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BAW-23-285-S-A-UK
BDA Agrément®
Wetherby Masonry Stone Wool
System
External Thermal Insulation
Composite System (ETICS)

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SCOPE OF AGRÉMENT

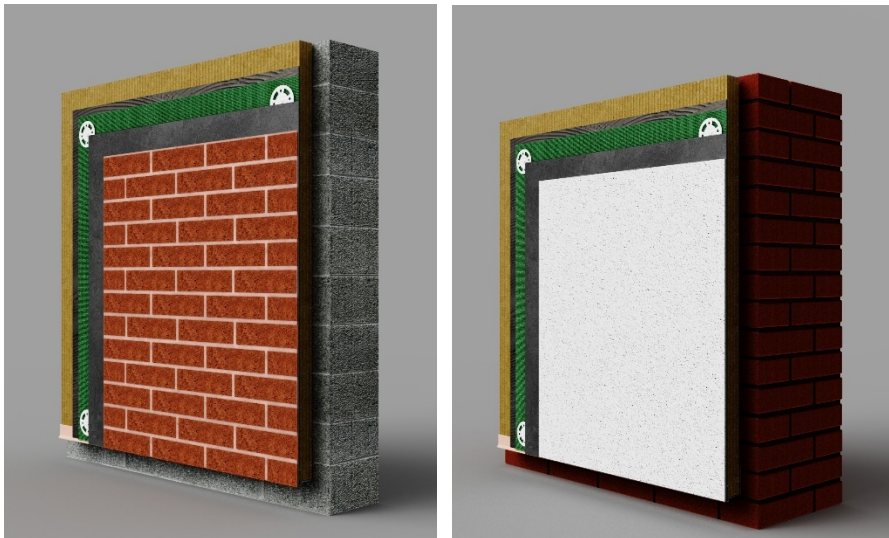
This BDA Agrément® (hereinafter 'Agrément') relates to Wetherby Masonry Stone Wool System (hereinafter the 'System'). The System is a mechanically fixed with supplementary adhesive where required), mineral wool (hereinafter 'MW') insulated, external thermal insulation composite system (ETICS). The System is for installation above damp-proof course (hereinafter 'DPC') level on masonry (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks) or concrete supporting walls; or above or below DPC level on buildings of modular off-site manufacture (hereinafter 'OSM'). The System is for existing and new residential and non-residential buildings.

DESCRIPTION

The System consists of MW insulation boards, which are mechanically fixed (and with supplementary adhesive where required) to the supporting wall. An adhesive basecoat is applied with an alkali-resistant reinforcement scrim cloth (hereinafter 'scrim cloth'), mechanically fixed through the scrim cloth to the supporting wall. A second layer of basecoat with scrim cloth or scrim cloth patches over the fixing heads is then applied. The System can incorporate either silicone, mineral, clay brick slip or acrylic brick slip finishes:

- primer is applied before the application of a silicone or mineral finish, and a decorative coat is applied to mineral finish;
- adhesive is applied before the application of the clay and acrylic brick slips; the clay brick slips are then pointed with mortar.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

STATEMENT

It is the opinion of Kiwa Ltd. that the System 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



Alpeo 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 System. This Agrément covers the following:

- Conditions of use;
- Production Control, Quality Management System and the Annual Verification Procedure;
- System components and ancillary items, points of attention for the Specifier and examples of details;
- Installation;
- Independently assessed System 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 System:

- can contribute to limiting the risk of interstitial and surface condensation;
- will provide a degree of protection against rainwater ingress.

Strength - see Section 2.2.8 - the System has adequate strength and is designed to adequately resist impact damage and wind loads normally encountered in the UK and Ireland.

Fire performance - see Section 2.2.9 - the System is classified as European Classification:

- A1, in accordance with BS EN 13501-1, when incorporating clay brick slip or mineral finish;
- A2-s1, d0, in accordance with BS EN 13501-1, when incorporating acrylic brick slip or silicone finish.

Thermal performance - see Section 2.2.10 the System improves the thermal performance of external walls and can contribute to satisfying the requirements of the national Building Regulations.

Durability - see Section 2.2.11 - the service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used.

UKCA, UKNI and CE marking - see Section 2.2.12 - the manufacturers of the constituent products used within the System have responsibility for conformity marking, in accordance with all relevant British and European Product Standards.

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- 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 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 System relates to its use in accordance with this Agrément and the Agrément holder's requirements.

1.1.3 Assessment

Kiwa Ltd. has assessed the System 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 System 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 System 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 System.

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 System 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 System. It is intended only as an assessment of safety and fitness for purpose.

2.1 SYSTEM 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 System.

Table 1 - Integral components

| Component | | Description | Dimensions |
|--|--|---|--|
| base rail | Wetherby Base Rail | aluminium base rail | 2.5 m long |
| | mechanical fixings for Wetherby Base Rail | Hit M 6 x 40 mm - zinc-coated expansion sleeve with a polyamide 6 body | 40 mm long by 6 mm diameter |
| bedding adhesive | WBS Insulation Bedding Adhesive | polymer modified, Portland cement binder system containing limestone aggregate and specially selected fillers | |
| MW insulation | Wetherby Stone Wool Insulation | average nominal density of 110 kg/m ³ in accordance with BS EN 13162, λ_D 0.036 W/mK | 1.2 m by 0.6 m, 50 to 250 mm thick |
| | mechanical fixings for MW insulation | SPIT ISO 10 - polypropylene plastic expansion sleeve with a polypropylene or polyamide 6 plastic pin | 60 to 195 mm long by 10 mm diameter with a 60 mm diameter washer |
| | | TFIX-8M or R-TFIX-8M - polypropylene sleeve with electro-galvanized steel pin | 95 to 295 mm long by 8 mm diameter with a 60 mm diameter washer |
| | R-TFIX-8S - polypropylene sleeve with electro-galvanized steel pin | 115 to 455 mm long by 8 mm diameter with a 60 mm diameter washer | |
| scrim cloth | Wetherby Alkali Resistant Reinforcing Scrim Cloth | alkali-resistant glass fibre reinforcement mesh with a nominal weight of 160 g/m ² | 50 m by 1 m or 1.1 mm by 0.52 mm thick rolls, 3.5 mm by 3.8 mm grid size |
| | mechanical fixings through scrim cloth and MW insulation | SPIT ISO 10 - polypropylene plastic expansion sleeve with a polypropylene or polyamide 6 plastic pin | 60 to 195 mm long by 10 mm diameter with a 60 mm diameter washer |
| | | TFIX-8M or R-TFIX-8M - polypropylene sleeve with electro-galvanized steel pin | 95 to 295 mm long by 8 mm diameter with a 60 mm diameter washer |
| | | R-TFIX-8S - polypropylene sleeve with electro-galvanized steel pin | 115 to 455 mm long by 8 mm diameter with a 60 mm diameter washer |
| fire fixings through scrim cloth and MW insulation | Ejot DMH 8 - stainless steel anchor | 90 to 300 mm long by 8 mm diameter | |
| basecoat | Wetherby Heck K+A Scrim Adhesive - basecoat | mineral-based, bonding and reinforcing basecoat for acrylic and silicone renders. For use with silicone, acrylic brick slips or mineral finishes | |
| | Wetherby Heck K+A A1 Scrim Adhesive | | |
| | Wetherby Scrim Adhesive - basecoat | cement-based, polymer-modified basecoat comprising limestone and sand, conforming to BS EN 13139, cement conforming to BS EN 197-1 and additives. For use with clay brick slip finish | |
| silicone finish | Wetherby Primer | a polymer-modified primer comprising pigments and quartz grits, to be used with silicone finish | |
| | Wetherby Silicone Textured Finish | silicone-modified render comprising mineral fillers, conforming to BS EN 998-1 with a 1.5 to 3 mm grain size | |
| clay brick slip finish | Wetherby Brick Slip Adhesive | cementitious-based mortar conforming to BS EN 12004-1, cement conforming to BS EN 197-1 and additives | |
| | Wetherby Brick Slips | coarse ceramic brick slips/pistols/corners conforming to BS EN 14411, manufactured in accordance with BS EN 771-1. Available in a range of colours | 215 mm by 65 mm by 9 mm to 25 mm thick |
| | Wetherby Pointing Mortar | polymer-modified sand/cement-based mortar, with class M5 in accordance with BS EN 998-2, manufactured in accordance with BS EN 13888-1 | |
| acrylic brick slip finish | Wetherby Izoflex Adhesive | organically bound, water based, polymer dispersion cement-free adhesive consisting of liquid pigments and fillers, for acrylic brick slips | |
| | Wetherby Acrylic Brick Slips | organically bound, water based, polymer dispersion cement-free flexible brick slips consisting of liquid pigments and fillers | 215 mm by 65 mm by 4 mm thick |
| mineral finish | Wetherby Heck primer | a polymer dispersion primer comprising pigments, fillers, fine quartz grit, to be used with mineral finish | |
| | Wetherby Heck ED mineral render | a white cement lime hydrate decorative render comprising quartz, jurassic, marble grits and mineral pigments, with hydrophobising admixtures | |
| | Wetherby Silicone Paint | polysiloxane emulsion with mineral pigments and fillers | |

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 System, but fall outside the scope of this Agrément:

- external supporting wall - masonry;
- profiles - a range of standard profiles for end stop, corner reinforcement mesh and expansion joints, available in stainless steel, PVC-U or organic polyester powder-coated galvanized steel, provided to the specifier's requirements;
- under-and-over cills, cill extenders;
- roof verge extenders;
- expanding tape;
- Wetherby Sealing Tape;
- silicone sealant;
- breather membrane.

2.2 POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 Design

2.2.1.1 Design responsibility

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

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 System.

2.2.1.3 General design considerations

A project-specific design is required. This shall be developed in close co-operation with the Agrément holder.

This Agrément covers the use of the System in exposure zones 1, 2 and 3, in accordance with BS 8104 and PD 6697. This Agrément also covers the use of the System onto cavity walls in exposure zone 4; however, for solid walls in exposure zone 4 areas, the Agrément holder shall determine the suitability of the System, taking into consideration the appropriate local wind-driven rain index using BS 8104 and permeability of the existing materials.

The System shall be installed above DPC level and a minimum of 150 mm above ground level, with the exception of modular systems - see Section 2.2.1.4

Internal wet work (e.g. screed or plastering) shall be completed and allowed to dry prior to the application of the System.

New masonry supporting walls shall be designed in accordance with:

- BS EN 1992-1-1 / I.S. EN 1992-1-1;
- BS EN 1996-1-1 / I.S. EN 1996-1-1;
- BS EN 1996-2 / I.S. EN 1996-2;
- PD 6697.

Assessment of the structural performance of the System shall be carried out by the Agrément holder to confirm that the System can:

- resist the design impact, wind, dead and imposed loads;
- safely transfer loads to the building;
- accommodate all anticipated thermal movements without damage.

Deflection shall be limited to prevent damage to the System.

Supporting walls incorporating the System shall be:

- detailed to reduce the risk of damage due to movement in the supporting wall, taking into consideration differential movement in dissimilar materials;
- designed in accordance with the relevant Standards to limit mid-span deflections - see Section 2.2.8.

Buildings incorporating the System shall be designed and constructed to prevent moisture penetration and air infiltration, in accordance with the relevant Codes and Standards.

Care is needed for design detailing of joints around openings, penetrations and movement joints, to minimise the risk of wind-driven rainwater ingress and shall be in accordance with BS 6093.

The System shall be secured to the supporting wall with mechanical fixings through the scrim cloth and MW insulation.

Horizontal and vertical movement joints (designed to cater for the calculated degree of movement to control expansion, contraction and cracking without reducing the stability and weathertightness of the wall) shall be carried through the System using movement beads of PVC, powder-coated galvanised steel or austenitic stainless steel as appropriate, subject to the project-specific design. Movement joints within the System shall be provided at 7.5 m intervals when the length of a wall exceeds 12 m, in accordance with PD 6697 and BS EN 1996-2 / I.S. EN 1996-2.

2.2.1.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Specifier;
- consider the exposure zones where the System 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.

The Agrément holder shall ensure that the following considerations are included in the development of a project-specific design:

- structural adequacy of the supporting wall;
- thermal transmittance (hereinafter 'U-value') requirements;
- thermal expansion effects of the supporting wall and the System;
- likely local impact resistance;
- pull-through of fixings;
- pull-out of fixings;
- effect of wind actions on the System;
- accommodation of structural movement.

Masonry supporting walls shall be vapour permeable, to ensure that moisture can escape from inside the building.

The number of fixings required through the scrim cloth and MW insulation is a variable design value and shall be equal to or greater than that needed to achieve the required project-specific design wind load - see Section 2.2.8.

Account shall be taken of Government Accredited Construction Details for Part L - Masonry External Wall Insulation Illustrations, Timber Frame Illustrations and Steel Frame Illustrations for England and Wales and Accredited Construction Details for Scotland (hereinafter 'Government Accredited Construction Details').

During the assessment and survey, fixing pull-out strength (kN) tests shall be conducted on the supporting wall surface in accordance with EOTA TR 051 and EAD 330196-01-0604. The results of the assessment and survey shall assist the Agrément holder in determining the type, size and minimum number of fixings required per m². When using pull-out data for fixings, the material safety factor γ_m shall be considered.

For modular projects that incorporate the System below DPC level, the following specific conditions will apply:

1. the System shall not come into contact with the surrounding ground;
2. the section of the System below DPC level shall never become immersed in standing water under any circumstances;
3. a detailed site ground condition survey shall be undertaken for each case and suitable land drainage below the modular housing units shall be designed and implemented accordingly;
4. the land drainage solution provided in response to condition 2 above shall not rely on pipework that may become blocked or mechanical systems that could fail;
5. where the design below DPC level creates a 'bund', the land drainage solution provided in response to condition 2 above shall prevent the accumulation of rain or groundwater;
6. the section of the System installed below DPC level shall be separated from the remainder of the System at DPC level.

2.2.2 Applied building physics (heat, air, moisture)

A Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the System 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 System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

Installation shall be by an Approved Installer, trained and approved by the Agrément holder.

2.2.5 Delivery, storage and site handling

The System components are delivered in suitable packaging bearing relevant identification information (such as the System 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 System components 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 exposure to direct sunlight for extended periods of time;
- avoid exposure to high or low temperatures for extended periods of time;
- store System components in a well-ventilated covered area to protect them from rain, frost and humidity;
- store System components away from sources of ignition.

For storage of liquid and powder components, minimum and maximum temperatures shall be observed, including limitations of the shelf life, in accordance with the manufacturer's recommendations.

2.2.6 Maintenance and repair

Once installed, the System requires regular maintenance. For 60-year durability, a bespoke extended repair and maintenance protocol will apply. For advice in respect of repair and maintenance, consult the Agrément holder.

The maintenance schedule for the installed System shall include regular visual inspection checks for:

- signs of damaged areas and cracks in the render exceeding 0.2 mm;
- signs of disbandment in brick slips; dislodged brick slips shall be re-fixed using adhesive;

- signs of damage in brick slips; damaged brick slips shall be removed and replaced with new ones;
- integrity of the sealant around openings and service entry points;
- adequate performance of architectural details designed to shed water away;
- leaks from external plumbing and fittings, guttering and drainpipes.

Maintenance shall include regular replacement and resealing of joints at window and door frames to prevent failure. Failed elements such as sealants, joint seals and corroded materials shall be replaced to ensure that water ingress does not occur.

Any damage to the render system shall be repaired immediately, in accordance with BS EN 13914-1 and the Agrément holder’s Maintenance and Repair Manual.

Lime bloom is likely to occur in mortar with Portland cement and can be avoided by application during weather conditions recommended by the Agrément holder.

The System finish may become discoloured by algae and lichens in damp areas. Cleaning with fresh warm water and light brushing or by overcoating will mitigate this. A mild detergent or traffic-film remover can be applied and washed off. Any surface algae can be cleaned off using an algicide.

Performance factors in relation to the Major Points of Assessment

2.2.7 Moisture control

External walls incorporating the System 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 the project-specific design stage for all elements of the construction, including at junctions, openings and penetrations, to minimise the risk of surface and interstitial condensation. When correctly installed on an occupied building, no condensation will form on the internal wall.

Resistance to precipitation including wind-driven rain

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 System will provide a degree of protection against rainwater ingress. However, care shall be taken to ensure that the supporting walls are adequately weathertight prior to installation of the System.

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, in accordance with BS 8104, paying due regard to the design detailing, workmanship and materials to be used.

At the tops of walls, the System shall be protected by an adequate coping, overhang or other project-specific detail.

The System has adequate resistance to artificial weathering and resistance to thermal shock, in accordance with EAD 040914-00-0404.

2.2.8 Strength

The supporting wall shall have sufficient strength to withstand all wind, dead and imposed loads applied to and from the System, including racking and any temporary loads that could be applied during installation. The strength of the supporting wall shall be verified by a suitably qualified engineer. The project-specific design shall ensure that:

- the System attachment to the supporting wall has adequate fixing pull-out capacity for the calculated wind loads;
- thermal expansion effects of the metal rails, metal structural frames and the cladding to be supported are taken into consideration in the design and detailing.

The System shall be designed to withstand wind action loads in accordance with BS EN 1991-1-4 / I.S. EN 1991-1-4. Account shall be taken of the location, shape and size of the building. The average yearly wind action load data for the site location shall be collated and used to calculate the required design wind resistance (positive and negative) of a given support spacing and fixing pattern. Special consideration shall be given to locations with high wind-load pressure coefficients, as extra fixings may be required.

The supporting wall shall be designed in accordance with the relevant Standards to limit mid-span deflections to L/260 (mid-span) and L/150 (cantilever).

The System has adequate wind-load resistance and suitable mechanical strength, in accordance with ETAG 004. For the calculation of the wind-load resistance of the System, the characteristic pull-through values given in Table 2 shall be used.

Table 2 - Design wind load values - Wetherby mechanical fixings with 60 mm diameter head

| Design wind load (kN/m ²) | Number of fixings per m ² | Design fixing pull-through resistance (kN) ^a |
|---------------------------------------|--------------------------------------|---|
| 3.80 | 9 | 0.42 |
| 2.95 | 7 | |
| 2.55 | 6 | |

^a derived from pull-through test on 100 mm thick MW insulation with TFIX and scrim cloth. A partial factor of 2.5 has been applied

Where mechanical fixings through the MW insulation are aided by supplementary adhesive, the contribution of the adhesive is not considered when calculating the wind-load resistance of the System.

The qualified structural engineer shall ensure that the maximum design wind load achieved by the System, as per Table 2, shall be equal or less than the design pull-out resistance strength of the mechanical fixings from the supporting wall obtained from site tests.

Positive wind load is transferred to the supporting wall directly via bearing and compression of the MW insulation, render and brick slips. Negative wind load is resisted by the bond between the MW insulation and the System finish reinforced with scrim cloth. The MW insulation is retained by mechanical anchors through the reinforcement mesh, which are fixed to the supporting wall.

Impact resistance

When tested for hard-body impact resistance, in accordance with EAD 040914-00-0404, the System is categorised as:

- Use Category I: for clay brick slip and acrylic brick slip finishes;
- Use Category II: for silicone and mineral finishes.

The Use Categories in accordance with EAD 040914-00-0404 are as detailed below:

- I - a zone readily accessible at ground level to the public and vulnerable to hard-body impacts but not subjected to abnormally rough use;
- II - a zone liable to impacts from thrown or kicked objects, but in public locations where the height of the System will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care;
- III - a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects;
- IV - a zone out of reach from ground level.

2.2.9 Fire performance

The reaction to fire of the System is classified in accordance with BS EN 13501-1, as follows:

- European Classification A1, when incorporating clay brick slip or mineral finish;
- European Classification A2-s1, d0, when incorporating acrylic brick slip or silicone finish.

The following components are classified as 'non-combustible', in accordance with the relevant national Building Regulations:

- masonry supporting walls;
- MW insulation;
- clay brick slips.

The System can be used on buildings without any restrictions on building height or boundaries, in accordance with national Building Regulations.

Construction materials, components and associated attachments used in the overall wall construction shall satisfy the requirements of Regulations 7(2) and 7(3) (for England and Wales), Regulations 8(3) and 8(4) (for Scotland) and Regulations 23(2) and 23(3) (for Northern Ireland). Designers shall refer to the national Building Regulations for further details.

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.

In addition to the MW insulation fasteners normally specified, the System shall include fire fixings, a minimum of one stainless steel fixing per m² of insulation for application to second storey walls and above, fixed through the scrim cloth and the MW insulation as per the guidance given in BRE Report 135.

For detailed conditions of use regarding requirements for supporting wall fire performance 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.

2.2.10 Thermal performance

The System can assist in reducing the U-value of external walls. It is essential that detailing is carried out to a high standard if the ingress of water into the MW insulation is to be avoided and the full thermal benefit is to be obtained from the installation of the System. Any moisture penetration will affect thermal conductivity; the thermal value will recover when the MW insulation dries out. The System is designed to minimise moisture penetration to the MW insulation layer.

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 System does not exceed the maximum U-value requirement given in the national Building Regulations.

The U-value of a completed wall construction will depend on the MW insulation thickness, fixing method, type of mechanical fixing and insulating value of the supporting wall and its internal finish.

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 the walls incorporating the System 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 thermal conductivity (λ_D) of the MW insulation - see Section 2.5.4.

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 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 in BS EN ISO 10211, BRE Information Paper 1/06, BRE Report 262, BRE Report 497, PAS 2030 and PAS 2035.

2.2.11 Durability

The service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used. The expected service life durability will be in excess of 30 years.

Once installed, the System is not susceptible to damage from environmental conditions normally encountered in the UK and Ireland. The System has a maintenance regime in accordance with Section 2.2.6.

2.2.12 UKCA, UKNI and CE marking

There is no relevant Product standard for the System

2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - Typical mechanical fixing arrangement

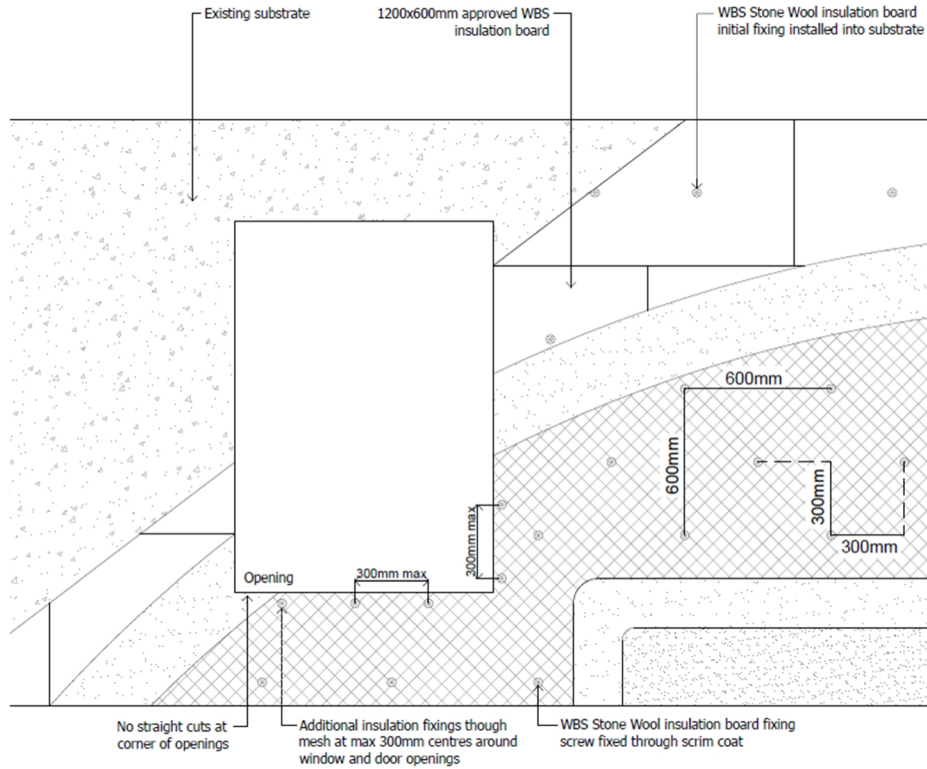


Diagram 2 - Typical movement joint detail

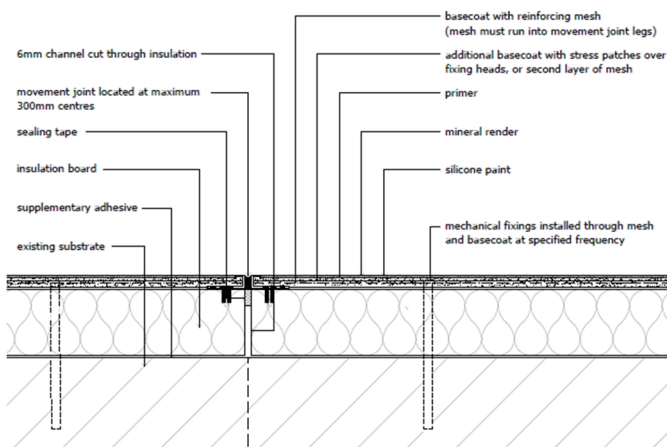


Diagram 3 - Typical build up detail

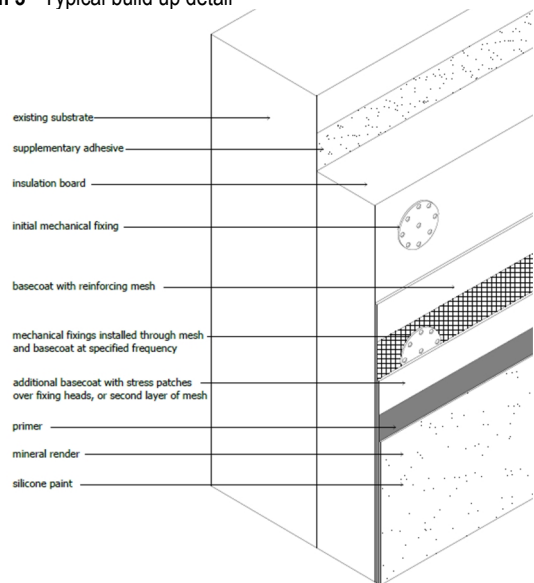


Diagram 4 - Typical base detail

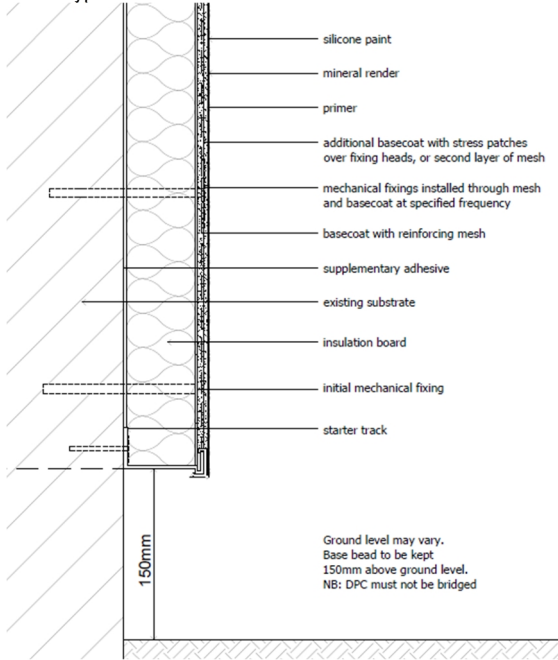


Diagram 5 - Typical base detail (below DPC level for modular OSM projects)

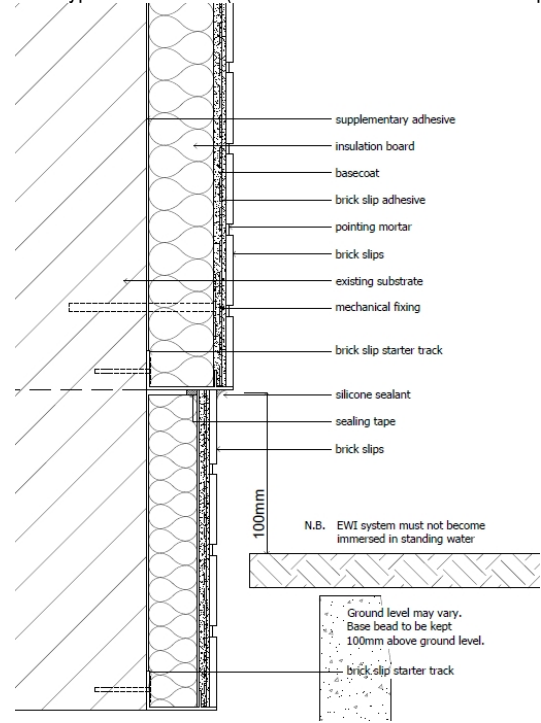


Diagram 6 - Typical opening stress patches detail

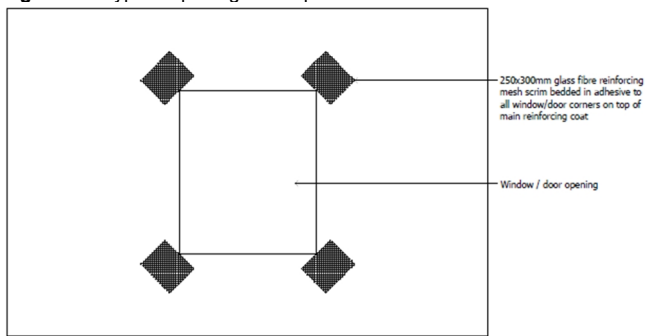


Diagram 7 - Typical window/door jamb detail

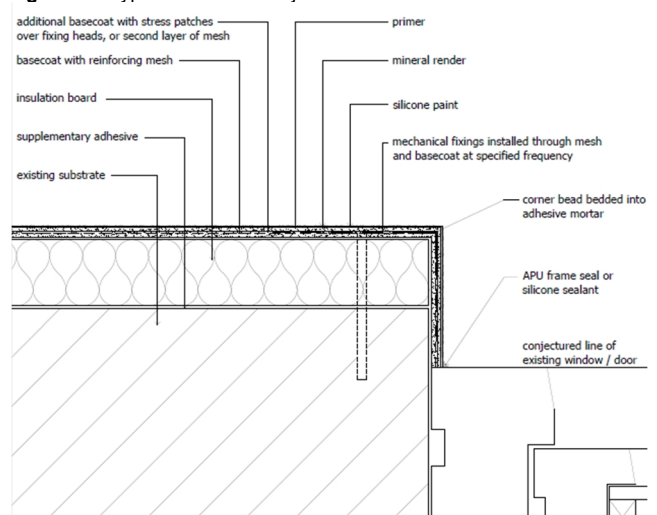


Diagram 8 - Typical window cill detail

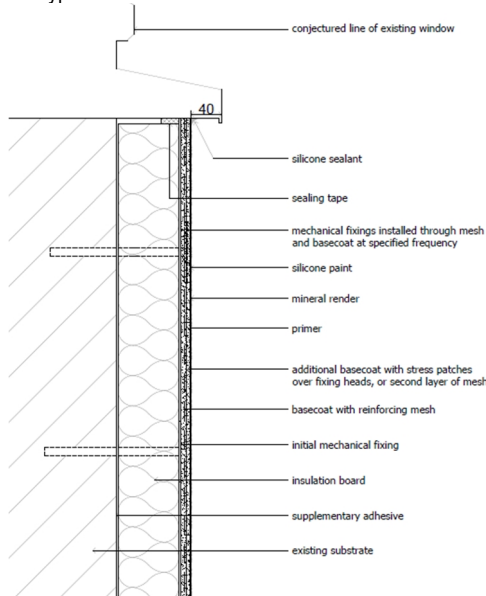
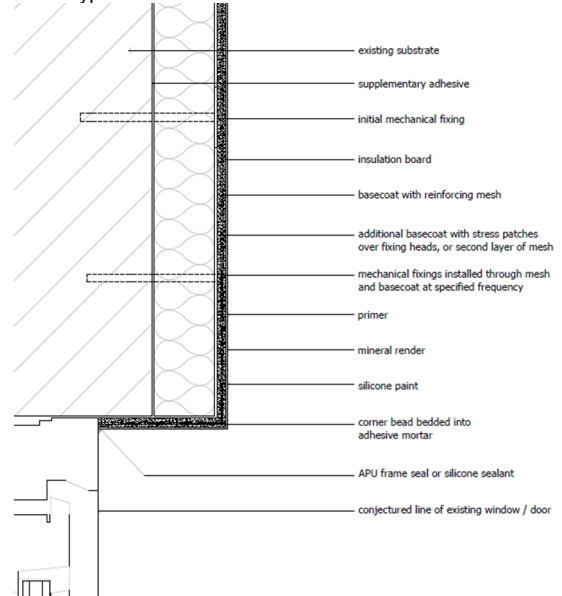


Diagram 9 - Typical window/door head detail



The System 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.

A specification shall be prepared for each elevation of the building indicating, where appropriate:

- DPC level, the position of base rail, water deflection beads/channels, expansion joints and weather seals;
- detailing around windows, doors, etc.;
- location of cavity fire barriers installed in line with compartment walls and floors;
- identification of:
 - services and any fittings requiring removal or alteration to facilitate installation of the System;
 - areas where silicone/flexible sealants shall be used.

This process includes fixing pull-out tests of the supporting wall according to the Construction Fixings Association Guidance note 'Procedure for site testing construction fixings', to determine pull-out strength values - see Section 2.2.4. Pull-out test loads shall be 2.5 x design load. The pull-out resistance strengths of the supporting wall and MW insulation anchor fixings shall be checked by a competent person and shown to be adequate before installation of the System.

Subsequent project-specific design considerations include confirmation that:

- there is no existing rising damp and there are no signs of damp on the inner face of the supporting wall, other than those caused solely by condensation;
- existing walls are:
 - structurally sound, in a good state of repair and show no evidence of rain or frost damage;
 - watertight, clean and meet the requirements of the relevant Standards and national Building Regulations for airtightness.

2.4.2 Preparation

The following works shall be undertaken before installing the System:

- the supporting wall shall be finished and free from protrusions and uneven jointing;
- make any necessary repairs or modifications (e.g. removal of fittings which can be relocated after the System is installed);
- the roof shall be in place and window and door openings shall be sealed;
- surfaces shall be clean, dry and free from dirt, grease, oils, solvents and loose particles;
- flues, chimneys and combustion air ventilators shall be continuously sleeved through the wall. Reference shall be made to CIGA's 'Technician's guide to best practice: Flues, chimneys and combustion air ventilators';
- supports for services/fittings, e.g. soil pipes, shall be fixed back to the supporting wall; no load is to be transferred to the System;
- external power cables concealed in trunking shall be well labelled with warning signs;
- where required, extend beyond the surface and securely refix external soil stacks, wastewater pipes, overflows, ducts and vent pipes.

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:

- fix the Wetherby Base Rail horizontally to the wall above DPC level at base of the wall, or 150 mm above ground level;
- fix stop beads vertically, bedded onto the Wetherby Sealing Tape, and fully seal with silicone;
- where required, fix angle verge trim using Wetherby Sealing Tape at the top of the System, and seal with silicone at the top of the verge;
- extend cills so that there will be a minimum 40 mm overhang from the drip edge of the cill to the front edge of the System. Similar overhangs shall also be achieved at the soffit; if there is no soffit or it is of insufficient depth, then a verge trim will be required;
- where required, apply bedding adhesive to the MW insulation using the 'ribbon and dab' or 'notch trowel' method, ensuring minimum 40 % coverage area;
- place the first course of MW insulation onto the Wetherby Base Rail and mechanically fix into the supporting wall. Continue with additional MW insulation, ensuring tight butt-joints and adhering to staggered bonding pattern; joints shall not occur within 200 mm of the corners of openings and MW insulation shall be staggered and overlapped at building corners;
- install initial mechanical fixings approved by the Agrément holder through MW insulation into the supporting wall;
- fix movement beads at agreed locations; structural movement joints shall be carried through the System;
- fix surface mounted beads directly to the MW insulation at required locations;
- apply a 4 to 6 mm thick basecoat (type of basecoat dependent on the finish) to the entire surface of the MW insulation and bed scrim cloth into the top third of the wet adhesive, overlapping joints by minimum 75 mm;
- apply secondary mechanical fixings through the scrim cloth and MW insulation to the supporting wall in accordance with project-specific fixing pattern (subject to wind load calculations, with additional fixings at corners and openings);
- whilst basecoat is still wet; install additional pieces of scrim cloth (minimum 250 mm by 300 mm) diagonally across corners of all wall openings;
- place 100 mm by 100 mm scrim cloth patches over each fixing head or embed a second layer of scrim cloth. Apply a second layer of 2 to 3 mm thick basecoat, ensuring any visible scrim cloth is covered;
- apply the appropriate System finish.

Silicone finish

- apply Wetherby Primer and allow to dry for a minimum of 12 hours;
- once the primer is fully dry, mix and apply Wetherby Silicone Textured Finish, in accordance with the manufacturer's instructions;
- prior to setting, polish the Wetherby Silicone Textured Finish with a plastic float to remove trowel marks and to give an even texture.

Clay brick slip finish

- create horizontal scratches on the surface of the scrim adhesive in preparation for receiving the Wetherby Brick Slip Adhesive;

- apply Wetherby Brick Slip Adhesive with a trowel to achieve a minimum thickness of 5 mm;
- whilst the Wetherby Brick Slip Adhesive is still wet, firmly apply Wetherby Brick Slips to the adhesive in a staggered pattern, leaving a consistent joint;
- once the Wetherby Brick Slips have set, point with Wetherby Pointing Mortar using a pointing gun.

Acrylic brick slip finish

- apply 2 to 3 mm thick acrylic brick slip adhesive onto the basecoat using a notch trowel;
- apply acrylic brick slips, ensuring they are firmly pushed into place, leaving consistent mortar joints between each brick slip and allow to set;
- whilst the adhesive is still wet, brush all mortar joints using a 10 mm brush, ensuring all brick slip edges are sealed.

Mineral finish

- apply Wetherby Heck Primer with a brush or lamb's wool roller and allow to fully dry;
- apply Heck ED Mineral Render finish in a continuous application with a stainless-steel trowel to the thickness of the grain;
- prior to setting, polish the render finish with a plastic float to remove all trowel marks and allow the render to fully dry;
- apply two layers of Wetherby Silicone Paint to the Heck ED Mineral Render using a roller or brush.

2.4.4 Finishing

The following finishing is required on completion of the installation:

- check all trunked air vents and flues (by an appropriate test if necessary) to verify that they are clear and unobstructed;
- apply mastic sealant around windows, door frames, etc., and where the installation abuts any other building or surface, to ensure a weathertight joint.

Post-installation inspection checks shall be carried out to ensure that the installation has been successfully completed and that the building has not been damaged. These shall be conducted as soon as possible after completion of the work and before removing scaffolding; any defects shall be reported immediately.

2.5 INDEPENDENTLY ASSESSED SYSTEM CHARACTERISTICS

2.5.1 Moisture control

| Test | Standard | System | Result |
|---|--------------------|------------------------------|------------|
| Hygrothermal and freeze-thaw conditioning | EAD 040914-00-0404 | Wetherby Brick Slips | No defects |
| | | Wetherby Silicone Finish | |
| | | Wetherby Acrylic Brick Slips | |
| | | Wetherby Heck Mineral Finish | |
| Test | Standard | Component | Result |
| Water vapour diffusion resistance, S _d | BS EN ISO 12572 | Wetherby Acrylic Brick Slips | 1.33 m |
| | ETAG 004 | Wetherby Heck Mineral Finish | ≤ 0.1 m |

2.5.2 Strength

| Test | Standard | System | Result |
|--|--------------------|--------------------------------|-----------------|
| Hard-body impact resistance | EAD 040914-00-0404 | Wetherby Brick Slips | Use Category I |
| | | Wetherby Acrylic Brick Slips | |
| | | Wetherby Silicone Finish | Use Category II |
| | | Wetherby Heck Mineral Finish | |
| Test | Standard | Component | Result |
| Compressive stress at 10 % deformation | BS EN 826 | Wetherby Stone Wool Insulation | 10 kPa |
| Tensile strength | BS EN 1607 | | 10 kPa |

2.5.3 Fire performance

| Test | Standard | System | Result |
|------------------|---------------|------------------------------|-----------|
| Reaction to fire | BS EN 13501-1 | Wetherby Brick Slips | A1 |
| | | Wetherby Heck Mineral Finish | |
| | | Wetherby Acrylic Brick Slips | A2-s1, d0 |
| | | Wetherby Silicone Finish | |

2.5.4 Thermal performance

| Test | Standard | Component | Result |
|--|-------------|--------------------------------|------------|
| Thermal conductivity (λ _D) | BS EN 12667 | Wetherby Stone Wool Insulation | 0.036 W/mK |

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 System, 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

- A1(1)(a) Loading - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect the building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect the building from interstitial and surface condensation
- L1(a)(i) Conservation of fuel and power - the System can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - all System components which are part of the external wall or specified attachment, shall achieve European classification of A2-s1, d0 or A1
- Regulation 23 Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO₂ emission rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26A Fabric energy efficiency rates for new dwellings - the System can contribute to satisfying this Requirement
- 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)(a) Loading - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect the building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect the building from interstitial and surface condensation
- L1(a)(i) Conservation of fuel and power - the System can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - all System components which are part of the external wall or specified attachment, shall achieve European classification of A2-s1, d0 or A1
- Regulation 23 Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO₂ emission rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26A Primary energy rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26B Fabric performance values for new dwellings - the System can contribute to satisfying this Requirement
- Regulation 26C 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 System is manufactured from acceptable materials and is adequately resistant to deterioration and wear under normal service conditions

3.2.3.2 Regulation 8(3) Durability, workmanship and fitness of materials

- All System components which are part of the external wall or specified attachment, shall achieve European classification of A2-s1, d0 or A1

3.2.3.3 Regulation 9 Building standards - Construction

- 1.1(a)(b) Structure - the System can sustain and transmit combined dead and wind loads to the supporting wall
- 2.6 Spread to neighbouring buildings - the System can inhibit the spread of fire to neighbouring buildings
- 2.7 Spread on external walls - the System can inhibit the spread of fire on external walls
- 2.8 Spread from neighbouring buildings - the System can inhibit the spread of fire to the building
- 3.10 Precipitation - the System can resist precipitation penetrating to the inner face of the building
- 3.15 Condensation - the System can be designed and constructed to inhibit surface or interstitial condensation
- 6.1(b) Carbon dioxide emissions - the System can contribute to satisfying this Requirement
- 6.2 Buildings insulation envelope - the System can contribute to satisfying this Requirement
- 7.1(a)(b) Statement of sustainability - the System 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

3.2.3.4 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 System is manufactured from materials which are suitably safe and acceptable as described in this Agrément
- 23(2) Fitness of materials and workmanship - all System components which are part of the external wall or specified attachment, shall achieve European classification of A2-s1, d0 or A1
- 28(b) Resistance to moisture and weather - the System can be constructed to prevent the passage of moisture from the weather
- 29 Condensation - the System can be designed and constructed to prevent interstitial condensation
- 30(a) Stability - the System can sustain and transmit combined dead and wind loads to the supporting wall
- 36(a) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- 39(a)(i) Conservation measures - the System can contribute to limiting heat gains and losses through walls
- 40(2) Target CO₂ emission rate - a wall incorporating the System shall be designed and constructed as not to exceed its target CO₂ emission rate
- 43 Renovation of thermal elements - the renovation work 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 System complies with the requirements of a recognised document and indicates it is suitable for its intended purpose and use.

- A1(1)(a) Structure - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B4 External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- B9 External fire spread - the System can adequately resist the spread of fire over walls and from one building to another for dwelling houses
- C4 Resistance to weather and ground moisture - a wall incorporating the System can contribute to adequately protecting a building from the passage of moisture from precipitation
- D1 Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- L1 Conservation of fuel and energy - the System can contribute to limiting heat gains and losses through walls
- L2(a) Conservation of fuel and energy (in existing dwellings) - the System can contribute to limiting heat gains and losses through walls
- L4(a) Conservation of fuel and energy (in existing buildings other than dwellings) - the System can contribute to limiting heat gains and losses through walls
- L5(c) Conservation of fuel and energy (in new buildings other than dwellings) - the System can contribute to limiting heat gains and losses through walls
- Regulation 7 Conservation of fuel and energy in existing dwellings - the System can contribute to satisfying this Requirement
- Regulation 8(c) Conservation of fuel and energy in new dwellings - the System can contribute to satisfying this Requirement

3.3 THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

- 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 12572:2016 Hygrothermal performance of building materials and products. Determination of water vapour transmission properties. Cup method
- BS EN 197-1:2011 Cement. Composition, specifications and conformity criteria for common cements
- BS EN 771-1:2011+A1:2015 Specification for masonry units. Clay masonry units
- BS EN 826:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 998-1:2016 Specification for mortar for masonry. Rendering and plastering mortar
- BS EN 998-2:2016 Specification for mortar for masonry. Masonry mortar
- BS EN 1607:2013 Thermal insulating products for building applications. Determination of tensile strength perpendicular to faces
- BS EN 1991-1-4:2005+A1:2010 Eurocode 1. Actions on structures. General actions. Wind actions
- NA to BS EN 1991-1-4:2005+A1:2010 UK National Annex to Eurocode 1. Actions on structures. General actions. Wind actions
- BS EN 1992-1-1:2004+A1:2014 Eurocode 2. Design of concrete structures. General rules and rules for buildings
- NA+A2:2014 to BS EN 1992-1-1:2004+A1:2014 UK National Annex to Eurocode 2. Design of concrete structures. General rules and rules for buildings
- 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
- 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 12004-1:2020 Adhesives for ceramic tiles. Requirements, assessment and verification of constancy of performance, classification and marking
- 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 13139:2013 Aggregates for mortar
- BS EN 13162:2012+A1:2015 Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- BS EN 13888-1:2022 Grouts for ceramic tiles - Requirements, classification, designation, marking and labelling
- BS EN 13914-1:2016 Design, preparation and application of external rendering and internal plastering. External rendering
- BS EN 14411:2016 Ceramic tiles. Definition, classification, characteristics, assessment and verification of constancy of performance and marking
- 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 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 1/06:2006 Assessing the effects of thermal bridging at junctions and around openings
- BRE Report 135:2013 Fire performance of external thermal insulation for walls of multistorey buildings, Third Edition
- 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
- CIGA Technician's guide to best practice: Flues, chimneys and combustion air ventilators:2016
- Construction Fixings Association Guidance note:2012 Procedure for site testing construction fixings
- EAD 040914-00-0404:2018 Vetre kits - Prefabricated units for external wall insulation and their fixing devices
- EAD 330196-01-0604:2017 Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering
- EOTA TR 051:2018 Recommendations for job site tests of plastic anchors and screws
- ETAG 004:2013 Guideline for European Technical Approval of External Thermal Insulation Composite Systems (ETICS) with Rendering
- I.S. EN 1991-1-4:2005 Eurocode 1: Actions on structures. Part 1-4: General actions. Wind actions
- I.S. EN 1991-1-4/NA:2005 Irish National Annex to Eurocode 1: Actions on structures. Part 1-4: General actions. Wind actions
- I.S. EN 1992-1-1:2004+AC:2010+A1:2014 Eurocode 2: Design of concrete structures. Part 1-1: General rules and rules for buildings
- I.S. EN 1992-1-1/NA:2004/NA:2010/AC2:2020 Irish National Annex to Eurocode 2: Design of concrete structures. Part 1-1: General rules and rules for buildings
- 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 1996-2:2006 Eurocode 6: Design of masonry structures. Part 2: Design considerations, selection of materials and execution of masonry
- I.S. EN 1996-2:2006/NA:2006 Irish National Annex to Eurocode 6: Design of masonry structures. Part 2: Design considerations, selection of materials and execution of masonry
- PAS 2030:2019+A1:2022 Specification for the installation of energy efficiency measures in existing dwellings
- PAS 2035:2019+A1:2022 Retrofitting dwellings 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 System 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 | November 2023 |
| A | Update to MW insulation specifications | A Chapman | C Devine | December 2023 |
| B | Corrections to Diagram captions | A Chapman | C Devine | December 2023 |
| | | | | |
| | | | | |

6 CONDITIONS OF USE

This Agrément may only be reproduced and distributed in its entirety.

Where a National Annex exists in respect of a BS EN (or other) standard, its use is deemed mandatory wherever the original standard is referenced.

Kiwa Ltd. has used due skill, care and attention in the preparation of this BDA Agrément®.

Whilst all due diligence has been used, no liability or warranty is extended by Kiwa Ltd.

The Agrément holder is responsible for advising Kiwa Ltd. immediately if there is a variation to the System specification or constituent elements/components after initial publication of this BDA Agrément®.

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