

SCOPE OF AGRÉMENT

This Agrément relates to A2 Versapanel® (hereinafter the 'Product'). The Product is a cement-bonded particle board (hereinafter 'CBPB') for non-structural use on external light gauge steel frame (hereinafter 'LGSF') supporting walls, as a sheathing board. The Product should not be used as a substrate for direct render or as a wall cladding. A proprietary direct render or wall cladding system should hold its own verification of performance.

PRODUCT DESCRIPTION

The Product consists of Portland cement, wood particles and inorganic additives, without reinforcement mesh. Available in a maximum size of 1.2 m x 3.0 m, with an average density between 1506 kg/m³ and 1590 kg/m³ and standard thicknesses of 10 mm or 12 mm.

PRODUCT ILLUSTRATION



THIRD-PARTY ACCEPTANCE

LABC Warranty/NHBC/Premier Guarantee - For detailed information see section 3.3 (Third-Party acceptance).

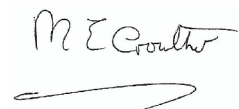
STATEMENT

It is the opinion of Kiwa Ltd., that the Product is fit for its intended use, provided it is specified, installed and used in accordance with this Agrément.

Chris Vurley, CEng
Technical Manager, Building Products



Mark Crowther, M.A. (Oxon)
Kiwa Ltd. Technical Director



SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, building control personnel, contractors, installers and other construction industry professionals considering the fitness for the intended use of the Product. This Agrément covers the following:

- Conditions of use;
- Production Control, Quality Management System and the Annual Verification procedure;
- Points of attention for the Specifier;
- Installation;
- Independently assessed Product characteristics and other information;
- Compliance with national Building Regulations, other regulatory requirements and Third-Party acceptance, as appropriate;
- Sources, including codes of practice, test and calculation reports.

MAJOR POINTS OF ASSESSMENT

Strength - the Product can be incorporated in a building subject to typical wind actions encountered in the UK (see section 2.1.9).

Fire Performance - the Product is classified as Euroclass A2-s1,d0* in accordance with BS EN 13501-1 (see section 2.1.10).

Durability - the Product has sufficient residual internal bond strength, a low swelling in thickness and does not require maintenance (see section 2.1.11).

CE marking - the Agrément holder has taken responsibility for CE marking the Product in accordance with the relevant harmonised European Product Standard. An asterisk (*) appearing in this Agrément indicates that the value shown is given in the manufacturer's Declaration of Performance (DoP) (see section 2.1.12).

CONTENTS

Chapter 1 - General considerations

- 1.1 - Conditions of use
- 1.2 - Production Control and Quality Management System
- 1.3 - Annual verification procedure - continuous surveillance

Chapter 2 - Technical assessment

- 2.1 - Points of attention to the Specifier
- 2.2 - Examples of details
- 2.3 - Installation
- 2.4 - Independently assessed Product characteristics
- 2.5 - Components and ancillary items

Chapter 3 - CDM, national Building Regulations and Third-Party acceptance

- 3.1 - The Construction (Design and Management) Regulations 2015 and The Construction (Design and Management) Regulations (Northern Ireland) 2016
- 3.2 - The national Building Regulations
- 3.3 - Third-Party acceptance

Chapter 4 - Sources

Chapter 5 - Amendment history

CHAPTER 1 - GENERAL CONSIDERATIONS

1.1 - CONDITIONS OF USE

1.1.1 Design considerations

See section 2.1.

1.1.2 Application

The assessment of the Product relates to its use in accordance with this Agrément and the Agrément holder's requirements.

1.1.3 Assessment

Kiwa Ltd. has assessed the Product in combination with its relevant DoP, test reports, technical literature and factory and site visits. Also, the LABC Warranty Technical Manual, NHBC Standards and Premier Guarantee Technical Manual have been taken into consideration. Factory Production Control has been assessed.

1.1.4 Installation supervision

The quality of installation and workmanship must be controlled by a competent person who must be an employee of the installation company.

The Product must be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

1.1.5 Geographical scope

The validity of this document is limited to England, Wales, Scotland, Northern Ireland and Ireland, with due regard to chapter 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this BDA Agrément® is to provide for well-founded confidence to apply the Product within the Scope described. The validity of this Agrément is three years after the issue date, and as published on www.kiwa.co.uk/bda.

1.2 - PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has determined that the Agrément holder fulfils all obligations in relation to this Agrément, in respect of the Product.

The initial QMS audit demonstrated that the Agrément holder has a satisfactory Quality Management System (QMS) and is committed to continuously improving their QMS operations.

Document control and record keeping procedures were deemed satisfactory.

A detailed Production Quality Specification (PQS) has been compiled to ensure traceability and compliance under the terms of this Agrément.

1.3 - ANNUAL VERIFICATION PROCEDURE - CONTINUOUS SURVEILLANCE

To demonstrate that the Product is in conformity with the requirements of the technical specification described in this Agrément, an Annual Verification procedure has been agreed with the Agrément holder in respect of continuous surveillance and assessment, and auditing of the Agrément holder's QMS.

This Agrément does not constitute a design guide for the Product. It is intended as an assessment of fitness for purpose only.

2.1 - POINTS OF ATTENTION TO THE SPECIFIER**2.1.1 Design responsibility**

A Specifier may undertake a project specific design in which case it is recommended that the Specifier co-operates closely with the Agrément holder. The Specifier or installing contractor is responsible for the final as-built design.

2.1.2 Applied building physics (heat, air, moisture)

The physical behaviour of the building incorporating the Product shall be verified as suitable by a competent specialist, who can be either a qualified employee of the Agrément holder or a qualified consultant. The Specialist will check the physical behaviour of the building design and if necessary, can offer advice in respect of improvements to achieve the final specification. It is recommended that the Specialist co-operates closely with the Agrément holder.

2.1.3 General design considerations

The Product may be used in new and existing residential, commercial and industrial buildings as a sheathing board. The supporting wall must be designed and constructed in accordance with the Agrément holder's requirements and in accordance with BS EN 1993-1 and BS EN 1090-2.

When the Product is used as external sheathing:

- cover with a breather membrane; without a breather membrane, water can still penetrate a wall via taped butt joints, fasteners and penetrations (e.g. flues, ducts);
- appropriate detailing must be included with respect to damp proofing at penetrations, openings, eaves and sole plates.

When used on external walls, a drained cavity must be specified between the breather membrane and the cladding. The width of the drained cavity is determined by the cladding finish and shall be a minimum of 15 mm.

LGSF studs shall have minimum dimensions of 1.2 mm x 50 mm x 100 mm; use EMF1 4.8 x 45 mm or EMF2 4.8 x 66 mm (depending on steel section thickness) self-drilling/self-tapping screws with a maximum spacing of 600 mm at the perimeter and 300 mm at the intermediate studs. See diagram 1.

2.1.4 Project specific design considerations

A pre-installation survey is not required prior to installation of the Product - see section 2.3.3.

For the purpose of U-value calculations and to determine if the requirements (of legislation or other statutes) are met, the thermal resistances of wall assemblies shall be calculated according to BS EN ISO 6946, BRE-publication BR 443, and BS 5250 as appropriate.

The Product can limit the air permeability of a wall when all butt joints and penetrations are properly sealed.

The design value for the thermal conductivity of the Product is based on a tabulated value in table 1 of standard BS EN 12524; the material natural, porous stone of 1,600 kg·m⁻³ is deemed appropriate.

2.1.5 Permitted applications

Only application designed according to the specifications as given in this Agrément are allowed, in each case the Specifier will have to co-operate closely with the Agrément holder.

2.1.6 Installer competence level

The Product must be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

Installation can be undertaken by competent persons experienced in this sort of work.

2.1.7 Delivery, storage and site handling

The Product is delivered to site in suitable packaging, that bears the Product name, the Agrément holder's name and the BDA Agrément® logo incorporating the number of this Agrément.

Store the Product in accordance with the Agrément holder's requirements. Care must be taken to:

- not stack pallets of the Product more than 4 pallets high;
- cover the Product to protect from rain, frost and humidity;
- store away from possible ignition sources.

2.1.8 Maintenance and repair

Once installed, the Product does not require regular maintenance.

Performance factors in relation to the Major Points of Assessment**2.1.9 Strength**

Wind actions should be calculated in accordance with BS EN 1991-1-4. Due consideration should be given to the higher pressure coefficients applicable to corners of a building as recommended in this Standard.

The Product does not contribute to the racking resistance of LGSF supporting walls.

The Product can withstand a negative (suction) peak test pressure of 3,600 Pa. See section 2.4.1 in this Agrément for details of the particular supporting wall assembly tested.

2.1.10 Fire Performance

The Product is suitable for non-structural use as a sheathing board for use on external LGSF supporting walls.

The Product was tested in a typical wall assembly, without a breather membrane, that achieved a Euroclass A2-s1,d0 reaction to fire classification in accordance with BS EN 13501-1.

Testing in that assembly included a ventilated cavity which is deemed a more onerous condition than when the Product is tested in isolation (due to the chimney effect in the ventilated cavity).

For any given wall assembly, testing or calculations for a project specific fire design are required when the Product is:

- incorporated with a breather membrane (see section 2.1.3);
- installed in a wall without a ventilated cavity;
- finished with paint;
- incorporated with thermal insulation as a direct substrate;
- incorporated with a material/layer (on the opposite side of a cavity) that has a reaction to fire classification less than A2-s1,d0.

The Product can contribute to the fire resistance of a wall. Testing would be required to determine the performance RE and/or REI of a wall assembly in order to determine performance in respect of collapse (R), the transmission of flames and hot gases (E) and if applicable, limit heat transmission (I). It is recommended that joints are either filled with Euroform Versaseal® intumescent joint compound or covered with Euroform Versatape.

2.1.11 Durability

The Product will have an expected service life equivalent to that of the structure into which it is incorporated if installed in accordance with this Agrément. The Product can be considered resistant to moisture given the adequate residual internal bond strength and the low residual swelling G_i after ageing tests. See the values in section 2.4.3.

The expected lifespan of the building itself should be at least 60 years.

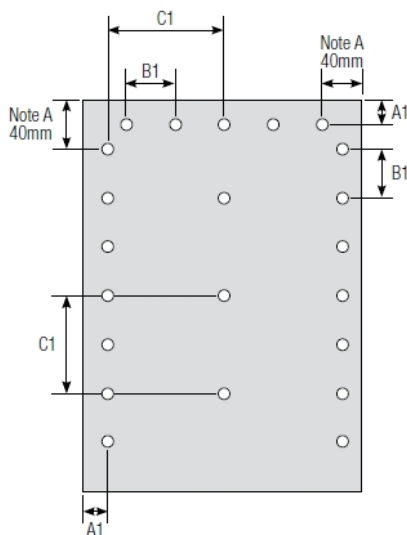
2.1.12 CE Marking

The relevant harmonised European standard for the Product is BS EN 13986.

2.2 - EXAMPLES OF DETAILS

Diagram 1 - Fixing centres

Board Thickness	Fixing Distance Centres (mm)			
	A	A1	B1	C1
10 - 12mm	40	15	300	600

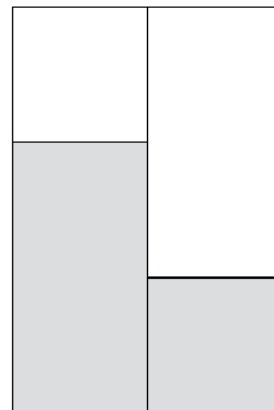


Note A:

The first fixing in from the corner for both horizontal and vertical fixing must be 40mm in from the edge.

Diagram 2 - Panel configuration

Euroform recommends that A2 Versapanel® is installed in brick bond fashion as per the diagram.



NOTE:

- 4 way joints are not recommended
- Minimum board width should not be less than 600mm

2.3 - INSTALLATION

The Product must be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

2.3.1 Installer competence level

See section 2.1.6.

2.3.2 Delivery, storage and site handling

See section 2.1.7.

2.3.3 Project specific installation considerations

No pre-installation survey is required for the installation of the Product.

2.3.4 Preparation

The following considerations apply prior to commencement of work:

- check if the edges of the Product are sound; discard damaged Product or cut away damaged edges;
- LGSF studs should be a minimum of 1.2 mm thick and 100 mm deep, to withstand the suction wind loads as tested;
- check the alignment of LGSF studs for level and plumb, and ensure no members are distorted;
- do not install the Product if the supporting wall is incorrectly constructed.

2.3.5 Outline of installation procedure

The key sequence for installation is:

- in accordance with the A2 Versapanel® brochure;
- ensure the boards are the correct size to allow for proper board arrangement;
- fix the Product using the correct fixing centres;
- use fixings with a regular spacing along the perimeter of every board; fixings in the centre of a board shall be spaced at a maximum of twice the perimeter fixing spacing;
- fill joints with Euroform Versaseal® intumescent joint compound or cover with Euroform Versatape.

For external sheathing on LGSF supporting walls, maintain a joint between every board of 3 mm - 6 mm to allow for movement due to moisture and temperature.

2.3.6 Finishing

The following is required upon completion of the installation:

- when used as external sheathing, cover the Product with a breather membrane. Without a breather membrane, water can still penetrate a wall via taped butt joints, fasteners and penetrations (e.g. flues, ducts).

2.4 - INDEPENDENTLY ASSESSED PRODUCT CHARACTERISTICS

2.4.1 Strength

Property tested in accordance with CWCT Standard for systemised building envelopes	Value
Wind-uplift resistance (serviceability), design load	2,400 Pa
Wind-uplift resistance (safety), peak test (suction)	3,600 Pa

Note: values for LGSF supporting walls made of 1.2 mm x 50 mm x 100 mm studs at 600 mm centres, and screws EMF1 4.75 x 40 mm at 300 mm centres along the perimeter and 600 mm centres to the intermediate studs.

2.4.2 Fire Performance

Test	Result
Reaction to fire	A2-s1,d0

Note: use of the Product in an assembly can result in a classification other than A2-s1,d0*. See 2.1.10 for situations or wall structures which require further study or testing.

2.4.3 Material Properties

Property	Value		
Water vapour permeability	Vapour resistance factor (tabulated value, μ): wet cup/dry cup	30/50 (-)*	
	Resistivity (calculated value): wet cup/dry cup	150/250 (MN·s/g·m)*	
Durability	Internal bond (average)	0.55 (N/mm ²)*	
	Swelling in thickness (average), G_t	≤ 0.7 (%)*	
	Moisture resistance	Residual internal bond (average)	0.42 (N/mm ²)*
		Residual swelling (average), G_t	0.1 - 0.2 (%)*
Biological (use class)	2*		
Thermal performance	Thermal conductivity (λ)	0.55 W·m ⁻¹ ·K ⁻¹ *	
	Air permeability (of open butt joints)	3.36 dm ³ ·m ⁻¹ ·s ⁻¹	
	Air permeability (with taped butt joints)	0.0 dm ³ ·m ⁻¹ ·s ⁻¹	
Airborne sound insulation $R_w(C;C_{tr})$	32(-1;-4) (dB)* [^]		

[^] the above class is valid for a 6 mm thick sheet; sound insulation improves with thickness, for a 24 mm thick sheet $R_w(C;C_{tr}) = 37(-2;-3)$.

2.5 - COMPONENTS AND ANCILLARY ITEMS

2.5.1 Components included within the scope of this Agrément

The following components are integral to the use of the Product:

- EMF1 4.8 x 45 mm and EMF2 4.8 x 66 mm self-drilling/self-tapping screws (for fixing to LGSF studs).

2.5.2 Ancillary items falling outside the scope of this Agrément

Ancillary items detailed in this section may be used in conjunction with the product but fall outside the scope of this Agrément:

- Versatape - for sealing butt joints between the Product;
- Versaseal® intumescent joint compound - for filling open butt joints between the Product.

CHAPTER 3 - CDM, NATIONAL BUILDING REGULATIONS AND THIRD-PARTY ACCEPTANCE

3.1 - THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 AND THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS (NORTHERN IRELAND) 2016

Information in this Agrément may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

3.2 - NATIONAL BUILDING REGULATIONS

In the opinion of Kiwa Ltd., the Product, if installed and used in accordance with Chapter 2 of this Agrément, can satisfy or contribute to satisfying the relevant requirements of the following national Building Regulations.

3.2.1 - ENGLAND THE BUILDING REGULATIONS 2010 AND SUBSEQUENT AMENDMENTS

- A1(2) Loading - imposed loads and wind loads - the Product can withstand wind pressures up to 3,600 Pa when used and fixed as recommended;
- B4(1) External fire spread - the Product can adequately resist the spread of fire over walls and from one building to another;
- C2(c) Resistance to moisture - the Product can contribute to limiting the risk of surface and interstitial condensation;
- L1(a)(b) Conservation of fuel and power - the Product can contribute to limiting heat gains and losses through walls;
- Regulation 7 Materials and workmanship - the Product is manufactured from suitably safe and durable materials for its application and can be installed to give a satisfactory performance provided it is installed in accordance with the requirements of this Agrément;

3.2.2 - WALES THE BUILDING REGULATIONS 2010 AND SUBSEQUENT AMENDMENTS

- A1(2) Loading - imposed loads and wind loads - the Product can withstand wind pressures up to 3,600 Pa when used and fixed as recommended;
- B4(1) External fire spread - the Product can adequately resist the spread of fire over walls and from one building to another;
- C2(c) Resistance to moisture - the Product can contribute to limiting the risk of surface and interstitial condensation;
- L1(a)(b) Conservation of fuel and power - the Product can contribute to limiting heat gains and losses through walls;
- Regulation 7 Materials and workmanship - the Product is manufactured from suitably safe and durable materials for its application and can be installed to give a satisfactory performance provided it is installed in accordance with the requirements of this Agrément;

3.2.3 - SCOTLAND THE BUILDING (SCOTLAND) REGULATIONS 2004 AND SUBSEQUENT AMENDMENTS

3.2.3.1 Regulations 8 (1)(2) Fitness and durability of materials and workmanship

- the Product is manufactured from suitably safe and durable materials for its application and can be installed to give a satisfactory performance provided it is installed in accordance with the requirements of this Agrément.

3.2.3.2 Regulation 9 Building Standards - Construction

- 1.1(a)(b) Structure - the Product can withstand wind pressures up to 3,600 Pa and impact loads by hard bodies subjected in the ordinary course of its use for the purpose of which it was intended;
- 2.6 Fire spread to neighbouring buildings - the Product can inhibit the spread of the fire to neighbouring buildings;
- 2.7 Fire spread on external walls - the Product can inhibit the spread of fire on external walls;
- 7.1(a)(b) Statement of sustainability - the Product can contribute to satisfying the relevant Requirements of Regulation 9, Standards 1 to 6, and therefore can contribute to a construction meeting a bronze level of sustainability as defined in this Standard; in addition, the Product can contribute to a construction meeting a higher level of sustainability as defined in this Standards

3.2.3.3 Regulation 12 Building Standards - Conversions

- all comments given under Regulation 9 also apply to this Regulation, with reference to Schedule 6 of the Building (Scotland) Regulations 2004 and subsequent amendments, clause 0.12 of the Technical Handbook (Domestic) and clause 0.12 of the Technical Handbook (Non - Domestic).

3.2.4 - NORTHERN IRELAND THE BUILDING REGULATIONS (NORTHERN IRELAND) 2012 AND SUBSEQUENT AMENDMENTS

- 23(a)(i)(iii)(b) Fitness of materials and workmanship - the Product is manufactured from suitably safe and durable materials for its application and can be installed to give a satisfactory performance provided it is installed in accordance with the requirements of this Agrément;
- 30 Stability - imposed winds - the Product can withstand wind pressures up to 3,600 Pa when used and fixed as intended;
- 35 Internal fire spread (structure) - the Product can inhibit the spread of a fire within the building;
- 36 External fire spread - the Product can adequately resist the spread of fire over walls and from one building to another;

3.3 - THIRD-PARTY ACCEPTANCE

LABC Warranty - in the opinion of Kiwa Ltd., the Product, if installed, used and maintained in accordance with this Agrément, can satisfy or contribute to satisfying the relevant requirements in relation to the LABC Warranty Technical Manual, Chapter 7.2 (Steel frame).

NHBC - in the opinion of Kiwa Ltd., the Product, if installed, used and maintained in accordance with this Agrément, can satisfy or contribute to satisfying the relevant requirements in relation to NHBC Standards, Technical Requirement R3 and Chapter 6.10 (Light steel framing).

Premier Guarantee - in the opinion of Kiwa Ltd., the Product, if installed, used and maintained in accordance with this Agrément, can satisfy or contribute to satisfying the relevant requirements in relation to the Premier Guarantee Technical Manual, Chapter 7.2 (Steel frame).

CHAPTER 4 - SOURCES

- BS EN ISO 6946:2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods;
- BS EN 1090-2:2018. Execution of steel structures and aluminium structures. Technical requirements for steel structures;
- BS EN 1990:2002+A1:2005 - Eurocode: Basis of structural design;
- UK National Annex for Eurocode. Basis of structural design;
- BS EN 1991-1-4:2005+A1:2010 - Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions;
- UK National Annex to Eurocode 1 - Part 1-4;
- BS EN 1993-1-1:2005+A1:2014. Eurocode 3: Design of steel structures. General rules and rules for buildings;
- UK National Annex to Eurocode 3 - Part 1-1;
- BS EN 12524:2000. Building materials and products. Hygrothermal properties. Tabulated design values;
- BS EN 13501-1:2007+A1 2009. Fire classification of construction products and building elements;
- BS EN 13986:2004+A1:2015. Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking;
- BS 5250:2011+A1:2016 Code of practice for control of condensation in buildings;
- BRE, Conventions for U-value calculations, No. BR 443, 2006 Edition;
- LABC Warranty, Technical Manual V8;
- NHBC, NHBC Standards 2019;
- Premier Guarantee, TECHNICAL MANUAL VERSION 12.

Remark: apart from these sources, technical information and confidential reports have been assessed; any relevant documents are in the possession of Kiwa Ltd. and kept in the Technical Assessment File of this Agrément. The Installation Manual for the Product may be subject to change, the Agrément holder should be contacted for clarification of revision.

CHAPTER 5 - AMENDMENT HISTORY

Revision	Amendment Description	Amended By	Approved By	Date
A	Premier Guarantee & LABC acceptance added	C Vurley	C Forshaw	February 2020