values of the panels for different fixing centres and with 600 mm support rail spacings are as shown in Table 1, provided the designer ensures that:

- fixing of the support timber batten/aluminium rail to the substrate wall has adequate pull-out resistance for the calculated loads (not covered by this Certificate)
- the system's fixings have adequate pull-out strength (not covered by this Certificate) for the calculated wind loads (see section 6.1)
- the vertical timber battens or aluminium rails are no more that the fixing centres shown on Table 1.

Table 1 EQUITONE [natura] design wind load resistance ($kN \cdot m^{-2}$)			
Fixing type	Fixing spacing (mm)		
	400	500	600
Screw	1.121	0.956	0.810
Rivets	1.957	1.656	1.354

Note: For fixing details please refer to section 1.4 of this Certificate.

Resistance to impact



6.6 When tested for hard and soft body impacts, the system comprising the panels of 1800 x 1220 mm, fixed on 47 x 50 mm timber battens with 600 c/c fixings of 45 x 4 mm with an 8 mm head and nails of 45 x 2.8 mm with a 6.5 and 8 mm head, the panels were found to be suitable for use in the areas defined under Use Categories III to IV in Table G.4 of EAD 090062-00-0404, which is reproduced (in part) in able 2 of this Certificate.

Table 2 Definition of Use Categories (reproduced from EAD 090062-00-0404, Table G.4)		
Use Category	Description	
1	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not	
1	subjected to abnormally rough use	
	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of	
II	the kit will limit the size of the impact; or at lower levels where access to the building is primarily to	
	those with some incentive to exercise care	
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked object	
IV	A zone out of reach from ground level	

Note: Use Categories I and II are shown for reference purposes only.

6.7 For installations with a subframe other than that described in section 6.6, impact resistance tests must be carried out in accordance with EAD 090062-00-0404, 2018 by an accredited body and appropriate impact Use Categories determined in accordance with this Standard. The classification determined from the tests will depend on the distance between the centres of support and will establish the areas where the completed cladding system can be used (see EAD 090062-00-0404, 2018, Table G.4).

7 Behaviour in relation to fire



7.1 The external surface of the panel has a reaction to fire classification of A2-s1, d0 in accordance with BS EN 13501-1 : 2007.

7.2 The reverse side of the panel (facing into the cavity) has a reaction to fire classification of A2-s1, d0 to BS EN 13501-1 : 2007.

7.3 The panels are classified as limited combustibility ('non-combustible' in Scotland) and are not subject to any restriction on building height or proximity to boundaries.

7.4 Designers should refer to the relevant national Building Regulations and guidance for alternative approaches and detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation, breather membrane, timber battens.

8 Air and water penetration



8.1 The panels are suitable for use in back-ventilated and drained cladding systems.

8.2 To satisfy the NHBC requirements (see *NHBC Standards* 2019, Chapters 6.2, 6.9 and 6.10.18), panels must satisfy the minimum opening joint between panels and the minimum drained and ventilated cavity gap maintained behind the cladding where baffled-jointed (ie used in conjunction with horizontal joint profile), or open-jointed. In addition, a minimum 500 mm² ventilation slots per metre wall length, in accordance with BS 5250 : 2011 must be provided for a minimum 38 mm cavity behind cladding installed over timber- and steel-framed backing walls.

8.3 The panels are not weathertight and when used on timber stud walls must be backed by a wall breather membrane (see section 1.5) acting as a vapour-permeable water barrier, incorporated behind the cladding under the supporting battens.

8.4 Where the panels are used as a decorative facing attached to weathertight masonry walls, a vapour permeable barrier is not necessary as the amount of water that will penetrate the cladding will be small and will not have an adverse effect on the wall.

8.5 If the panels are used in the renovation of a masonry wall which is structurally sound but not fully weathertight, the use of a vapour-permeable barrier is advisable.

8.6 When the panels are used on metal frame substrate walls, the sheathing layer (see section 4.6) must have a wall breather membrane installed on the external face.

8.7 Provision must always be made to allow water that has penetrated behind the cladding to drain away.

9 Maintenance



9.1 Annual maintenance inspections should be carried out to ensure that rainwater goods are complete and in good working order and that flashings, seals and fastenings are in place and secure.

9.2 The panels do not normally require cleaning. However, for normal soiling, the surface may be cleaned with a hot water and household detergent mixture applied with a suitable cleaning pad or sponge. For more difficult chemical soiling, the Certificate holder's advice should be sought.

10 Durability



10.1 Accelerated ageing tests carried out on the uncoated fibre-reinforced cement matrix material showed no evidence of significant deterioration and indicate a performance similar to that of traditional cement-based sheet products.

10.2 The durability and service life of the panels will depend upon the building location, immediate environment and intended use of the building.

10.3 Providing regular maintenance is carried out, as described in section 9 and in accordance with the Certificate holder's instructions, the panels can be expected to have a life in excess of 30 years when used in the normal conditions encountered in the UK.

10.4 In general, any colour change will be slight and uniform on any one elevation and the panels will have a decorative life of at least 15 years.

10.5 The coating on the panels is tough and durable and adheres to the panel surface, but it is not resistant to continual abrasion.

Installation

11 General

11.1 EQUITONE [natura] should be installed in accordance with the Certificate holder's instructions.

11.2 Whenever possible, the panels are cut using tungsten-carbide tipped handsaws or circular saws.

11.3 Where necessary, the panels are drilled using a fully hardened steel drill bit with cutting edge with a 60° point.

12 Precautions

12.1 Owing to the presence of crystalline silica in the panels, machining may lead to the release of undisturbed quartz dust. As the raw materials are bonded within the cement matrix, this does not pose a health hazard.

12.2 Where excessive concentrations of dust are generated, the dust levels must be controlled by the use of dust extraction equipment. The measures defined in Health and Safety Executive Guidance Note EH44 should be followed.

12.3 The panels are not loadbearing and heavy items must not be leaned against them.

13 Procedure

13.1 The panels must be screw-fixed to vertical timber supports securely fixed to the substrate and levelled to give a flat fixing surface. Alternatively, the panels must be rivet-fixed to vertical metal rail supports. Details of fixing arrangements are given in Figure 1.

13.2 Depending on subframe, the panels are fixed either by using stainless steel screws (timber batten) with coloured heads, or by using colour matched K15 rivets (metal rail) with fixing length determined by panel thickness. Panels must be pre-drilled with holes to the correct specification depending on the fixing.

13.3 Fixing centre and edge spacings for the panels are given in Figure 1.

13.4 Subsequent panels are installed ensuring a minimum gap between panels of 8 - 12 mm or as permitted in NHBC Technical Standards (see also section 8.2).

13.5 Screw-fixings must be tightened sufficiently to hold the sheets in place but allow for lateral movement.

Figure 1 Typical installation details





14 Repair

Damaged panels must be replaced as soon as possible, following the Certificate holder's instructions.

Technical Investigations

15 Tests

15.1 An assessment was made on data to BS EN 12467 : 2004 in relation to:

- dimensions
- bending strength
- apparent density
- resistance to freeze/thaw
- resistance to water soak
- resistance to soak/dry cycling
- resistance to heat/rain cycling.

15.2 Tests were carried out to determine:

- water absorption
- pull-through of fixings
- resistance to hard-body impact
- resistance to soft-body impact
- water-vapour permeability
- resistance to algae growth
- effect of accelerated weathering (colour stability)
- abrasion resistance
- adhesion of coating
- scratch test

in order to assess:

- safety and performance when installed
- durability of coated product.

16 Investigations

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

16.2 An evaluation was made of existing data in relation to reaction to fire tests and classification to EN 13501-1 : 2007.

Bibliography

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

BS 8417 : 2011 + A1 : 2014 Preservation of wood — Code of practice

BS EN 1383 : 1999 Timber structures — Test methods — Pull-through resistance of timber fasteners

BS EN 1990 : 2002 + A1 : 2005 Eurocode — Basis of structural design NA to BS EN 1990 : 2002 + A1 : 2005 UK National for Eurocode — Basis of structural design

BS EN 1991-1-4 : 2005 + A1 : 2010 Eurocode 1 — Actions on structures — General actions — Wind actions NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions

BS EN 1993-1-1 : 2005 Eurocode 3 — Design of steel structures — General rules and rules for buildings NA to BS EN 1993-1-1 : 2005 UK National Annex to Eurocode 3 — Design of steel structures — General rules and rules for buildings

BS EN 1995-1-1 : 2004 + A1 : 2008 Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings

NA to BS EN 1995-1-1 : 2004 + A1 : 2008 UK National Annex to Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings

BS EN 1996-1-1 : 2005 + A1 : 2012 Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures

NA to BS EN 1996-1-1 : 2005 + A1 : 2012 UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures

BS EN 1996-1-2 : 2005 Eurocode 6 — Design of masonry structures — General rules — Structural fire design NA to BS EN 1996-1-2 : 2005 UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design

BS EN 1996-2 : 2006 Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry

NA to BS EN 1996-2 : 2006 UK National Annex to Eurocode 6 — Design of masonry structures —

Design considerations, selection of materials and execution of masonry

BS EN 1996-3 : 2006 Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures

NA to BS EN 1996-3 : 2006 UK National Annex to Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures

BS EN 12467 : 2012 + A1 : 2016 Fibre-cement flat sheets — Product specification and test methods

BS EN 13859-2- : 2014 Flexible sheets for waterproofing — Definitions and characteristics of underlays — Underlays for walls

BS EN ISO 9001 : 2015 Quality management systems — Requirements

EN 13501-1 : 2007 + A1 : 2009 Fire classification of construction products and building elements — Classification using test data from reaction to fire tests

EAD 090062-00-0404: 2018 – Kits for external wall claddings mechanically fixed

PD 6697 : 2010 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2

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.

British Board of Agrément		
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