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**Agrément
Certificate
No 06/4299**

Designated by Government
to issue
European Technical
Approvals

WEATHERBOARD

Habillage de façade
Verkleidung von Faserverstärkter Zement

Product



• THIS CERTIFICATE RELATES TO WEATHERBOARD, FIBRE-REINFORCED CEMENT SIDING.

• The product meets the requirements for Category A, Class 2 boards to BS EN 12467 : 2000.

• The product is for use as an exterior non-loadbearing lap siding.

• It is essential that the products are used in accordance with the Certificate holder's instructions and the Design Data and Installation sections of this Certificate.

• The product may be fixed horizontally over braced timber stud walls or conventional masonry.

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of cladding systems with the Building Regulations. In the opinion of the BBA, Weatherboard, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements listed below.

Requirement:	A1	Loading
Comment:		The product is acceptable for use as set out in sections 7.2 to 7.4 and 8.1 to 8.9 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The uncoated product is unrestricted by this Requirement. See sections 9.1 to 9.4 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product does not provide a watertight or airtight facing. To achieve a weatherproof barrier, a breather membrane must be provided. See sections 10.1 to 10.4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See sections 12.1 and 12.2 of this Certificate.

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2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, Weatherboard, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 12.1 and 12.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	1.1(a)(b)	Structure
Comment:		The product is acceptable for use with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See sections 7.2 to 7.4 and 8.1 to 8.9 of this Certificate.
Standard:	2.4	Cavities
Comment:		The product is a 'low risk' material. Cavity barriers should be provided as required by clause 2.4.2 ⁽¹⁾⁽²⁾ of this Standard. See sections 9.1 to 9.4 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is not classified as 'non-combustible' and therefore the use will be restricted under clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ of this Standard. See section 9.5 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 9.1 to 9.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product does not form a watertight or airtight facing. To achieve a weatherproof barrier a breather membrane must be provided to meet this Standard, with reference to clause 3.10.5 ⁽¹⁾⁽²⁾ . See sections 10.1 to 10.4 of this Certificate.
Standard:	3.15	Condensation
Comment:		Provided there is provision for adequate drainage and ventilation behind the cladding, and a breather membrane is incorporated, as required, the product will comply with clause 3.15.1 ⁽¹⁾ of this Standard. See sections 7.6 and 10.1 to 10.4 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).

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Weatherboard, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See sections 12.1 and 12.2 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The product does not form a watertight or airtight facing. To achieve a weatherproof barrier, a breather membrane must be provided. See sections 10.1 to 10.4 of this Certificate.
Regulation:	D1	Stability
Comment:		The product is acceptable for use as set out in sections 7.2 to 7.4 and 8.1 to 8.9 of this Certificate.
Regulation:	E5	External fire spread
Comment:		The product is unrestricted by this Regulation. See sections 9.1 to 9.4 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 5 *Description* (5.2) and 6 *Delivery and site handling* (6.1 and 6.4) of this Certificate.

5 Description

5.1 Weatherboard is a range of fibre-reinforced Portland cement planks, satisfying the requirements of Category A, Class 2 boards to BS EN 12467 : 2000.

5.2 The product is available in a smooth or textured finish, and in standard weights and dimensions of:

thickness (mm)	8 and 10
width (mm)	191
length (mm)	3600
weight (kgm ⁻²)	12.3 and 14.5
weight per plank (kg)	7.2 and 9.9
range of colours including:	white, black, natural, ivory, grey-brown, grey and blue-grey.

5.3 The product is supplied factory painted or unpainted for coating on site. The performance of the site-applied coatings is outside of the scope of this Certificate.

5.4 The product is manufactured by a batch blending operation, followed by the Hatschek process and high-pressure steam autoclaving. Quality control is maintained over raw materials, during processing and on the final product.

5.5 Ancillary materials for use with the products include:

- fibre-cement, two-piece corner trims, metal or plastic trims suitable for use as decorative trim around openings
- Type 1 breather membrane to BS 4016 : 1997
- stainless steel nails 50 mm long by 3.4 mm diameter, with a 10 mm head diameter
- zinc-plated or stainless-steel screw fixings 35 mm by 4.8 mm diameter, with a 10 mm diameter head.

6 Delivery and site handling

6.1 The product is delivered on wrapped pallets weighing up to approximately 715 kg (72 planks) and 1728 kg (240 planks). They can be offloaded by either mechanical handling equipment or manually removing individual boards.

6.2 The product should be stored on edge or flat, under cover, and on a dry, level surface. Stacks of loose planks should not exceed one metre in height.

6.3 Every plank in each pallet is marked with a unique manufacturing code.

7 General

7.1 Weatherboard is suitable for horizontal, vertical or diagonal fixing, as a decorative and protective external facing over a timber stud or masonry wall.



7.2 The designer should ensure that the strength and integrity of the intended substrate is commensurate with that required of the cladding system (see sections 7.3 and 7.4).

7.3 Brickwork or blockwork walls should be constructed in the conventional manner in accordance with BS 5628-1 : 2005 and BS 5628-3 : 2005 or one of the technical specifications given in the national Building Regulations:

England and Wales

Approved Document A1/2, Section 2C

Scotland

Mandatory Standard 1.1

Northern Ireland

Technical Booklet D *Structure*.

7.4 Timber stud walls should be constructed in accordance with BS 5268-2 : 2002 and BS 5268-6.1 : 1996, and preservative treated in accordance with BS 5268-5 : 1989. Studding and framing should be adequately supported by noggings to ensure rigidity.

7.5 The product should be fixed to aqueous copper quarternary ammonium compound (ACO) preservative-treated, good-quality timber battens, aligned vertically at 400 mm or 600 mm centres. The minimum batten thickness over timber studs is 30 mm; over masonry substrates, this should be increased to accommodate the 50 mm length of the fixings.



7.6 In accordance with BS 8200 : 1985, a continuous 10 mm ventilation pathway must be maintained behind the cladding, with minimum 5000 mm² ventilation slots per metre run at the top and bottom of the installation. This will also satisfy the NHBC requirement (see NHBC Standards, Chapter 6.2 : 1992) for a minimum 10 mm cavity behind cladding installed over timber sheathing. To comply with the requirement of *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure* (page 191) for cladding installed over timber sheathing, however, a minimum 19 mm cavity is required.

8 Strength and stability

Wind loading



8.1 Under wind loading, the most likely mode of failure of the cladding will be by failure of the product at the fixings.

8.2 When installed in accordance with the requirements of this Certificate, onto battens at 600 mm spacings, the product can withstand dynamic wind pressures not exceeding 1.7 kPa.

8.3 The permissible dynamic wind pressure may be increased by reducing batten spacing. This is particularly recommended at the corner of buildings and in exposed locations. In common with all cladding, the adequacy of a proposed installation should always be checked by a qualified engineer, who should include in the check the battens and their fixings to the substrate, not covered by this Certificate.

8.4 When calculating wind loads, higher pressure coefficients applicable to corners of the building should be used.

8.5 The support battens should be so designed as to limit mid-span deflections to $L/200$, and cantilever deflections to $L/150$.

8.6 A suitably qualified engineer must check the design and installation of the cladding.

8.7 The supporting wall must be able to take the full wind as well as any racking loads. No contribution from the cladding system should be assumed in this regard.

8.8 Wind loads should be calculated in accordance with BS EN 1991-1-4 : 2005 and BS 6399-2 : 1997.

Resistance to impact

8.9 When tested in accordance with BBA test methods, the product performed in a satisfactory manner. It is suitable for use in areas where there is little possibility of impact or abrasion damage, ie at low levels in areas of restricted access or at higher levels in public areas (the areas described in Categories C to F of BS 8200 : 1985, or E_3 and E_4 of MOAT No 43 : 1987).

9 Performance in relation to fire



9.1 When tested to BS 476-6 : 1989, an uncoated sample of the product achieved a fire propagation index (I) of 0.0 and a sub-index (i_1) of 0.0.

9.2 When tested to BS 476-7 : 1997, the product achieved a Class 1 result.

9.3 Therefore, the product is classified as Class 0 or 'low risk' as defined in the various national Building Regulations.

9.4 This performance may not be achieved when the product is overcoated and care should be taken to select a coating system with the appropriate performance in fire for the installation in question.



9.5 The product should not be used on a wall one metre or less from a boundary.

10 Air and water penetration



10.1 The product is not airtight, watertight or water-vapourtight. When used on timber stud walls, the product must be backed by a breather membrane in conjunction with sheathing boards acting as a vapour-permeable water barrier, incorporated behind the cladding under the supporting battens. This barrier must meet the requirements of BS 4016 : 1997 and have a vapour resistance less than 0.6 MNsg^{-1} when calculated from the results of tests carried out at 25°C and a relative humidity of 75%, in accordance with BS 3177 : 1959.

10.2 Where the product is used as a decorative facing attached to weathertight masonry walls, a water 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.

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

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

11 Repair and maintenance

11.1 Under normal conditions of use, the products are unlikely to suffer damage, but should it occur, repairs are easily carried out by replacement of damaged planks. This may require the temporary removal of undamaged planks above the damaged area.

11.2 Maintenance is restricted to occasional cleaning and recoating as necessary.

12 Durability



12.1 When installed in accordance with this Certificate and the manufacturer's instructions and subjected to normal conditions of exposure and use, the product will have an estimated service life in excess of 30 years.

12.2 In common with other cementitious materials (eg masonry block), the matrix material can embrittle with time. This can be minimised by the selection of an appropriate coating and regular maintenance painting.

13 General

13.1 Weatherboard is for installation on external braced timber studs, in accordance with the provisions of this Certificate and the manufacturer's instructions, using suitably experienced and trained personnel.

13.2 Cutting of boards can be performed by using a fine tooth tungsten carbide or diamond dusted handsaw, power saw or guillotine.

14 Procedure

14.1 Where required, a breather membrane in accordance with section 5.5 should be laid along the wall, with minimum laps of 150 mm.

14.2 Timber wall battens should be fixed over the breather membrane in accordance with sections 7.5 and 7.6.

14.3 A strip of tilting fillet 30 mm by 8 mm or 10 mm should be fixed along the front face of the battens allowing at least 150 mm between the bottom edge and ground level.

14.4 The first course of the product should then be installed, using the fixings described in section 5.5, in accordance with the manufacturer's instructions, overlapping the bottom edge of the tilting fillet by at least 3 mm.

14.5 Subsequent courses should be installed in the same way, allowing a 30 mm overlap of the lower edge over the previous row (see Figure 1).

14.6 Where joints are required, the planks can be butted in moderate contact to form a joint. A 50 mm polyurethane weather strip should be installed directly behind the joint.

14.7 At corners, the close-mitred product should be used for neat finishing. Alternatively, corners can be finished using either fibre-cement, two-piece corner trims or metal trims. Installation should be in accordance with the Certificate holder's instructions.

14.8 If the unpainted product is used, the completed installation should be painted with an acrylic coating system. The manufacturer can advise on suitable products for this purpose. The performance of such coatings has not been assessed and is outside of the scope of this Certificate.

Figure 1 Installation details

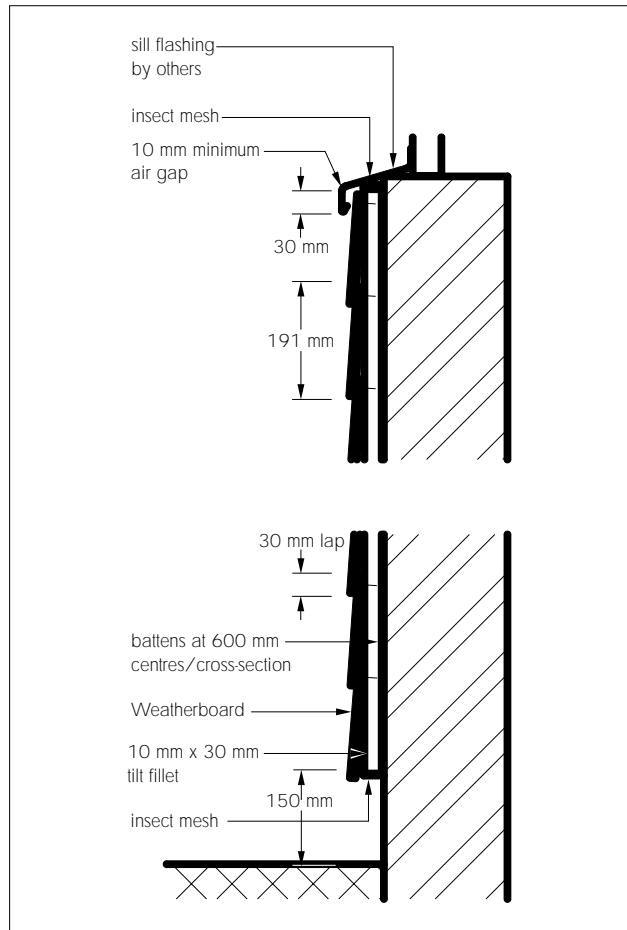
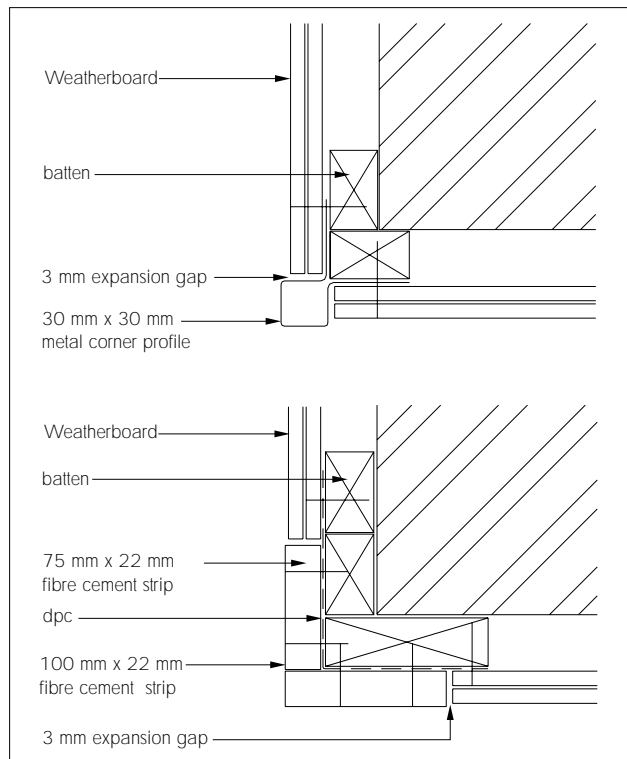


Figure 2 Corner details



Technical Investigations

The following is a summary of the technical investigations carried out on Weatherboard.

15 Tests

Tests were carried out to determine:

- density
- water absorption
- bending strength
- resistance to hard body impact
- resistance to soft body impact
- pull-through of fixings
- adhesion to substrate
- resistance to water penetration
- resistance to algal growth
- abrasion resistance.

16 Investigations

16.1 Classifications were made to BS EN 12467 : 2000 on the basis of test data supplied to these Standards on:

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

16.2 Examination was made of existing data relating to:

- fire propagation to BS 476-6 : 1989
- surface spread of flame to BS 476-7 : 1997
- resistance to wind loading.

16.3 The manufacturing process was examined, including the methods adopted for quality control.

Bibliography

BS 476-6 : 1989 *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 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 4016 : 1997 *Specification for flexible building membranes (breather type)*

BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*

BS 5268-5 : 1989 *Structural use of timber — Code of practice for the preservative treatment of structural timber*

BS 5268-6.1 : 1996 *Structural use of timber — Code of practice for timber frame walls — Dwellings not exceeding four storeys*

BS 5628-1 : 2005 *Code of practice for the use of masonry — Structural use of unreinforced masonry*

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

BS 6213 : 2000 *Selection of construction sealants — Guide*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

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

BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 12467 : 2000 *Fibre-cement flat sheets — Product specifications and test methods*

MOAT No 43 : 1987 *UEAtc Directives for Impact Testing Opaque Vertical Building Components*

Conditions of Certification

17 Conditions

17.1 This Certificate:

- (a) relates only to the product that is named, described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

17.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, 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 and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

17.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do 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 or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future 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 installation and use of this product.



In the opinion of the British Board of Agrément, Weatherboard is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 06/4299 is accordingly awarded to Marley Eternit Ltd.

On behalf of the British Board of Agrément

Date of issue: 13th March 2006

Chief Executive

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British Board of Agrément

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For technical or additional information, contact the Certificate holder (see front page).
For information about the Agrément Certificate, including validity and scope, tel: Hotline 01923 665400, or check the BBA website.