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BAW-21-188-P-A-UK
BDA Agrément®
Prefabricated Brick Arches
Lightweight Brick Arches

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SCOPE OF AGRÉMENT

This Agrément relates to Prefabricated Brick Arches (hereinafter the 'Product'). The Product is used as part of the outer brickwork leaf of a masonry cavity wall (hereinafter 'wall'), as a structural and decorative feature in combination with a structural steel cavity lintel (hereinafter 'lintel') as loadbearing support.

The Product is for use in new domestic and non-domestic buildings.

DESCRIPTION

The Product comprises expanded polystyrene (EPS) insulation board (hereinafter 'insulation'), faced on both sides with cement-bonded particleboard (hereinafter 'CBPB'). The external facing CBPB is finished with clay brick slips (hereinafter 'brick slips') and pointing mortar as required. The brick slips can be installed in a variety of bond patterns in accordance with the project-specific design.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

NHBC - for detailed information, 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

Alpheo Mlotha CEng FIMMM MBA
Head of Operations, Building Products

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SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, specialists, engineers, building control personnel, contractors, installers and other construction industry professionals 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 - the Product can contribute to limiting the risk of interstitial and surface condensation and will resist rain penetration across a cavity (see Section 2.2.9).

Strength - the Product has adequate strength and is designed to resist wind loads and impact damage normally encountered in the UK (see Section 2.2.10).

Fire performance - the Product is classified as European class B-s1, d0, in accordance with BS EN 13501-1 (see Section 2.2.11).

Thermal performance - the Product increases the thermal insulation performance of a wall (see section 2.2.12).

Durability - the Product shall have a service life durability equivalent to that of the building into which it is incorporated (see Section 2.2.13).

UKCA and CE marking - the product manufacturers have responsibility for conformity marking, in accordance with all relevant British and European Product Standards (see Section 2.2.14).

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1.1 - Conditions of use
1.2 - Production Control and Quality Management System
1.3 - Annual Verification Procedure - continuous surveillance
Chapter 2 - Technical assessment
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2.4 - Installation
2.5 - Independently assessed Product characteristics
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
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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. The NHBC Standards have also been taken into consideration.

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 (hereinafter '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 and Northern 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 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 its 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 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 used to form the Product:

Product	Description
Prefabricated Brick Arches	25 mm thick brick slips, in accordance with BS EN 771-1
	58 mm thick EPS insulation, in accordance with BS EN 13163
	6 mm thick CBPB, in accordance with BS EN 12467
	Metofix 3-1 brick slip adhesive (hereinafter 'adhesive')
	pointing mortar, in accordance with BS EN 998-2

The Product is supplied in the following variants:

Product^	Height (mm)	Available bond patterns
semi-circle arch	215 or 290	single header, double header, soldier course
segmental arch	215 or 290	brick and bat, single header, double header, soldier course
flat gauge arch	215 or 290	brick and bat, double header, soldier course
flat gauge arch with a rise	215 or 290 with a rise	

^ the Product is supplied as a standard width of 215 mm and to a maximum span of 1770 mm. Larger spans are available upon request, but fall outside the scope of this Agrément.

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:

- lintel - suitably profiled structural steel cavity lintel;
- cavity tray - damp-proof course (DPC) cavity tray or preformed cavity tray;
- wall ties and restraint fixings - to provide stability between the inner blockwork leaf and outer brickwork leaf;
- weep hole vents.

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 Installer is responsible for the final as-built design.

2.2.2 Applied building physics (heat, air, moisture)

The Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the Product, and if necessary, offer advice in respect of improvements to achieve the final specification. The Specialist shall be a suitably qualified consultant and co-operate closely with the Agrément holder.

2.2.3 General design considerations

New buildings incorporating the Product shall be constructed in accordance with the relevant recommendations of:

- relevant national Building Regulations;
- BS EN 1996-1-1;
- BS EN 1996-2;
- BS EN 1996-3;
- PD 6697.

New buildings incorporating the Product shall be designed to withstand wind action loads in accordance with BS EN 1991-1-4. In accordance with BS EN 1990, a partial factor of 1.5 shall be applied to the calculated characteristic wind load to establish the design wind load to be resisted by the Product.

The guidance given in BRE Report 262 shall be followed in connection with the weathertightness of wall constructions. The Specifier 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 Product is not designed to be loadbearing and shall be used in combination with a lintel at the heads of window and door openings. A wall shall be designed to have adequate strength and stability to resist the loads that may be applied, without taking into account any positive contribution that may occur from the use of the Product.

Cavity trays shall:

- be installed either above or below the Product (see Diagrams 3 and 4) to ensure a minimum drop of 150 mm from the inner blockwork leaf mortar joint to the bottom of the cavity tray;
- incorporate proprietary stop ends and weep hole vents in the infill brickwork adjacent to the Product.

Where a cavity tray is installed above the Product:

- a minimum of two weep hole vents shall be incorporated in the perpend mortar joints above the Product (not more than 450 mm apart);
- the lintel shall incorporate proprietary stop ends and weep hole vents in the infill brickwork adjacent to the Product to prevent water spilling over the ends of the lintel, in accordance with NHBC TGN 6.1/29.

It is essential that pointing of the brick slips:
- is considered at the project-specific design stage (see Section 2.2.4);
- is carried out to a high standard in accordance with BS 8000-3;
- uses pointing mortar that matches the project-specific design.

The fixing of additional items to the Product (such as guttering and bracketry for hanging baskets etc.) is outside the scope of this Agrément.

2.2.4 Project-specific design considerations

The project-specific design shall:
- be determined by the Specifier, including the dimensions, brick slips, bond pattern, pointing mortar and whether pointing shall be carried out:
  - as part of the production process;
  - on site prior to installation;
  - in-situ following installation.
- 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 2.2.13;
- include detailing around openings and penetrations to minimise the risk of wind-driven rainwater ingress, in accordance with BS 6093.

A condensation risk analysis (hereinafter 'CRA') shall be completed at project-specific design stage - see Section 2.2.9.

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

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 type of work.

2.2.7 Delivery, storage and site handling

The Product is delivered to site in suitable packaging bearing the Product name, production identification date or batch number, the Agrément holder's name and 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. Where required, particular care shall be taken to:
- avoid damage during handling of the Product when storing and when transporting to the site of installation;
- store in a well-ventilated covered area to protect from rain, frost and humidity;
- avoid exposure to high or low temperatures for extended periods of time.

2.2.8 Maintenance and repair

The Product shall be inspected before installation for any damage:
- if the insulation or CBPBs are damaged, the Product shall be isolated, scrapped and a replacement requested from the Agrément holder;
- if brick slips have been dislodged without damaging the CBPB, the Product can be repaired prior to installation by following the instructions of the Agrément holder.

Once installed, the Product is not susceptible to damage from environmental conditions normally encountered in the UK and shall have a service life of 60 years.

There shall be regular visual inspection checks for:
- dislodged brick slips, which shall be refixed using adhesive;
- damage to brick slips; damaged brick slips shall be removed and replaced with new ones, fixed using adhesive;
- evidence of cracking or damage to mortar joints; affected areas shall be repointed to ensure adequate weathertightness;
- adequate performance of architectural details designed to shed water away from the Product.

The brick slip finish may become discoloured by algae and lichens in damp areas. Cleaning with fresh warm water and light brushing will mitigate this. A mild detergent or traffic-film remover can be applied and washed off. Any surface algae can be cleaned off using the Agrément holder's recommended algicide.

Performance factors in relation to the Major Points of Assessment

2.2.9 Moisture control

Condensation risk

To assist in minimising the risk of surface and interstitial condensation, a CRA shall be completed at project-specific design stage.

Walls incorporating the Product can adequately limit the risk of surface and interstitial condensation when designed in accordance with BS 5250 Annex D and BRE Report 262.

Resistance to precipitation including wind-driven rain

Care shall be taken to ensure that walls are adequately weathertight prior to installation of the Product.

Once installed, the Product will resist rain penetration across a cavity to satisfy the requirements as given in either the relevant national Building Regulations or BRE Report 262.

Any water passing through walls or collecting in the cavity tray will be removed by drainage through weep hole vents.

Where a cavity tray is installed above the Product:
- a minimum of two weep hole vents shall be incorporated in the perpend mortar joints above the Product (not more than 450 mm apart);
- the lintel shall incorporate proprietary stop ends and weep hole vents in the infill brickwork adjacent to the Product to prevent water spilling over the ends of the lintel, in accordance with NHBC TGN 6.1/29.

The Product has adequate resistance to artificial weathering and resistance to thermal shock, in accordance with EAD 040287-00-0404.

2.2.10 Strength
The Product has adequate strength and is designed to resist wind loads and impact damage normally encountered in the UK.

In accordance with BS EN 1990, a partial factor of 1.5 shall be applied to the calculated characteristic wind load to establish the design wind load to be resisted by the Product.

A specialist shall confirm that:
- positive wind load on the Product is transferred to a wall directly through a combination of compression of the Product, wall ties and the adhesive bond strength of the bedding and pointing mortar;
- negative wind load on the Product is resisted by the bond strength between the:
  - Product and the mortar bed;
  - mortar bed and the lintel;
  - inner and outer masonry mortar beds through the wall ties.

Walls incorporating the Product shall resist lateral loads based on serviceability deflection limits of L/360.

The bond strength of the adhesive used to bond brick slips is adequate to resist freeze/thaw and hygrothermal cycling normally encountered in the UK.

Hard-body impact testing in accordance with EAD 040287-00-0404 confirmed that the Product adequately resists impact damage.

2.2.11 Fire performance
The Product is classified as European class B-s1, d0, in accordance with BS EN 13501-1. However, when the Product is of a segmental variant incorporating a PVC infill, the performance of the PVC infill shall be considered under the calculations of unprotected areas in accordance with the national Building Regulations.

For non-residential buildings in England, Wales and Northern 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 relevant national Building Regulations for types of buildings and any exclusions that may apply.

For residential buildings in England, Wales, Northern Ireland and 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 and not less than 1 m from a boundary. In such cases, the Product may be excluded from the unprotected area calculation regardless of openings. Refer to the relevant national Building Regulations for types of buildings and any exclusions that may apply.

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

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

2.2.12 Thermal performance
The Product can contribute to reducing the U-value of a wall. The Product is designed to minimise moisture penetration to its insulation component. To avoid the ingress of water and to obtain the full thermal benefit from the insulation component, it is essential that detailing is carried out to a high standard. Any moisture penetration will affect thermal conductivity; however, the thermal value will recover when the insulation component dries out.

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-value requirement given in the relevant national Building Regulations.

The U-value of a wall incorporating the Product will depend on the degree of ventilation to the cavity and U-value of:
- the Product (taking into consideration its method of fixing);
- insulation within the cavity;
- the internal finish of the wall.

For the purposes of U-value calculations and to determine if the requirements of relevant 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).

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 thermal bridges and air infiltration. Due consideration shall be given to the Government Accredited Construction Details.

The Product shall achieve a surface temperature factor f_{Rsi} greater than 0.75 to limit the risk of surface condensation.

Psi ('ψ') values for use in SAP calculations can be modelled in accordance with BS EN ISO 10211. 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 IP 1/06, BRE Report 262, BRE Report 497 and PAS 2030.

2.2.13 Durability

The service life durability of the Product will be dependent upon the environment (operating conditions) in which the Product will be used. The expected service life durability will be in excess of 60 years.

Once installed, the Product is not susceptible to damage from environmental conditions normally encountered in the UK. The Product has a maintenance regime in accordance with Section 2.2.8.

2.2.14 UKCA and CE marking

There is no relevant Product standard for the Product.

2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - Flat gauge lightweight brick arch photograph



Diagram 2 - Segmental lightweight brick arch photograph



Diagram 3 - Section through Product installed in a typical masonry cavity wall (cavity tray above the Product)

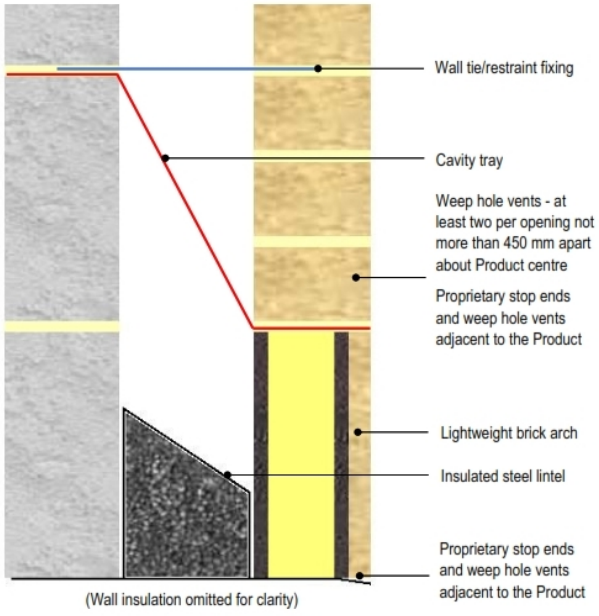
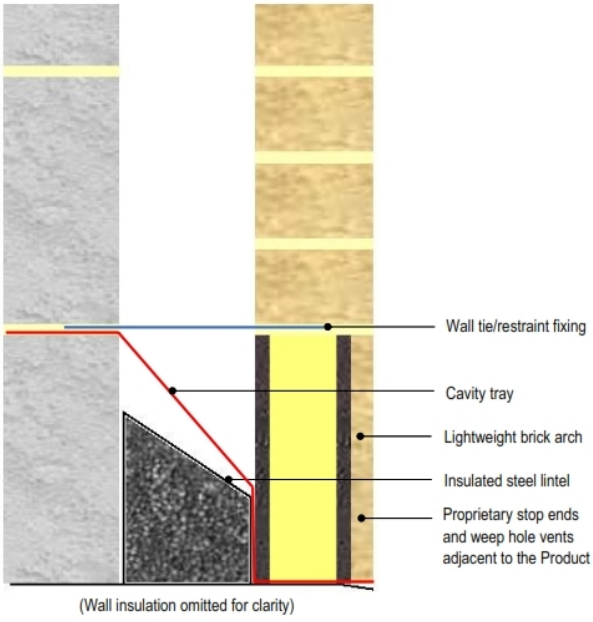


Diagram 4 - Section through Product installed in a typical masonry cavity wall (cavity tray below the Product)



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 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 for the installation of the Product.

2.4.4 Preparation

The following considerations apply before starting the work:

- care shall be taken to ensure that walls are adequately weathertight prior to installation of the Product;
- the Product shall not be installed during inclement weather, during rainfall or if rain is anticipated;
- care shall be taken in the necessary detailing with regards to the installation of the Product, to ensure adequate protection against water ingress and to limit the risk of water penetrating openings;
- pointing shall be carried out in dry conditions. However, in hot, sunny conditions, precautions need to be followed to control heat gain and to minimise evaporation of water from the pointing mortar.

The following works shall be undertaken before the installation of the Product:

- a lintel shall be correctly installed;
- a cavity tray shall be installed into the inner blockwork leaf and draped over the external flange of the cavity lintel, or alternatively, in preparation for draping over the exposed width of the Product prior to incorporation of the cavity tray into the outer brickwork leaf;
- the aperture in the outer brickwork leaf shall have a nominal tolerance in the range of 3 to 10 mm either side to accommodate the Product;
- subject to the project-specific design considerations, pointing of the Product can be done prior to, or in-situ, following installation;
- if necessary, the cavity tray can be cut back to facilitate bonding of the mortar bed to the lintel.

2.4.5 Outline installation procedure

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

The outline procedure is as follows:

- a bed of mortar (nominal depth 10 mm) shall be applied either to the external facing upper side of the installed cavity tray or flange of the lintel;
- the Product shall be:
  - placed onto the mortar bed, ensuring it is square to the lintel and centralised;
  - bedded into place using a gentle rocking motion to ensure full adhesive contact into the mortar bed;
  - checked to ensure it is levelled and aligned to the wall face (using supports in the mortar bed if required).
- if required, the joints of the brick slips shall be pointed with pointing mortar;
- pointing mortar shall be allowed to cure before proceeding with subsequent brickwork and pointing;
- if required, the cavity tray shall be draped over the exposed width of the Product in preparation for incorporation into the outer brickwork leaf mortar bed;
- the cavity tray shall be draped over the exposed width of the Product in preparation for incorporation into the outer brickwork leaf mortar bed;
- lay subsequent brickwork over the Product and cavity tray (using wall ties and restraint fixings to tie-in the course).

Where a cavity tray is installed above the Product:

- a minimum of two weep hole vents shall be incorporated in the perpend mortar joints above the Product (not more than 450 mm apart);
- the lintel shall incorporate proprietary stop ends and weep hole vents in the infill brickwork adjacent to the Product to prevent water spilling over the ends of the lintel, in accordance with NHBC TGN 6.1/29.

2.4.6 Finishing

The following finishing is required on completion of the installation:

- fresh pointing shall be protected from rain and frost for at least 24 hours wherever possible;
- the brick slips shall be lightly brushed to remove any excess pointing mortar;
- if necessary, any remedial pointing work shall be carried out;
- the cavity tray and weep hole vents shall be cleaned of any fallen pointing mortar to ensure clear drainage from the cavity tray.

2.5 INDEPENDENTLY ASSESSED PRODUCT CHARACTERISTICS

2.5.1 Moisture control

Test	Standard	Result
Hygrothermal	EAD 040287-00-0404	No defects

2.5.2 Strength

Test	Standard	Result
Hard-body impact	EAD 040287-00-0404	10 J, no damage
Bond strength to the CBPB		≥ 0.08 N/mm^2
Resistance to flexural loading at maximum serviceable load, 1.56 kN across maximum free span of 1470 mm with 150 mm bearings at each end	BS EN 846-9^	3.97 mm (deflection)
		0.00 mm (residual compression)
Resistance to compression loading at maximum serviceable load, 1.56 kN across maximum free span of 1770 mm	BS EN 772-1^	0.41 mm (compression)
		0.07 mm (residual compression)

^ testing conducted in accordance with the principles of the applicable standard

2.5.3 Fire performance

Test	Standard	Result
Reaction to fire	BS EN 13501-1	B-s1, d0

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 the compliance of any project-specific design with the national Building Regulations.

3.2.1 England

The Building Regulations 2010 and Subsequent Amendments

- A1(1)(2) Loading - the Product can sustain and transmit combined dead and wind loads to the ground via the supporting structure
- B3(1)(4) Internal fire spread (structure) - the Product does not prejudice the stability of walls
- B4(1) External fire spread - the Product can contribute to resisting the spread of fire over walls and from one building to another
- C2(b)(c) Resistance to moisture - the Product can contribute to protecting a building from precipitation and limiting the risk of 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 26 CO_2 Emission rates for new buildings - a wall incorporating the Product can contribute to reducing CO_2 emissions
- Regulation 26A Fabric energy efficiency rates (new buildings) - the Product can contribute to satisfying this Regulation
- Regulation 26C Target primary energy rates for new buildings - the System can contribute to satisfying this Requirement

3.2.2 Wales

The Building Regulations 2010 and Subsequent Amendments

- A1(1)(2) Loading - the Product can sustain and transmit combined dead and wind loads to the ground via the supporting structure
- B3(1)(4) Internal fire spread (structure) - the Product does not prejudice the stability of walls
- B4(1) External fire spread - the Product can contribute to resisting the spread of fire over walls and from one building to another
- C2(b)(c) Resistance to moisture - the Product can contribute to protecting a building from precipitation and limiting the risk of 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 26 CO_2 Emission rates for new buildings - a wall incorporating the Product can contribute to reducing CO_2 emissions
- Regulation 26A Fabric energy consumption 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 Minimum energy efficiency rating - the System can contribute to satisfying this Requirement

3.2.3 Scotland

The Building (Scotland) Regulations 2004 and Subsequent Amendments

3.2.3.1 Regulation 8(1)(2) 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

- 1.1(a)(b) Structure - the Product can sustain and transmit combined dead and wind loads to the ground via the supporting structure
- 2.4 Cavities - the Product can contribute to inhibiting the unseen spread of fire and smoke within concealed spaces
- 2.6 Spread to neighbouring buildings - the Product can contribute to inhibiting the spread of fire to neighbouring buildings
- 2.7 Spread on external walls - the Product can contribute to inhibiting the spread of fire on external walls
- 3.10 Precipitation - the Product can contribute to resisting precipitation penetrating to the inner face of a building
- 3.15 Condensation - the Product can be designed and constructed to contribute to inhibiting surface or interstitial condensation
- 6.1(b) CO_2 emissions - a wall incorporating the Product can contribute to reducing CO_2 emissions
- 7.1(a)(b) Statement of sustainability - a wall incorporating the Product can contribute to satisfying this Regulation

3.2.3.3 Regulation 12 Building Standards - Conversion

- 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)(b) Fitness of materials and workmanship - the Product is manufactured from materials which are considered to be suitably safe and acceptable for use
- 28(b) Resistance to the weather - the Product can be constructed to prevent the passage of moisture
- 29 Condensation - the Product can contribute to limiting the risk of condensation
- 35(1)(4) Internal fire spread - the Product does not prejudice the stability of walls
- 36(a) External fire spread - the Product can contribute to resisting the spread of fire over walls and from one building to another
- 39(a)(i) Conservation measures - the Product can contribute to limiting heat gains and losses through a wall
- 40 Target CO_2 emission rate - a wall incorporating the Product can contribute to meeting the target CO_2 emission rate
- 43 Renovation of thermal elements - any renovation work carried out to ensure the wall complies with requirement 39(a)(i)

3.3 THIRD-PARTY ACCEPTANCE

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, Chapter 6.1 External masonry walls.

4 SOURCES

- 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 771-1:2011+A1:2015 Specification for masonry units. Clay masonry units
- BS EN 846-9:2016 Methods of test for ancillary components for masonry. Determination of flexural resistance and shear resistance of lintels
- BS EN 998-2:2016 Specification for mortar for masonry. Masonry mortar
- BS EN 1990:2002+A1:2005 Eurocode. Basis of structural design
- NA to BS EN 1990:2002+A1:2005 UK National Annex for Eurocode. Basis of structural design
- BS EN 1991-1-4:2005+A1:2010 Eurocode 1. Actions on structures. General actions. Wind actions
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- 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 1996-2:2006 Eurocode 6. Design of masonry structures. Design considerations, selection of materials and execution of masonry
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- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- 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
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- BS 8000-0:2014 Workmanship on construction sites. Introduction and general principles
- BS 8000-3:2020 Workmanship on construction sites. Masonry. Code of practice
- PD 6697:2019 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2
- 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
- EAD 040287-00-0404:2018 Kits for external thermal insulation composite system (ETICS) with panels as thermal insulation and discontinuous claddings as exterior skin
- NHBC Standards 2021
- NHBC Technical Extra Issue 26: November 2020
- NHBC Technical Guidance Note 6.1/29 Forming stop ends to cavity trays: December 2016
- NHBC Technical Guidance Note 6.1/35 Prefabricated lightweight brick clad arches: April 2021
- PAS 2030:2019 Specification for the installation of energy efficiency measures in existing dwellings and insulation in residential park homes

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

5 AMENDMENT HISTORY

Revision	Amendment description	Author	Approver	Date
-	First Issue	C Devine	C Vurley	February 2022
A	Updates to Building Regulations and Fire Performance	A Chapman	C Devine	March 2023
B	Correction of broken cross reference	A Chapman	C Devine	April 2023
C	Further updates to Building Regulations and Scope	E Taylor	C Devine	May 2023

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