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BDA Agrément®
Walltite LWP CV100
Cavity Wall Insulation (Injected Foam)

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SCOPE OF AGRÉMENT

This BDA Agrément® (hereinafter 'Agrément') relates to Walltite LWP CV100 (hereinafter the 'Product'). The Product is an in-situ injected thermal insulation product which contributes to the airtightness and watertightness of external masonry cavity walls (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks). The Product is for use in existing and new residential and non-residential buildings, with cavity widths between 40 mm to 200 mm.

DESCRIPTION

The Product consists of two liquid components, an isocyanate and a resin, that are mixed to a defined ratio to create a purple-coloured, closed-cell foam, in accordance with the requirements of BS EN 14318-1. The Product is injected into a cavity wall through a series of holes, drilled in a predetermined pattern, until the cavity is fully filled. The mixture reacts in the cavity, producing a cellular polymer which hardens into a rigid polyurethane foam.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

STATEMENT

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

Craig Devine
Operations Manager, Building Products

Alpheo Mlotha CEng FIMMM MBA
Business Unit Manager, Building Products

SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, specialists, engineers, building control personnel, contractors, installers and other construction industry professionals who are considering the safety and fitness for purpose of the Product. This Agrément covers the following:

- Conditions of use;
- Production Control, Quality Management System and the Annual Verification Procedure;
- Product components and ancillary items, points of attention for the Specifier and examples of details;
- Installation;
- Independently assessed Product characteristics and other information;
- Compliance with national Building Regulations, other regulatory requirements and Third-Party Acceptance, as appropriate;
- Sources.

MAJOR POINTS OF ASSESSMENT

Moisture control - see Section 2.2.7 - the Product will contribute to limiting the risk of condensation and resisting the transfer of water across a cavity.

Fire performance - see Section 2.2.8 - the Product is classified as European Classification F, in accordance with BS EN 13501-1.

Thermal performance - see Section 2.2.9 - the Product improves the thermal performance of walls and can enable the walls to meet the design U-value requirements.

Adequacy of fill - see Section 2.2.10 - the Product can fully fill a cavity (with no voids/gaps and a consistent density) including under cills and at the eaves.

Durability - see Section 2.2.11 - the Product shall have a service life durability equivalent to that of the building into which it is incorporated.

UKCA, UKNI and CE marking - see Section 2.2.12 - the Agrément holder has responsibility for conformity marking, in accordance with all relevant British and European Product Standards.

CONTENTS

Section 1 - General considerations
1.1 - Conditions of use
1.2 - Production Control and Quality Management System
1.3 - Annual Verification Procedure - continuous surveillance
Section 2 - Technical assessment
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2.4 - Installation
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1 GENERAL CONSIDERATIONS

1.1 CONDITIONS OF USE

1.1.1 Limitations

This Agrément has been prepared in accordance with the mandatory requirements defined in the relevant Kiwa Technical Requirement. Some information in this Agrément is provided for guidance or reference purposes only; this information falls outside the scope of the Technical Requirement.

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 relevant test reports, technical literature, the Agrément holder's quality plan, DoPs and site visit, as appropriate.

1.1.4 Installation supervision

The quality of installation and workmanship shall be controlled by a competent person who shall be an employee of an Approved Installer.

The Product shall 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 Section 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this Agrément is to provide well-founded confidence to apply the Product within the scope described. The validity of this Agrément is as published on www.kiwa.co.uk/bda.

1.2 PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has conducted an audit of the Agrément holder and determined that they fulfil all their obligations in relation to this Agrément in respect of the Product.

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

2 TECHNICAL ASSESSMENT

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

2.1 PRODUCT COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

The components listed in Table 1 below are integral to the use of the Product.

Table 1 - Integral components

Component	Description
Walltite LWP CV 100	resin containing an expanding agent, catalysts, and other additives
Iso PMDI 92140	isocyanate solvent-free component containing oligomers and isomers

2.1.2 Ancillary items falling outside the scope of this Agrément

The following ancillary items detailed in this Section may be used in conjunction with the Product, but fall outside the scope of this Agrément:

- drilling machine used to create the holes according to the predetermined drilling pattern;
- injection machinery, including a handgun with suitable injection nozzle.

2.2 POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 Design

2.2.1.1 Design responsibility

Project-specific design is the responsibility of an Approved Installer, trained and approved by the Agrément holder.

2.2.1.2 Basis of design

The characteristics detailed in the section titled 'Major Points of Assessment' shall be considered during the use of the Product.

2.2.1.3 General design considerations

The Product:

- is suitable for use in existing and new residential and non-residential buildings;
- can fully fill cavities (with no gaps and a consistent density) in areas which are typically hard to treat, including around details and corners;
- remains stable within a cavity and has adequate resistance to settlement;
- shall be specified to comply with the resistance to moisture requirements given within either the relevant national Building Regulations or BRE Report 262.

Walls shall be designed and constructed in accordance with the relevant standards and national Building Regulations. Consideration shall be given to the local wind-driven rain index and the site exposure zone to prevent moisture ingress and air infiltration, in accordance with BS 8104 and PD 6697. Installation of the Product shall not be undertaken until the supporting wall is weathertight, i.e. the roof is in place and the window and door openings are sealed. It is essential that the supporting walls comply with PD 6697.

External masonry cavity walls shall be constructed in accordance with the national Building Regulations. Ensure the activities that form part of the pre-installation survey (Section 2.4.1) have been fulfilled.

The minimum cavity width to be filled shall not be less than 40 mm.

In preparation for the work, a detailed assessment of the building shall be carried out by a competent inspector to evaluate and approve the building's suitability for the installation of the Product.

It is critical to regularly check the density of the Product prior to every application within the appropriate timeframe, as per the instructions of the Agrément holder.

The Product shall extend to at least 150 mm below the damp proof course level to provide edge insulation to the floor.

The Product shall not be applied over electrical cables. Cables shall be re-routed or re-laid in suitable conduit or trunking, or electrical cables shall be de-rated.

2.2.1.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Agrément holder;
- consider the exposure zones where the Product is installed;
- take into account the requirements of the relevant national Building Regulations - see Section 3.2;
- take into account the service life durability required - see Section 2.2.11.

A pre-installation survey is required to allow determination of the project-specific design - see Section 2.4.1. A tape measure and borescope shall be used to assess the dimensions and condition of the cavity during the survey.

The drilling pattern spacing is regulated by the cavity width. The detailed drilling pattern instructions can be found in full in the Agrément holder's Installation Manual.

Freshly injected Product shall be applied into an area of existing foam, ensuring the strongest possible bond.

The Agrément holder recommends all Installers. attend the 'Approved Code of Practice' (ACoP) training course covering Elements 1, 2 and 3, which focuses on legislation and basic safety, combustion and its control, and flues and ventilation.

2.2.2 Applied building physics (heat, air, moisture)
A Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the Product and, if necessary, offer advice on improvements to achieve the final specification. The Specialist can be either a qualified employee of the Agrément holder or a suitably qualified consultant (in which case it is recommended that the Specialist co-operates closely with the Agrément holder).

2.2.3 Permitted applications
Only applications designed according to the specifications given in this Agrément are permitted. In each case, the Specifier and Installer shall co-operate closely with the Agrément holder.

2.2.4 Installer competence level
The Product shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

Installation shall be by employees trained and approved by the Agrément holder and subject to 1 % inspections by Kiwa Ltd. under a Kiwa Installation Assessment & Surveillance Scheme.

2.2.5 Delivery, storage and site handling
The Product components are delivered in suitable packaging bearing relevant identification information (such as the Product name, production identification date or batch number, the Agrément holder's name, etc.) and, where applicable, the BDA Agrément® logo incorporating the number of this Agrément.

Prior to installation, the Product shall be stored in accordance with the Agrément holder's requirements. Good housekeeping protocols shall be followed to avoid damage. As the Product components are sensitive to moisture, they shall always be stored in sealed, closed containers.

The Product is mixed on-site and is ready for use immediately.

2.2.6 Maintenance and repair
Once installed, the Product does not require regular maintenance. For advice in respect of repair, consult the Agrément holder.

Performance factors in relation to the Major Points of Assessment

2.2.7 Moisture control
Condensation risk
The performance of the Product, in relation to water vapour permeability, is in accordance with BS EN 12086 Method A, and is detailed in Section 2.5.1.

External walls incorporating the Product will adequately limit the risk of surface and interstitial condensation when designed in accordance with BS 5250.

When required by the project-specific design stage, a condensation risk analysis or hygrothermal analysis shall be carried out by the Agrément holder to minimise the risk of surface and interstitial condensation, in accordance with BS EN ISO 13788 or BS EN 15026 respectively.

Water absorption
The performance of the Product, in relation to water vapour permeability, is in accordance with BS EN 1609 Method B, and is detailed in Section 2.5.1.

The project-specific design shall include detailing around openings, penetrations and movement joints to minimise the risk of wind-driven rainwater ingress, in accordance with BS 6093.

The guidance given in BRE Report 262 shall be followed in connection with the weathertightness of wall constructions. The Agrément holder shall select a construction appropriate exposure zone, using the local wind-driven rain index in accordance with BS 8104, paying due regard to the design detailing, workmanship and materials to be used.

2.2.8 Fire performance
The Product is classified as European Classification F, in accordance with BS EN 13501-1.

For all building in Wales and Northern Ireland, and non-residential buildings in England, the following applies in accordance with the national Building Regulations:
- the Product shall not be used on buildings with a storey of 18 m or more above ground level. Refer to the relevant national Building Regulations for types of buildings and any exclusions that may apply;
- boundary restrictions will apply, dependent on the external surface materials of the external wall incorporating the Product, facing the boundary.

For residential buildings in England, the following applies in accordance with the national Building Regulations:
- the Product is restricted to buildings with no floor more than 11 m above ground level. Refer to the national Building Regulations for types of buildings and any exclusions that may apply;
- boundary restrictions will apply, dependent on the external surface materials of the external wall incorporating the Product, facing the boundary.

For all buildings in Scotland, the Product is not classified as 'non-combustible' and is restricted to buildings with no floor more than 11 m above ground level and not less than 1 m from the boundary. In such cases, the Product may be excluded from the unprotected area calculation regardless of openings. Refer to the national Building Regulations for types of buildings and any exclusions that may apply.

For dwellings in Ireland, the Product shall not be used on buildings with a storey of 15 m or more above ground level. The Product can be used without any boundary restrictions. Refer to the relevant national Building Regulations for types of buildings and any exclusions that may apply.

For buildings other than dwellings in Ireland, the Product shall not be used on buildings with a storey of 18 m or more above ground level. The Product can be used without any boundary restrictions. Refer to the national Building Regulations for types of buildings and any exclusions that may apply.

For all buildings in England, Wales, Northern Ireland, Scotland and Ireland, the Product is unrestricted for use in terms of height above ground and proximity to a boundary, provided it is installed in a cavity construction comprising two masonry leaves, each at least 75 mm thick, and with cavities closed around openings in a wall and at the top of a wall head.

The fire resistance of walls is based on the occupancy, size and use of a building and shall be a minimum of 30 minutes. It is then specified in 60-minute intervals thereafter.

Walls shall be designed and constructed:
- to adequately resist the passage and penetration of fire;
- to inhibit the unseen spread of fire and smoke within concealed spaces in the wall.

In all constructions, cavity barriers shall be provided to comply with the relevant provisions of the national Building Regulations.

For detailed conditions of use, regarding requirements for wall fire performance, cavity closers and fire barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction, designers shall refer to the relevant national Building Regulations.

Proximity of flues and appliances
Non-combustible insulation shall separate or shield the installed Product from any heat-emitting devices, fixed combustion appliances, incinerators, recessed lighting, fireplaces, chimneys or flue pipes passing through external walls, and from any potential source of ignition, in accordance with the provisions of the national Building Regulations.

2.2.9 Thermal performance
For the purpose of U-value calculations, and to determine if the requirements of national Building (or other statutory) Regulations are met, the thermal resistance of the cavity walls incorporating the Product shall be calculated in accordance with BS EN ISO 10211 (taking into consideration BS EN ISO 6946, BS EN ISO 10456 and BRE Report 443), using the Product's declared thermal conductivity (λ_D).

Care shall be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Due consideration shall be given to the Government Accredited Construction Details.

Guidance on linear thermal transmittance, heat flows and surface temperature factors can be found in the documents supporting the national Building Regulations and in BS EN ISO 10211, BRE Information Paper IP 1/06, BRE Report 262, BRE Report 497 and PAS 2030. If required, further information can be provided by the Agrément holder.

The requirement for limiting heat loss through the building fabric, including the effect of thermal bridging, can be satisfied if the U-value of a wall incorporating the Product does not exceed the maximum U-values given in the national Building Regulations.

2.2.10 Adequacy of fill
A cavity can be fully filled (with no voids/gaps and a consistent density) with the Product, including around details.

Care shall be taken at difficult-to-fill areas of a cavity wall, e.g. corners, to ensure that the cavity is sufficiently filled with the Product.

2.2.11 Durability
The Product shall have a service life durability equivalent to that of the building into which it is incorporated. The expected lifespan of the building itself shall be at least 60 years.

Once installed, the Product is not susceptible to damage from environmental conditions normally encountered in the UK and Ireland.

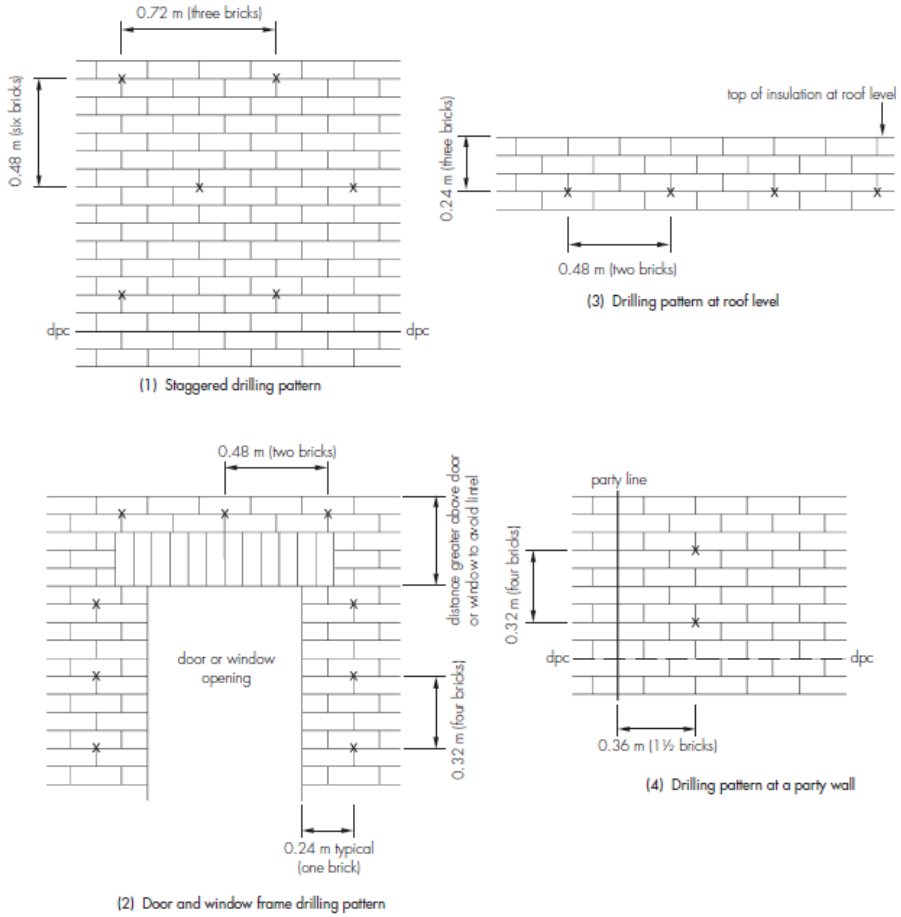
2.2.12 UKCA, UKNI and CE marking
The British and European standard for the Product is BS EN 14318-1.

2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - Typical cavity fill



Diagram 2 - Typical drilling pattern



2.4 INSTALLATION

The Product shall be installed strictly in accordance with the instructions (hereinafter 'Installation Manual') of the Agrément holder, the requirements of this Agrément and the requirements of BS 8000-0.

2.4.1 Project-specific installation considerations

The project-specific design shall be determined from a pre-installation survey.

The primary requirement of the pre-installation survey is to determine the following:

- there is no existing rain ingress and no signs of damp, staining or condensation on the internal face of the cavity wall;
- walls are in a good state of repair and show no evidence of frost damage, or holes;
- the cavity is free from blockages such as debris or mortar droppings;
- the width of the cavity and any variations are verified. The drilling pattern, pump strokes, or cycles to be injected into each drill hole shall depend on the width of the cavity and the construction details of the building;
- the cavity is free from moisture, cracks and any defects;
- the cavity is closed at the top with a non-combustible material;
- the cavity is not being used as a source of combustion air or as a flue for ventilation purposes;
- the presence of any penetrations in the walls, such as chimneys, stoves and flues, is checked;
- damp-proof course positions at window and door heads are checked;
- position and purpose of all flues and vents are to be noted so that a proper drilling and injection pattern can be planned for the building;
- window and door openings shall be sealed as necessary;
- all combustion appliances with flues against, through or adjacent to a cavity wall that is to be filled shall be operated to observe their performance.

2.4.2 Preparation

The following works shall be undertaken before installing the Product:

- the respective survey check list or the survey form shall be checked;
- any necessary repairs, such as replacing damp or rotten door/window frames, shall be made prior to injection;
- any damaged or dislodged flashings shall be repaired;
- ensure the cavity wall is watertight before injection of the Product;
- ensure the humidity and temperature of supporting walls are within the tolerances;
- services, e.g. electrical cables, may need re-routing or trunking;
- all vents within the cavity wall shall be sleeved prior to installation to prevent being blocked by the Product;
- the Product components shall be homogenised by basic stirring before processing.

Pre-installation checks shall be carried out by the Installer to ensure the building is suitable and to familiarise themselves with the building details. A survey sheet shall be completed as part of the check.

2.4.3 Outline installation procedure

Detailed installation procedures can be found in the Agrément holder's Installation Manual.

The outline procedure is as follows:

Drilling

- drill the injection holes as per the drilling plan, using a 12 mm drill bit. The drilling pattern shall be strictly in accordance with the Agrément holder's instructions;
- to enable sufficient filling, allow 300 mm from ground level to the lowest row of drill holes;
- it is essential that all drilling holes in each elevation shall not be spaced greater than 720 mm horizontally and 480 mm vertically;
- create sight holes at desired areas, to check the adequacy of fill at a later stage, using an inspection stick and/or a borescope.

Filling procedure

Filling shall be undertaken according to the Agrément holder's instructions, using the correct injection gun nozzle for the area of application:

- attach nozzle A to the gun: set main heater and hose heater to between 45 °C to 55 °C and inject two full strokes into a polythene bag;
- start a stopwatch immediately as the mix enters the bag and note the cream and rise time in seconds; retain these samples for assessing the visual quality of the foam and for measuring the density;
- start the injection sequence from the bottom hole, injecting two full strokes into the cavity;
- place an indicator stick into the hole. After one minute, check for the presence of foam;
- if foam has not reached the injection hole, inject a small topping-up shot of one or two strokes;
- if foam is present, replace the dowel and progress to the next hole above;
- repeat the sequence until a vertical column is formed up to the eaves level;
- attach nozzle B to the gun and adjust machine temperature settings to between 45 °C to 55 °C, allowing time for the equipment to cool after having used nozzle A, then repeat the quality control checks;
- resume the process by injecting the Product into the main section (once the cream time has reduced sufficiently to allow maximum flow properties of the injection system);
- proceed with injecting the Product on a horizontal front to ensure that no injection hole is missed, and that the cavity is filled from the bottom upwards;
- continue by injecting the Product at a stop-end within the cavity and continue until the Product reaches the adjacent horizontally and vertically placed holes.

2.4.4 Finishing

The following finishing is required on completion of the installation:

- ensure the drill holes are filled with appropriate mortar of a similar type, colour, texture and weathertightness to that of the existing wall.

Post installation checks shall be in accordance with BS 7456, Appendix D.

Post-installation external and internal checks are carried out to ensure that:

- the installation has been completed and that no damage has occurred to the building;
- the full cavity of the external wall has been insulated;
- an inspection of the inside of the building has been carried out;
- all the injection holes have been sealed;
- all chimney flues, combustion air ducts, air vents and trunked air vents have been checked (e.g. smoke tests for combustion appliances) to verify that they are clear and unobstructed by the Product.

2.5 INDEPENDENTLY ASSESSED PRODUCT CHARACTERISTICS

2.5.1 Moisture control

Test		Standard	Result
Water vapour transmission	Water vapour resistance (μ)	BS EN 12086 Method A	61
Water absorption	Short-term water absorption (W_p)	BS EN 1609 Method B	0.11 kg/m^2

2.5.2 Fire performance

Test	Standard	Result
Reaction to fire	BS EN 13501-1	F

2.5.3 Thermal performance

Test		Standard	Result
Thermal conductivity, λ_D	cavity width 40 mm to less than 80 mm	BS EN 12667	0.027 W/mK
	cavity width 80 mm to less than 120 mm		0.026 W/mK
	cavity width 120 mm to 200 mm		0.025 W/mK

2.5.4 Other properties

Test	Standard	Result
Free-rise density	BS EN 14318-1	38 kg/m^3 to 48 kg/m^3

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 THE NATIONAL BUILDING REGULATIONS

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

This Agrément shall not be construed to confer the compliance of any project-specific design with the national Building Regulations.

3.2.1 England

The Building Regulations 2010 and subsequent amendments

- B3(4) Internal fire spread (Structure) - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- C2(a) Resistance to moisture - the Product does not absorb water by capillary action and may therefore be used in situations where it bridges the damp-proof course of the inner and outer leaf
- C2(b) Resistance to moisture - a wall incorporating the Product can resist precipitation and satisfy this Requirement
- C2(c) Resistance to moisture - the Product will contribute to limiting the risk of surface and interstitial condensation
- L1(a)(i) Conservation of fuel and power - the Product can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the Product is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 23 Requirements relating to thermal elements - the Product can contribute to a wall complying with the requirements of L1(a)(i)
- Regulation 26 CO_2 emission rates for new buildings - the Product can contribute to satisfying this Regulation
- Regulation 26A Fabric energy efficiency rates for new dwellings - the Product can contribute to satisfying this Regulation
- Regulation 26C Target primary energy rates for new buildings - the Product can contribute to satisfying this Regulation

3.2.2 Wales

The Building Regulations 2010 and subsequent amendments

- B3(4) Internal fire spread (Structure) - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- C2(a) Resistance to moisture - the Product does not absorb water by capillary action and may therefore be used in situations where it bridges the damp-proof course of the inner and outer leaf
- C2(b) Resistance to moisture - a wall incorporating the Product can resist precipitation and satisfy this Requirement
- C2(c) Resistance to moisture - the Product will contribute to limiting the risk of surface and interstitial condensation
- L1(a)(i) Conservation of fuel and power - the Product can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the Product is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 23 Requirements relating to thermal elements - the Product can contribute to a wall complying with the requirements of L1(a)(i)
- Regulation 26 CO_2 emission rates for new buildings - the Product can contribute to satisfying this Regulation
- Regulation 26A Primary energy rates for new buildings - the Product can contribute to satisfying this Regulation
- Regulation 26B Fabric performance values for new dwellings - the Product can contribute to satisfying this Regulation
- Regulation 26C Energy efficiency rating - the Product can contribute to satisfying this Regulation

3.2.3 Scotland

The Building (Scotland) Regulations 2004 and subsequent amendments

3.2.3.1 Regulation 8 (1) Durability, workmanship and fitness of materials

- The Product is manufactured from acceptable materials and is adequately resistant to deterioration and wear under normal service conditions

3.2.3.2 Regulation 9 Building Standards - Construction

- 2.4 Cavities - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- 3.4 Moisture from the ground - the Product does not absorb water by capillary action and may therefore be used in situations where it bridges the damp-proof course of the inner and outer leaf
- 3.10 Precipitation - the Product can resist precipitation penetrating to the inner face of the building
- 3.15 Condensation - the Product will contribute to limiting the risk of surface and interstitial condensation
- 6.1(b) Carbon dioxide emissions - the Product will contribute to reducing carbon dioxide emissions of a building
- 6.2 Building insulation envelope - the Product will contribute to the insulation envelope to resist thermal transfer
- 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; in addition, the System can contribute to a construction meeting a higher level of sustainability as defined in this Standard

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(1)(a)(i)(ii)(iii)(b) Fitness of materials and workmanship - the Product is manufactured from materials which are suitably safe and acceptable as described in this Agrément
- 28 Resistance to moisture and weather - the Product can contribute to protecting the building from ground moisture and passage of moisture from the weather to the inner face
- 29 Condensation - the Product can be designed and constructed to prevent interstitial condensation
- 35(4) Internal fire spread (Structure) - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- 39(a)(i) Conservation measures - the Product can contribute to limiting heat gains and losses through walls
- 40(2) Target carbon dioxide emission rate - a wall incorporating the Product shall be designed and constructed not to exceed its target carbon dioxide emission rate
- 43 Renovation of thermal elements - renovation work shall be carried out to ensure a wall complies with Requirement 39(a)(i)

3.2.5 Ireland

Building Regulations 1997 and subsequent amendments

In order to demonstrate compliance with Irish Building Regulations, this BDA Agrément® certifies that the Product complies with the requirements of a recognised document and indicates it is suitable for its intended purpose and use.

- B3(3) Internal fire spread (structure) - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- B8(3) Internal fire spread (structure) - the Product can inhibit the unseen spread of fire and smoke within concealed spaces
- C4 Resistance to weather and ground moisture - a cavity wall incorporating the Product can prevent the passage of moisture to the inside of the building
- D1 Materials and workmanship - the Product is manufactured from acceptable materials and is considered to be adequately resistant to deterioration and wear under normal service conditions
- L1 Conservation of fuel and energy - the Product will contribute to a building not exceeding its target CO_2 emission rate
- L2(a) Conservation of fuel and energy (for existing dwellings) - the Product can contribute to satisfying this Requirement
- L4(a) Conservation of fuel and energy (for existing buildings other than dwellings) - the Product can contribute to satisfying this Requirement
- L5(c) Conservation of fuel and energy (for new buildings other than dwellings) - the Product can contribute to satisfying this Requirement
- Regulation 8(c) Conservation of fuel and energy (for new dwellings) - the Product can contribute to satisfying this Requirement

3.3 THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

4 SOURCES

- BS EN ISO 6946:2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods
- BS EN ISO 9001:2015 Quality management systems. Requirements
- BS EN ISO 10211:2017 Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations
- BS EN ISO 10456:2007 Building materials and products. Hygrothermal properties. Tabulated design values and procedures for determining declared and design thermal values
- BS EN ISO 13788:2012 Hygrothermal performance of building components and building elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods
- BS EN 1609:2013 Thermal insulating products for building applications. Determination of short term water absorption by partial immersion
- BS EN 12086:2013 Thermal insulating products for building applications. Determination of water vapour transmission properties
- BS EN 12667:2001 Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests
- BS EN 14318-1:2013 Thermal insulating products for buildings. In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products. Specification for the rigid foam dispensed system before installation
- BS EN 15026:2007 Hygrothermal performance of building components and building elements. Assessment of moisture transfer by numerical simulation
- BS 5250:2021 Management of moisture in buildings. Code of practice
- BS 6093:2006+A1:2013 Design of joints and jointing in building construction. Guide
- BS 7456:1991 Code of practice for stabilization and thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with polyurethane (PUR) foam systems
- BS 8000-0:2014 Workmanship on construction sites. Introduction and general principles
- BS 8104:1992 Code of practice for assessing exposure of walls to wind-driven rain
- Accredited Construction details, Scotland:2019
- BRE Information Paper IP 1/06:2006 Assessing the effects of thermal bridging at junctions and around openings
- BRE Report 262:2002 Thermal insulation: avoiding risks
- BRE Report 443:2019 Conventions for U-value calculations
- BRE Report 497:2016 Conventions for calculating linear thermal transmittance and temperature factors
- Government Accredited Construction details for Part L:2019
- PAS 2030:2019+A1:2022 Specification for the installation of energy efficiency measures in existing buildings
- PAS 2035:2019+A1:2022 Retrofitting buildings for improved energy efficiency. Specification and guidance
- PD 6697:2019 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2

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

5 AMENDMENT HISTORY

Revision	Amendment description	Author	Approver	Date
-	First issue	A Chapman	C Devine	April 2024

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