

## SCOPE OF AGRÉMENT

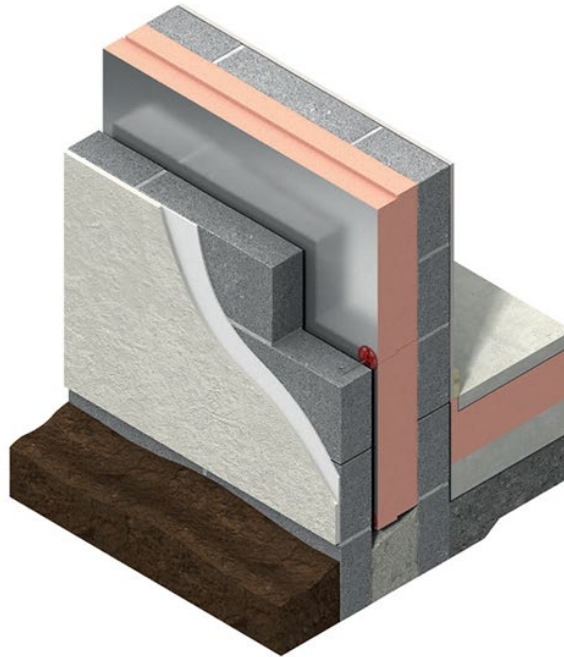
This Agrément relates to Kooltherm K8 Plus (hereinafter the 'Product'), a thermal insulation board with foil facing on both sides.

The Product is for use as partial fill insulation with a reduced residual cavity within external masonry cavity walls (where masonry includes clay bricks, calcium silicate bricks, concrete blocks, natural stone blocks and reconstituted stone blocks) to reduce the thermal transmittance (hereinafter 'U value') of new domestic and non-domestic buildings.

## DESCRIPTION

The Product is a rigid thermoset phenolic insulation board, in accordance with BS EN 13166, faced on both sides with composite foil which is bonded to the insulation core during manufacturing.

## ILLUSTRATION



## THIRD-PARTY ACCEPTANCE

See Section 3.3 (Third-Party Acceptance).

## 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



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Business Unit Manager, Building Products



## SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, building control personnel, contractors, installers and other construction industry professionals considering the safety and 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;
- 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** - the Product can contribute to limiting the risk of interstitial and surface condensation (see Section 2.2.9).

**Fire performance** - the Product is classified as European Classification C-s2, d0, in accordance with BS EN 13501-1 (see Section 2.2.10).

**Thermal performance** - the Product has a declared thermal conductivity ( $\lambda_D$ ) of 0.021 W/mK (see Section 2.2.11).

**Durability** - the Product shall have a service life durability equivalent to that of the building into which it is incorporated (see Section 2.2.12).

**UKCA and CE marking** - the Agrément holder has responsibility for conformity marking, in accordance with all relevant British and European Product Standards (see Section 2.2.13).

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## CHAPTER 1 - GENERAL CONSIDERATIONS

### 1.1 - CONDITIONS OF USE

#### 1.1.1 Design considerations

See Section 2.2.

#### 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 must be controlled by a competent person who must be an employee of the installation company.

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 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](http://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 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.

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

2.1 - PRODUCT COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

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

| Product           | Description   | Dimensions                            |
|-------------------|---|---------------------------------------|
| Kooltherm K8 Plus | rigid, closed cell, foil-faced phenolic foam board manufactured in accordance with BS EN 13166; compressive strength of 100 kN/m <sup>2</sup> and density of 35 kg/m <sup>3</sup> | 1,200 mm by 450 mm by 90-130 mm thick |

2.1.2 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:

- wall ties - to tie the two leaves of masonry cavity walls together;
- damp-proof course (hereinafter 'DPC').

2.2 - POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 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.

2.2.2 Applied building physics (heat, air, moisture)

A competent specialist shall check the hygrothermal behaviour of a project-specific design incorporating the Product and, if necessary, can offer advice in respect of 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 consultant Specialist co-operates closely with the Agrément holder).

2.2.3 General design considerations

The building in which the Product is to be installed shall be designed and constructed in accordance with:

- BS EN 1996-1-1 / I.S. EN 1996-1-1;
- BS EN 1996-1-2; / I.S. EN 1996-1-2
- BS EN 1996-2 / I.S. EN 1996-2;
- BS EN 1996-3 / I.S. EN 1996-3.

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 to the local wind-driven rain index, paying due regard to the design detailing, workmanship and materials to be used.

The design of a cavity width shall take into account the limitations of the exposure category of the proposed building, in accordance with BS 5618.

The minimum residual cavity width shall be 20 mm. The minimum residual cavity width may be larger on sites where additional requirements apply (e.g. areas of very severe exposure in England and Wales where fair-faced masonry is used).

To achieve this, it may be necessary to specify a greater nominal residual cavity width at the design stage, unless there are adequate controls, inspection regime and photographic records in place to demonstrate this minimum residual width is obtained.

For structural stability, cavity wall ties with insulation-retaining fixings and any additional ties shall be used in accordance with BS EN 845-1.

Wall ties to be used in the installation of the Product shall include a retaining disc/clip and be of the single drip type.

The above-ground structure waterproofing shall extend at least 150 mm above the external ground level and connect with the superstructure damp-proofing.

The below-ground waterproofing system shall be linked to a continuous cavity tray leading to weepholes discharging to the outside.

Cavity battens and boards are to be used to retain mortar droppings, which could cause thermal bridging.

2.2.4 Project-specific design considerations

No pre-installation survey is required.

2.2.5 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.

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

### 2.2.7 Delivery, storage and site handling

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

Prior to installation, store the Product in accordance with the Agrément holder's requirements. When required, particular care shall be taken to:

- avoid exposure to direct sunlight for extended periods of time;
- avoid exposure to high or low temperatures for extended periods of time;
- store in a well-ventilated covered area to protect from rain, frost and humidity;
- store away from possible ignition sources.

### 2.2.8 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

### 2.2.9 Moisture control

#### Condensation risk

External masonry cavity walls incorporating the Product can adequately limit the risk of surface and interstitial condensation when designed in accordance with BS 5250 and BRE Report 262.

A condensation risk analysis shall be completed at project-specific design stage for all elements of the construction, including an assessment of junctions, openings and penetrations, to minimise the risk of surface and interstitial condensation. When the Product is correctly installed on an occupied building, no condensation will form on the internal wall. For calculations, the core vapour resistance and water vapour diffusion ( $S_d$ ) of the Product may be taken as detailed in Section 2.5.1.

For rooms of high humidity, external masonry cavity walls incorporating the Product shall have adequate vapour control measures and permanent ventilation to eliminate interstitial condensation in the inner leaf.

#### Resistance to precipitation including wind-driven rain

The Product, when properly installed in accordance with this Agrément, will resist the moisture from the ground and precipitation to the inner leaf, and satisfy the requirement as given in the relevant national Building Regulations or BRE Report 262.

Reveals, such as for windows and doors, shall be constructed incorporating a DPC, as necessary.

When tested in accordance with BS 4315-2, the Product, when installed onto the inside face of an external brickwork leaf with a minimum residual cavity of 20 mm, is resistant to severe conditions of wind-driven rain in accordance with BS 8104. See section 2.5.1.

### 2.2.10 Fire performance

The Product is classified as European Classification C-s2, d0, in accordance with BS EN 13501-1.

The following restrictions apply, however, refer to the national Building Regulations for types of buildings and any exclusions that may apply:

- for all building in Wales and Northern Ireland, and non-residential buildings in England, 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;
- for residential buildings in England, the Product is restricted to buildings with no floor more than 11 m above ground level; the Product can be used without any boundary restrictions;
- for all buildings in Scotland, the Product is restricted to buildings with no floor more than 11 m above ground level; the Product can be used without any boundary restrictions;
- 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;
- 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.

The restrictions outlined above in terms of height above ground level and proximity to boundary do not apply, provided the Product 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.

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 substrate fire performance, cavity closers and 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

The installed Product shall be adequately separated from any chimney, heat producing appliance or incinerator flue pipe passing through a wall. Recommended means of separation are detailed in the Approved Documents supporting the national Building Regulations.

### 2.2.11 Thermal performance

The Product can meet or contribute to meeting all required levels and provisions regarding U-values or thermal resistance.

For the purposes of U-value calculations, and to determine if the requirements of national Building Regulations are met, the thermal resistance and U-value of walls incorporating the Product shall be calculated according to BS EN ISO 10211 (taking into consideration BS EN ISO 6946, BS EN ISO 10456 and BRE Report 443), using the declared thermal conductivity value ( $\lambda_D$ ) of the Product (refer to Section 2.5.2).

The U-value of a completed masonry cavity wall construction will depend on the incorporated Product thickness, degree of ventilation to the drained cavity, type of substrate, wall ties and internal finish.

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

**Thermal bridging at junctions and around openings**

Care shall be taken in the overall design and construction of junctions with other elements and openings, to minimise cold bridging and air infiltration. Due consideration shall be given to the Agrément holder’s thermally modelled performance junction details and the Government Accredited Construction Details.

Guidance on linear thermal transmittance, heat flows and surface temperatures can be found in the documents supporting the national Building Regulations and BS EN ISO 10211, BRE Information Paper 1/06, BRE Report 262, BRE Report 497 and PAS 2030.

**2.2.12 Durability**

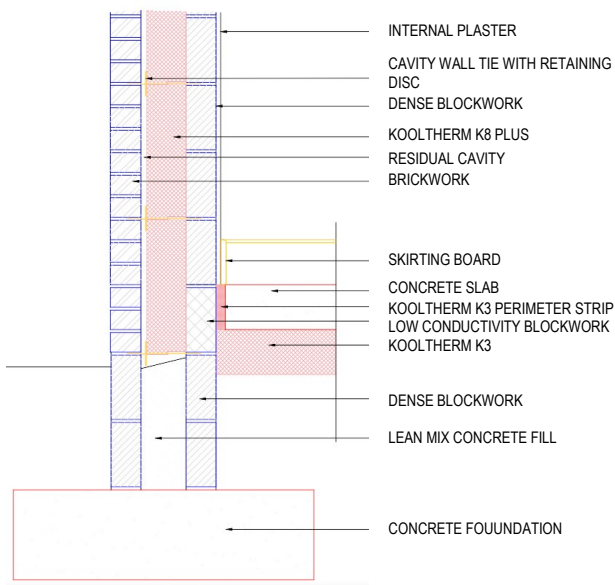
The Product shall have a service life durability equivalent to that of the building into which it is incorporated. The expected lifespan of the building itself should be at least 60-years.

**2.2.13 UKCA and CE marking**

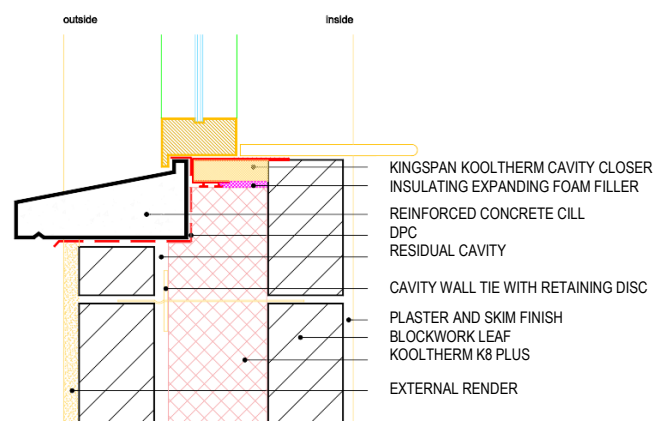
The European standard for the Product is BS EN 13166.

**2.3 - EXAMPLES OF TYPICAL DETAILS**

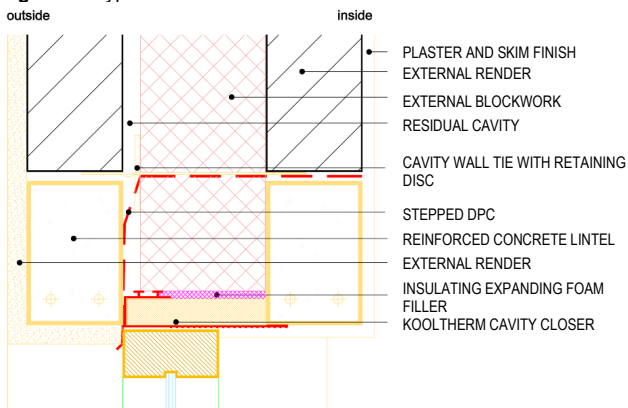
**Diagram 1 - typical cavity with wall ties detail**



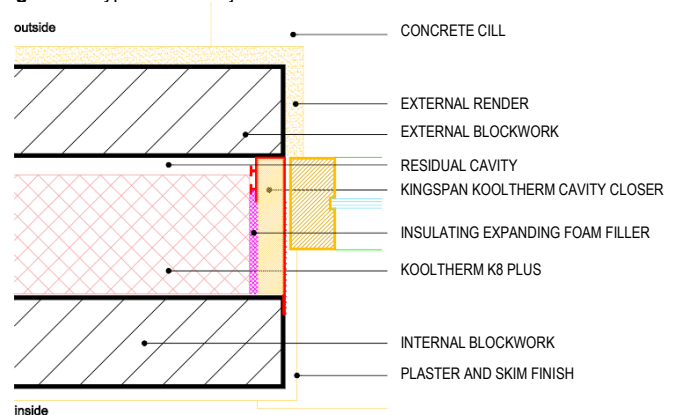
**Diagram 2 - typical window cill detail**



**Diagram 3 - typical window head detail**



**Diagram 4 - typical window jamb detail**



**2.4 - INSTALLATION**

The Product shall be installed strictly in accordance with the instructions (hereinafter ‘Installation Manual’) of the Agrément holder and the requirements of this Agrément.

**2.4.1 Installer competence level**

See Section 2.2.6.

## 2.4.2 Delivery, storage and site handling

See Section 2.2.7.

## 2.4.3 Project-specific installation considerations

No pre-installation survey is required.

## 2.4.4 Preparation

The following considerations apply before starting the work:

- the substrate shall be clean, dry, level and free of sharp objects or edges;
- the Product may be cut by scoring the foil facing with a sharp knife, then cutting the insulation using a short fine-toothed saw before snapping the Product over a straight edge and then cutting the foil facing on the other side;
- trimming must be accurate to achieve close butting joints and continuity of insulation;
- it is recommended that wall ties are not placed directly on the DPC;
- the Product shall only be fixed against the cavity face of the inner leaf;
- a residual cavity (minimum width determined by the project-specific design) shall be maintained between the Product and outer leaf;
- wall ties shall be sufficiently long to allow for 50 mm embedment in each masonry leaf.

## 2.4.5 Outline installation procedure

The detailed installation sequence can be found in full in the Agrément holder's Installation Manual.

The key sequence for installation is:

- the Product shall be positioned between the two masonry leaves, held in position by wall ties;
- wall ties shall have a retaining disc/clip, of the single drip type with the drip installed facing downward; the offset drip shall be placed centrally within the residual cavity;
- for a solid concrete ground floor, the first row of wall ties shall be installed in the inner leaf at 600 mm horizontal centres, a minimum of one course of blockwork below the DPC or 225 mm below the top surface of the ground-floor perimeter insulation upstand, whichever is the lower;
- for a suspended timber floor, the first row of wall ties shall be installed in the inner leaf at 600 mm horizontal centres, a minimum of 200 mm below the top surface of the ground floor perimeter insulation upstand;
- the inner masonry leaf shall be built up to the next course, with wall ties at 750 mm horizontal centres;
- wall ties shall be installed in the next course, ensuring the residual cavity and wall ties remain free of any excess mortar;
- the first row of the Product shall be installed between the two masonry leaves, ensuring it is retained tight against the inner leaf and joints are tightly butted;
- the Product shall be fitted with the high shoulder of the ship-lapped joint against the inner leaf, to prevent moisture tracking across the cavity;
- each Product shall be secured at a minimum of three points; additional wall ties may be required to ensure adequate retention of the Product;
- for window and door openings, a strip of the Product (minimum 30 mm in Northern Ireland or 50 mm in Republic of Ireland) shall be used together with a strip of DPC around the perimeter of any openings;
- for gables, the Product shall be continued 250 mm beyond the height of the top storey ceiling and a cavity tray shall be installed above the Product;
- for external or internal corners, the Product shall be mitred or butt-jointed;
- excess mortar shall be removed, and any mortar droppings cleaned from exposed edges of the installed Product before installing the next course;
- a cavity batten or cavity board is recommended to protect Product edges and maintain a residual cavity.

## 2.4.6 Finishing

No finishing is required upon completion of the installation.

## 2.5 - INDEPENDENTLY ASSESSED PRODUCT CHARACTERISTICS

### 2.5.1 Moisture control

| Test                                      | Standard    | Result          |
|---|-------------|-----------------|
| Water vapour transmission ( $\mu$ )       | BS EN 12086 | 30.07           |
| Water vapour diffusion ( $S_d$ )          |             | 0.88 m          |
| Vapour resistance                         |             | 4.40 MNs/g      |
| Water penetration at 0.5 kPa <sup>^</sup> | BS 4315-2   | No liquid water |

<sup>^</sup> specimen build-up: Product in a cavity wall constructed with external brickwork leaf of high-density bricks and M3 mortar

### 2.5.2 Strength

| Test                 | Standard  | Result   |
|----------------------|-----------|----------|
| Compressive strength | BS EN 826 | CS(Y)100 |

### 2.5.3 Fire performance

| Test                            | Standard      | Result   |
|---------------------------------|---------------|----------|
| Reaction to fire classification | BS EN 13501-1 | C-s2, d0 |

### 2.5.4 Thermal performance

| Test  | Standard    | Result     |
|---|-------------|------------|
| Declared thermal conductivity ( $\lambda_D$ ) | BS EN 12667 | 0.021 W/mK |
| Foil surface emissivity ( $\epsilon$ )        | ASTM E408   | 0.16       |

## 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 - THE 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.

This Agrément shall not be construed to confer 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 contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- C2(a)(b)(c) Resistance to moisture - walls incorporating the Product can adequately protect a building from interstitial and surface condensation and passage of moisture
- 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, durable materials for the application and can be installed to give a satisfactory performance
- Regulation 26 CO<sub>2</sub> emission rates for new buildings - the Product can contribute to a building not exceeding its CO<sub>2</sub> emission rate
- Regulation 26A Fabric energy efficiency rates for new dwellings - the Product can contribute to satisfying this Requirement
- Regulation 26C Target primary energy rates for new buildings - the Product can contribute to satisfying the Requirement

#### 3.2.2 - WALES THE BUILDING REGULATIONS 2010 AND SUBSEQUENT AMENDMENTS

- B3(4) Internal fire spread (structure) - the Product can contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- C2(a)(b)(c) Resistance to moisture - walls incorporating the Product can adequately protect a building from interstitial and surface condensation and passage of moisture
- 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, durable materials for the application and can be installed to give a satisfactory performance
- Regulation 26 CO<sub>2</sub> emission rates for new buildings - the Product can contribute to a building not exceeding its CO<sub>2</sub> emission rate
- Regulation 26A Primary energy rates for new buildings - the Product can contribute to satisfying this Requirement
- Regulation 26B Fabric performance values for new dwellings - the Product can contribute to satisfying this Requirement
- Regulation 26C Energy efficiency rating - the Product can contribute to satisfying the Requirement

#### 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, provided it is installed in accordance with the requirements of this Agrément

##### 3.2.3.2 Regulation 9 Building standards - Construction

- 2.4 Cavities - the Product can contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- 3.4 Moisture from the ground - walls incorporating the Product can be constructed to prevent the passage of moisture
- 3.10 Precipitation - walls incorporating the Product can be constructed to prevent the passage of moisture
- 3.15 Condensation - walls incorporating the Product can protect a building from moisture caused by surface or interstitial condensation
- 6.1(b) Carbon dioxide emissions - the Product will contribute to energy conservation 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 is manufactured from materials that can contribute to satisfying 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 Product 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)(iii)(iv)(b) Fitness of materials and workmanship - the Product is manufactured from materials which are suitably safe and acceptable for use as thermal insulation
- 28(a)(b) Resistance to moisture and weather - the Product can be constructed to prevent the passage of moisture
- 29 Condensation - walls incorporating the Product can adequately protect a building from moisture in the form of interstitial condensation
- 35(4) Internal fire spread (structure) - the Product can contribute to inhibiting 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 rates - the Product will contribute to a building not exceeding its target CO<sub>2</sub> emission rate

### 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 contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- B8(3) Internal fire spread (structure) - the Product can contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- C4 Resistance to weather and ground moisture - the Product can be constructed to prevent the passage of moisture
- D1 Materials and workmanship - the Product is manufactured from suitably safe, durable materials for the application and can be installed to give a satisfactory performance
- L1 Conservation of fuel and energy - the Product can contribute to limiting heat gains and losses through walls and conserve fuel and energy
- L5(c) Conservation of fuel and energy (in new buildings other than dwellings) - the Product can contribute to limiting heat gains and losses through walls
- Regulation 8(c) Conservation of fuel and energy in new dwellings - the Product can contribute to satisfying this Requirement

### 3.3 - THIRD-PARTY ACCEPTANCE

In the opinion of Kiwa Ltd. if installed, used, and maintained in accordance with this Agrément, this Product can satisfy the appropriate fire, moisture, thermal and durability requirements of a Structural Warranty provider. Please contact the relevant Structural Warranty provider to ascertain their project specific design requirements and to confirm their acceptance on a case-by-case basis.

- BS EN ISO 6946:2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods
- 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 826:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 845-1:2013+A1:2016 Specification for ancillary components for masonry. Wall ties, tension straps, hangers and brackets
- BS EN 1604:2013 Thermal insulating products for building applications. Determination of dimensional stability under specified temperature and humidity conditions
- 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+A1:2014 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 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 13166:2012+A2:2016 Thermal insulation products for buildings. Factory made phenolic foam (PF) products. Specification
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests
- BS 4315-2:1970 Methods of test for resistance to air and water penetration. Permeable walling constructions (water penetration)
- BS 5250:2021 Management of moisture in buildings. Code of practice
- BS 5618:1985 Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems
- ASTM E408-13:2019 Standard test methods for total normal emittance of surfaces using inspection-meter techniques
- BRE Information Paper 1/06:2006 Assessing the effects of thermal bridging at junctions and around openings
- BRE Report 262:2002 Thermal insulation: avoiding risks
- BRE Report 443:2006 Conventions for U-value calculations
- BRE Report 497:2016 Conventions for calculating linear thermal transmittance and temperature factors
- I.S. EN 1996-1-1:2005+A1:2012 Eurocode 6: Design of masonry structures. Part 1-1: General rules for reinforced and unreinforced masonry structures
- I.S. EN 1996-1-1+A1:2012/NA:2010+A1:2014 Irish National Annex to Eurocode 6: Design of masonry structures. Part 1-1: General rules for reinforced and unreinforced masonry structures
- I.S. EN 1996-1-2:2005 Eurocode 6: Design of masonry structures. Part 1-2: General rules. Structural fire design
- I.S. EN 1996-1-2/NA:2005 Irish National Annex to Eurocode 6: Design of masonry structures. Part 1-2: General rules. Structural fire design
- I.S. EN 1996-2:2006 Eurocode 6: Design of masonry structures. Part 2: Design considerations, selection of materials and execution of masonry
- I.S. EN 1996-2/NA:2006 Irish National Annex to Eurocode 6: Design of masonry structures. Part 2: Design considerations, selection of materials and execution of masonry
- I.S. EN 1996-3:2006 Eurocode 6: Design of masonry structures. Part 3: Simplified calculation methods for unreinforced masonry structures
- I.S. EN 1996-3/NA:2006 Irish National Annex to Eurocode 6: Design of masonry structures. Part 3: Simplified calculation methods for unreinforced masonry structures
- PAS 2030:2019 Specification for the installation of energy efficiency measures in existing buildings

**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, and the Agrément holder should be contacted for clarification of revisions.

## CHAPTER 5 - AMENDMENT HISTORY

| Revision | Amendment description  | Author    | Approver | Date          |
|----------|--|-----------|----------|---------------|
| -        | First issue  | C Devine  | C Vurley | November 2021 |
| A        | Updated performance values   | A Chapman | C Devine | July 2022     |
| B        | Issue with NHBC acceptance   | A Chapman | C Devine | July 2022     |
| C        | Updates to Building Regulations, Fire Performance and Third-Party Acceptance | E Taylor  | C Devine | August 2024   |
|          |  |           |          |               |

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