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**BAW-22-242-S-A-UK**  
**BDA Agrément®**  
**Warmshell Internal**  
**Internal Wall Insulation System**

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**SCOPE OF AGRÉMENT**

This BDA Agrément® (hereinafter 'Agrément') relates to Warmshell Internal (hereinafter the 'System'). The System is an adhesively fixed, wood-fibre (hereinafter 'WF') insulated, internal wall insulation (IWI) system. If required, the System can also include supplementary mechanical fixings. The System is for use in the internal face of external masonry walls, 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. The System is for existing dwellings.

**DESCRIPTION**

The System comprises WF insulation boards, which are adhesively fixed to the existing supporting wall. If required, the WF insulation boards can also be mechanically fixed. A layer of plaster with reinforcement mesh is then applied to the WF insulation boards and finished with a secondary layer of plaster.

**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

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 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.

**Strength** - see Section 2.2.8 - the System has adequate strength and is designed to adequately resist impact damage.

**Fire performance** - see Section 2.2.9 - the System is classified as European Classification B-s1, d0, in accordance with BS EN 13501-1.

**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 System shall have a service life durability equivalent to that of the building into which it is incorporated.

**UKCA, UKNI and CE marking** - see Section 2.2.12 - the 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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## 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 the installation company (hereinafter '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 and Northern 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](http://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 use of the System.

Table 1 - Integral components

Component	Description	Dimensions
Warmshell board adhesive	breathable, active moisture-wicking adhesive with a high lime content and natural biocidal properties	
Warmshell WF boards	breathable, rigid WF insulation boards in accordance with BS EN 13171, with compressive strength of 100 kPa and tensile strength of 10 kPa, density of 165 kg/m <sup>3</sup> and thermal conductivity of 0.043 W/mK	1,860 mm by 590 mm, 40 mm and 60 mm thick
	breathable, rigid WF insulation boards in accordance with BS EN 13171, with compressive strength of 70 kPa and tensile strength of 10 kPa, density of 130 kg/m <sup>3</sup> and thermal conductivity of 0.040 W/mK	1,860 mm by 590 mm, 80 mm and 100 mm thick
Solo plaster	a cement-free plaster consisting of selenitic lime, sand, chalk and other additives	
Solo mesh	alkali-resistant, glass-fibre reinforcing mesh with a nominal weight of 160 g/m <sup>2</sup>	50 m by 1 m, 4 mm by 5 mm grid size

#### 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:

- masonry/concrete block supporting walls;
- Warmshell XPS plinth boards;
- Duro levelling coat (optional);
- Ejoy H1 eco Fixing (optional).

### 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.

The Specifier shall determine the suitability of the System to be used on walls in the specific exposure zone detailed in BRE Report 262 on a project-specific basis, with the appropriate local wind-driven rain index, in accordance with BS 8104.

Detailing shall be carried out to a high standard to avoid the ingress of water into the wall construction. The risk of water penetration will cause substantial damage to a wall construction incorporating the System and the thermal benefit of the insulation will be reduced.

The System shall be installed above DPC level and a minimum of 150 mm above ground level.

For walls that are below the external finished ground level or DPC, Warmshell XPS plinth boards shall be fitted. However, this falls outside of the scope of this Agrément.

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 loads;
- safely transfer loads to the building.

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, in accordance with BS 6093.

For junctions to internal solid walls, where the insulation thickness exceeds 60 mm, the returns shall also be insulated to a minimum of 200 mm along the party/internal wall.

An additional levelling coat may be used if the unevenness of the existing wall exceeds 8 mm. However, this falls outside of the scope of this Agrément.

#### 2.2.1.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Specifier;
- 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 Specifier shall ensure that the following considerations are included in the development of a project-specific design:

- adequacy of supporting wall;
- thermal transmittance (hereinafter 'U-value') requirements;
- thermal expansion effects of the supporting wall and the System;
- likely local impact resistance.

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

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').

#### 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).

The checks shall include:

- moisture factors;
- breathability of existing walls;
- existing damp issues;
- degree of wind-driven rain;
- ventilation.

#### 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 can be undertaken by competent persons experienced in this type of work.

#### 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.

#### 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 plaster;
- signs of damp, discoloration or black mould;
- signs of deterioration and cracks in the pointing mortar or render of the external wall;
- integrity of the sealant around openings and service entry points.

If the System shows signs of damp, an assessment shall establish whether the damp is caused by external moisture sources or from condensation forming on the walls from internal moisture sources. The System shall then be repaired in accordance with the Agrément holder's Maintenance Guide.

Any damage areas shall be repaired immediately, in accordance with the Agrément holder's Maintenance Guide.

Maintenance shall include the 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.

## Performance factors in relation to the Major Points of Assessment

### 2.2.7 Moisture control

#### Condensation risk

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.

Moisture risk to the building incorporating the System shall be assessed using hygrothermal modelling tools, in accordance with BS 5250 and BS EN 15026.

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.

For Very Severe Exposure Zones (Zone 4) in accordance with BRE Report 262, the Specifier shall integrate the ventilation strategy for the building into the design and consider wind-driven rain and permeability of existing materials by modelling, using WUFI Analysis.

#### 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 to the external walls, in accordance with BS 6093.

### 2.2.8 Strength

The external supporting wall shall have sufficient strength to withstand all wind, dead and imposed loads that could be applied during installation of the System. The strength of the supporting wall shall be verified by a suitably qualified engineer. The project-specific design shall ensure that the System has adequate bond strength for the attachment to the supporting wall.

Care shall be taken during the use of the System as it is prone to cracking when subjected to hard-body impacts. Impact actions shall be tested in accordance with EAD 040083-00-0404 - see Section 2.5.2.

### 2.2.9 Fire performance

The System is classified as European Classification B-s1, d0, in accordance with BS EN 13501-1.

The WF insulation board is not classified as 'non-combustible' or 'of limited combustibility', in accordance with the relevant national Building Regulations.

As the System is installed in an internal cavity, for buildings incorporating the System in England, Wales, Scotland and Northern Ireland, the following applies in accordance with the national Building Regulations:

- the System is restricted to buildings with no floor more than 18 m above ground level. Refer to the national Building Regulations for types of buildings and any exclusions that may apply;
- boundary restrictions will apply dependent on the outermost surface materials of the completed external wall, facing the boundary.

The fire resistance of walls is based on the occupancy, size and use of the 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.

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

#### Proximity of flues and appliances

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

### 2.2.10 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 to avoid the ingress of water into the WF insulation board and to obtain the full thermal benefit from the installation of the System. Any moisture penetration will affect the thermal conductivity. The System is designed to minimise moisture penetration to the WF insulation board.

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 WF insulation board thickness, fixing method, type of mechanical fixing, and insulating value of the supporting wall and its internal and external finishes.

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 declared thermal conductivity ( $\lambda_D$ ) of the WF insulation board - 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 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 System shall have a service life durability equivalent to that of the building into which it is incorporated. The expected lifespan of the building itself shall be at least 60 years.

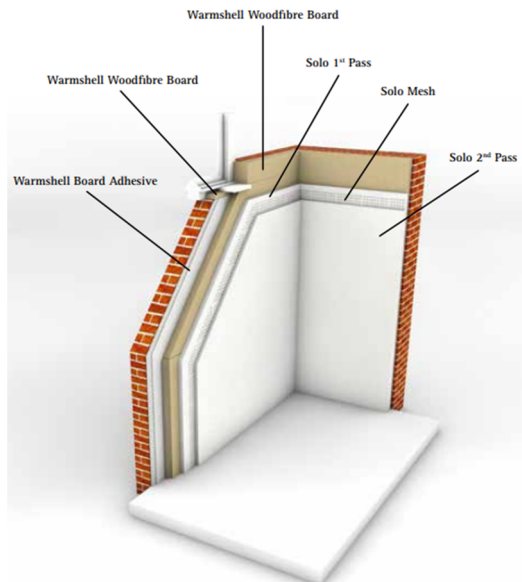
Once installed, the System is not susceptible to damage from environmental conditions normally encountered in the UK. The System has a maintenance regime in accordance with Section 2.2.6.

### 2.2.12 UKCA, UKNI and CE marking

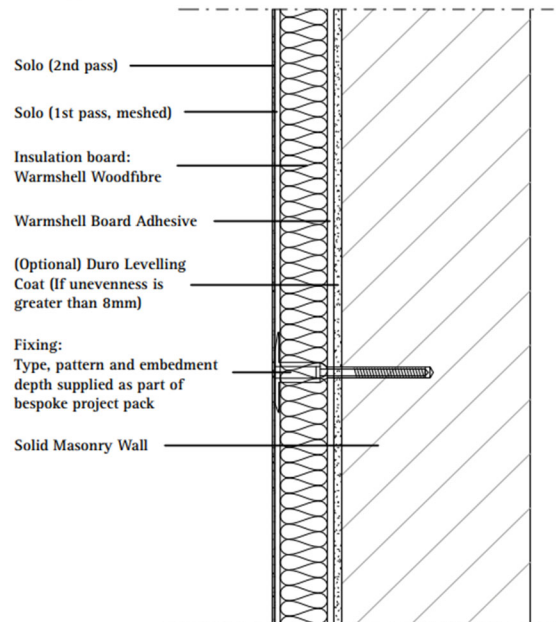
There is no relevant Product standard for the System.

## 2.3 EXAMPLES OF TYPICAL DETAILS

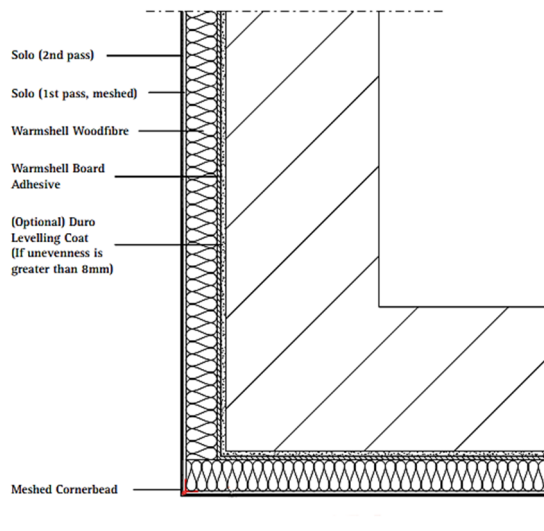
**Diagram 1 - typical build up detail**



**Diagram 2 - typical cross section detail**



**Diagram 3 - typical external corner detail**



**Diagram 4 - typical internal corner detail**

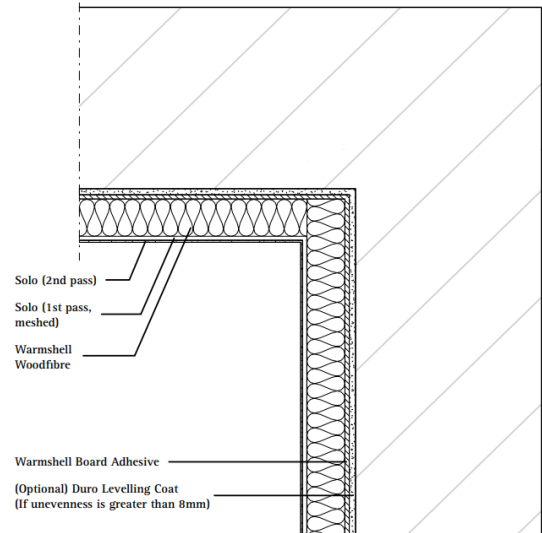


Diagram 5 - typical window detail

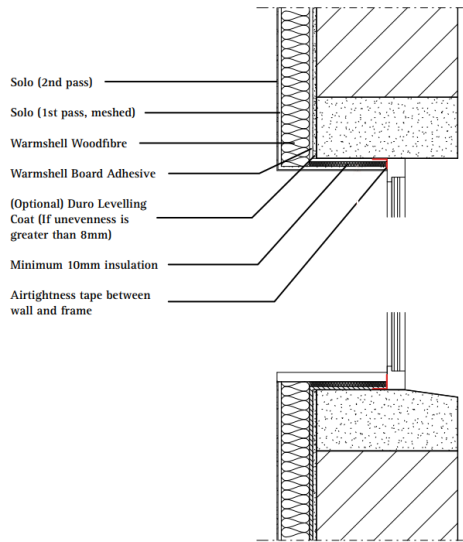
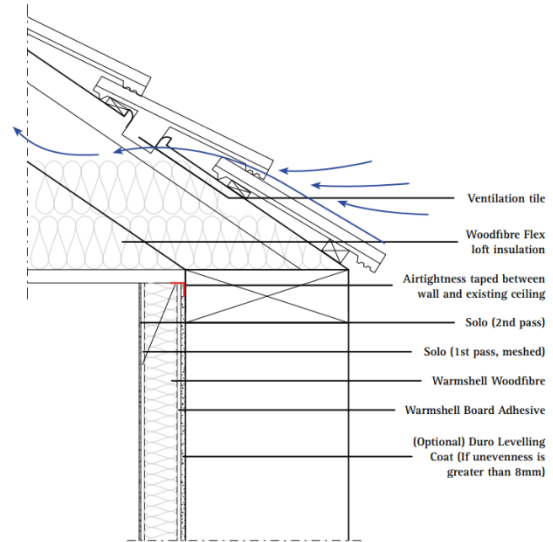


Diagram 6 - typical eaves detail



## 2.4 INSTALLATION

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.

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

- there is no existing rising damp and there are no signs of damp on the inner face of the supporting wall, other than that 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 national Building Regulations;
  - vapour permeable and all non-vapour permeable coatings have been removed.

### 2.4.2 Preparation

The following works shall be undertaken before installing the System:

- if necessary, remove the existing plaster to determine the required thickness of Duro levelling coat for dubbing out/parge coating to level the substrate;
- remove all existing wallpaper; avoid using steam to reduce excessive moisture;
- remove impermeable coatings such as oil-based paints; scratch and score existing emulsion paints;
- carefully remove all existing features such as skirting and plasterboards;
- reroute electrical services away from the wall or make good services to receive the System;
- cut back floorboards to the depth of the WF insulation boards and provide access to fit insulation in the intermediate floor zone.

### 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:

- cut WF insulation boards to fit tightly against abutting surfaces, working from the bottom to the top of the wall;
- apply Warmshell board adhesive using a toothed trowel over the full surface of the back of the WF insulation boards;
- install the WF insulation boards to the supporting wall above DPC level at base of the wall, or 150 mm above ground level;
- press the WF insulation boards against the wall and slide them into place while the Warmshell board adhesive is still wet, to eliminate air gaps;
- fit the WF insulation boards in a 'brick bond' pattern with a minimum 200 mm offset between courses;
- on curved walls, apply mechanical fixings through the WF insulation boards with a minimum embedment of 35 mm into the supporting wall;
- apply a first pass of Solo plaster, approximately 4 to 6 mm thick, and fully embed the reinforcement mesh from top to bottom, ensuring a 100 mm overlap with adjacent reinforcement mesh;
- apply beadings to corners and additional reinforcement mesh patches around all openings, such as window reveals, doors etc.;
- while the first pass of Solo plaster is still wet, apply a second pass of Solo plaster, 4 to 6 mm thick;
- once the Solo plaster is firm, 'draw out' some of the lime to the surface using a wet sponge;
- level the surface using a steel or flexible trowel.

### 2.4.4 Finishing

The following finishing is required on completion of the installation:

- check all trunked air vents to verify they are clear and unobstructed;
- apply mastic sealant around windows, door frames, etc.

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 any defects shall be reported immediately.



## 2.5 INDEPENDENTLY ASSESSED SYSTEM CHARACTERISTICS

### 2.5.1 Moisture control

Test		Standard	Result
Water absorption (short term)		BS EN 1609	1 kg/m <sup>2</sup>
Water vapour diffusion - resistance factor ( $\mu$ )	40 mm, 60 mm thick WF board	BS EN ISO 12572	4
	80 mm, 100 mm thick WF board		3

### 2.5.2 Strength

Test		Standard	Result
Compressive strength at 10 % deformation	40 mm, 60 mm thick WF board	BS EN 826	100 kPa
	80 mm, 100 mm thick WF board		70 kPa
Tensile strength		BS EN 1607	10 kPa
Hard-body impact		EAD 040083-00-0404	10 Joules

### 2.5.3 Fire performance

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

### 2.5.4 Thermal performance

Test		Standard	Result
Thermal conductivity ( $\lambda_D$ )	40 mm, 60 mm thick WF board	BS EN 12667	0.043 W/mK
	80 mm, 100 mm thick WF board		0.040 W/mK

### 2.5.5 Acoustic performance

Test		Standard	Result
Airflow resistivity	40 mm, 60 mm thick WF board	BS EN 29053	60 kPa·s/m <sup>2</sup>
	80 mm, 100 mm thick WF board		50 kPa·s/m <sup>2</sup>

#### 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 Loading - the System can sustain impact loads and transmit dead loads to the supporting structure
- B2 Internal fire spread (linings) - the System can contribute to satisfying this Requirement
- 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 23(1) Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)

##### 3.2.2 Wales

###### The Building Regulations 2010 and subsequent amendments

- A1 Loading - the System can sustain impact loads and transmit dead loads to the supporting structure
- B2 Internal fire spread (linings) - the System can contribute to satisfying this Requirement
- 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 23(1) Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)

##### 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 9 Building Standards - construction

- 1.1 Structure - the System can sustain impact loads and transmit dead loads to the supporting structure
- 2.5 Internal linings - the System can contribute to satisfying this Requirement
- 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

###### 3.2.3.3 Regulation 12 Building Standards - conversions

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

##### 3.2.4 Northern Ireland

###### The Building Regulations (Northern Ireland) 2012 and subsequent amendments

- 23(1)(a)(i)(iii)(b) Fitness of materials and workmanship - the System is manufactured from suitably safe and durable materials for its application and can be installed to give a satisfactory performance
- 29 Condensation - the System can contribute to satisfying this Requirement
- 30 Stability - the System can sustain impact loads and transmit dead loads to the supporting structure
- 34 Internal fire spread - Linings - the System can contribute to satisfying this Requirement
- 39(a)(i) Conservation measures - the System can contribute to satisfying this Requirement
- 40(2) Target carbon dioxide emission rate - the System can contribute to satisfying this Requirement
- 43 Renovation of thermal elements - the System can contribute to satisfying this Requirement

#### 3.3 THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

## 4 SOURCES

- BS EN ISO 6946:2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods
- BS EN ISO 9001:2015 Quality management systems. Requirements
- BS EN ISO 10211:2017 Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations
- BS EN ISO 10456:2007 Building materials and products. Hygrothermal properties. Tabulated design values and procedures for determining declared and design thermal values
- BS EN ISO 12572:2016 Hygrothermal performance of building materials and products. Determination of water vapour transmission properties
- BS EN 826:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 1607:2013 Thermal insulating products for building applications. Determination of tensile strength perpendicular to faces
- BS EN 1609 Thermal insulating products for building applications. Determination of short term water absorption by partial immersion
- 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 13171:2012+A1:2015 Thermal insulation products for buildings. Factory made wood fibre (WF) products. Specification
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests
- BS EN 15026:2007 Hygrothermal performance of building components and building elements. Assessment of moisture transfer by numerical simulation
- BS EN 29053:1993 Acoustics. Materials for acoustical applications. Determination of airflow resistance
- 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 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 040083-00-0404:2019 External thermal insulation composite systems (ETICS) with renderings
- Government Accredited Construction Detail for Part L:2019
- 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

**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	June 2023
A	Update to Fire performance	A Chapman	C Devine	March 2024

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