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BAW-24-342-S-A-UK
BDA Agrément®
SuperFOIL SF19+ Internal Wall Insulation System

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SCOPE OF AGRÉMENT

This BDA Agrément® (hereinafter 'Agrément') relates to SuperFOIL SF19+ Internal Wall Insulation System (hereinafter the 'System'). The System comprises a mechanically fixed, flexible, lightweight, multi-foil blanket for use as an insulation and reflective vapour control layer (hereinafter 'VCL'), installed on timber battens using staples and counter-battened using mechanical fixings, encapsulated with a mechanically installed gypsum plasterboard^. The System is for installation on the inner face of the external masonry or solid walls. The System is for existing and new residential and non-residential buildings.
^ the gypsum plasterboard is outside the scope of this Agrément

DESCRIPTION

The System consists of SuperFOIL SF19+ reflective insulation and VCL, an insulation blanket consisting of eleven layers, comprising polyester fibre wadding layers separated by Mpet foil layers and faced with a reflective aluminium foil vapour control layer. All joints of the insulation are sealed with SuperFOIL MultiFOIL Tape. The insulation is stapled to vertical or horizontal timber battens which are fixed on the supporting wall, and counter timber battens, installed horizontally or vertically on the insulation, mechanically fixed through the insulation to the timber battens.

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

Alpheo Mlotha CEng FIMMM MBA
Business Unit Manager, Building Products

SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, specialists, engineers, building control personnel, contractors, installers and other construction industry professionals who are considering the safety and fitness for purpose of the 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 will contribute to limiting the risk of interstitial and surface condensation.

Strength - see Section 2.2.8 - the System has adequate performance in respect to:

- tensile strength;
- resistance to tearing.

Fire performance - see Section 2.2.9 - the System is classified as European Classification E, 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.

CONTENTS

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.

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
SuperFOIL SF19+	reflective insulation blanket consisting of eleven layers, consisting of 3 separate elements: SFTV reflective VCL, Mpet inner foil and fibre wadding; thermal conductivity of 0.035 W/mK	1.2 or 1.5 m wide by 10 m long by 50 mm thick rolls
wall timber battens	pre-treated timber battens	minimum 47 mm thick by 47 mm wide
counter timber battens	pre-treated timber counter battens	
mechanical fixings	polyamide-plated screws, for counter battens	5 mm diameter by 80 mm long
staples	stainless steel or galvanised steel	minimum 14 mm long

The components listed in Table 2 may be used in conjunction with the System, but fall outside the scope of this Agrément.

Table 2 - Additional components

Component	Description	Dimensions
SuperFOIL MultiFOIL Tape	aluminium foil-glass fibre woven reinforced tape	75 or 100 mm wide by 20 m long rolls, 0.2 mm thick
plasterboard lining	gypsum plasterboard manufactured from gypsum core between paper liners, in accordance with BS EN 520	12.5 mm thick, 1.2 m by 2.4 m, 7.7 kg/m^2 weight, μ 10
plasterboard fixings	zinc-plated screws	3.5 mm diameter by 38 mm long
wall batten fixings	polyamide-plated screws	7.5 mm diameter by 80 mm long

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:

- substrate (masonry or stone supporting walls);
- plasterboard finish/coating;
- scrim tape for plasterboard;
- rubber 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.

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.

Existing external walls shall be structurally sound, in a good state of repair, and free from any damp or mould.

New external walls shall be designed and constructed to resist moisture penetration and air infiltration, in accordance with the relevant Codes and Standards.

Care shall be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration.

Timber battens shall be pre-treated with preservatives to give adequate resistance against decay and insect attack.

The uncompressed insulation is most thermally effective with a minimum 20 mm non-ventilated air cavity (formed using timber and cross timber battens) on both sides of the insulation.

Overlaps of the insulation shall be minimum 50 mm wide. Lap joints and edges of the insulation, including around penetrations, shall be sealed appropriately using SuperFOIL MultiFOIL Tape.

The plasterboard wall lining used to encapsulate the System shall be designed and installed in accordance with BS 8000-8.

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.

A pre-installation survey is required to allow determination of the project-specific design - see Section 2.4.1.

A condensation risk analysis shall be carried out at project-specific design stage, in accordance with BS 5250.

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.

When required, particular care shall be taken to:
- avoid exposure to direct sunlight or high/low temperatures for extended periods of time;
- store in a well-ventilated, covered area to protect from rain, moisture, frost and humidity;
- store away from possible ignition sources, organic solvents and plasticisers;
- protect from mud and dirt.

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

Performance factors in relation to the Major Points of Assessment

2.2.7 Moisture control
Condensation risk
External walls incorporating the System can adequately limit the risk of interstitial and surface condensation when designed in accordance with BS 5250 and BRE Report 262. Room spaces shall be ventilated in accordance with BS 5250. Care shall be taken to provide adequate trickle ventilation, particularly in rooms expected to experience high humidity.

The risk of condensation occurring will depend upon the effectiveness of the insulation's installation, the internal and external conditions and the properties and vapour resistance of other materials used in the wall construction.

The Specifier shall carry out a condensation risk analysis (CRA) at design stage on a project-specific basis, in accordance with BS 5250 and BRE Report 262, including an assessment of junctions, openings and penetrations.

The performance of the insulation incorporated in the System in relation to water vapour permeability in accordance with BS EN 1931 is detailed in Section 2.5.1.

The insulation incorporated in the System will perform as a VCL when installed with overlaps sealed using SuperFOIL MultiFOIL Tape.

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 System shall be designed to withstand dead and impact loads in accordance with BS EN 1991-1-1.

The project-specific design shall ensure that the System has adequate fixings strength for the attachment to the supporting structures.

The insulation incorporated in the System has adequate strength to resist minor damage during installation. Care shall be taken to protect the insulation from damage when handling building materials and tools during installation, until it is fully covered with plasterboard.

The external supporting wall shall have sufficient strength to withstand 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.

2.2.9 Fire performance

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

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 30-minute intervals thereafter. The System shall be covered by a plasterboard lining fixed to battens and with all joints taped, sealed and supported by studs, noggins or battens, to give a minimum 30-minute fire rating.

External walls shall be designed and constructed:

- to adequately resist the passage and penetration of fire;
- so that the unseen spread of fire and smoke with concealed spaces in a wall is inhibited.

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

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

The insulation incorporated in the System shall not be applied over junctions between floors and compartment walls or external walls that are required to provide a minimum period of fire resistance. Care shall be taken to ensure continuity of fire resistance at junctions, around openings and service penetrations with fire-resisting elements, in accordance with the national Building Regulations.

The insulation component of the System shall:

- be suitably separated from any potential source of ignition during installation and once incorporated in an external wall build-up;
- be separated from any heat-producing chimney, ductwork or flue pipe penetrations of an external wall, as recommended in the supporting documents to the national Building Regulations;
- not be in contact with heat sources greater than 80 °C;
- not be applied inside electric outlets or junction boxes.

Proximity of flues and appliances

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

2.2.10 Thermal performance

Thermal conductivity

The U-value of a completed wall will depend on the insulation thickness, the wall structure and its coverings.

The insulation incorporated in the System can be used to upgrade a wall that has existing insulation, to meet current U-value requirements.

For the purpose of U-value calculations, and to determine if the requirements of the national Building Regulations are met, the thermal resistance and U-value of walls incorporating the internal wall insulation 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 (λ_D). Design and declared thermal values of other building materials can be found in BS EN ISO 10456.

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 an appropriate thickness of the internal wall insulation does not exceed the maximum U-values given in the national Building Regulations.

Thermal bridging at junctions and around openings

Care shall be taken in the overall design and construction of junctions with other elements and openings, to minimise cold bridging and air infiltration. Due consideration shall be given to the 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.

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 detail of System cross section installation

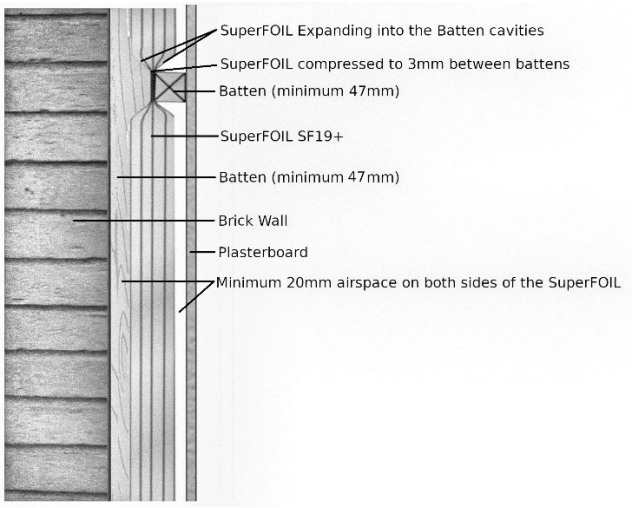

Diagram 2 - Typical detail of System installation with battens and plasterboard

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:

- existing walls are:
  - structurally sound, in a good state of repair with no evidence of underlying defects, rain penetration, frost damage, dampness, staining or condensation;
  - watertight, clean and meet the requirements of the relevant national Building Regulations;
  - vapour permeable and that all non-vapour permeable coatings have been removed;
- the work area for any existing damage that may require repairs to be inspected;
- insulation areas and required material quantities are confirmed and measured;
- checks for asbestos-containing materials are complete;
- condition of surrounding areas (e.g., floors, walls, ceilings) for suitability are assessed;
- windows are intact with no signs of water leakage.

2.4.2 Preparation

The following considerations apply before starting the work:

- the internal wall insulation can be cut using a utility knife, electric rotary cutter or heavy-duty shears;
- timber batten can be cut using an appropriate tool, such as handsaw, power saw or similar;
- the insulation component shall be cut to fit around openings or connections. Any gaps shall be minimised and any exposed cut edges shall be sealed using SuperFOIL MultiFOIL Tape;
- if required, arrangements for isolating or removing services (gas, electric, water, telephone);
- planning for scaffolding or ladders, ensuring proper safety measures are in place for workers;
- all ventilation outlets within the external wall should be preserved, as required, to ensure adequate ventilation into the property is maintained.

The following works shall be undertaken before installing the System:

- 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 components.

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 timber battens as required (vertically or horizontally) to the wall at maximum 600 mm centres, starting from top-to-bottom and around the perimeter of openings;
- install SuperFOIL SF19+ insulation either vertically or horizontally depending on wall height;
- pull tightly and staple to the battens at maximum 300 mm centres;
- allow an overlap of 50 mm at each joint and staple onto the battens;
- tape and seal all overlap joints and penetrations using SuperFOIL MultiFOIL Tape, ensuring a fully airtight seal is achieved;
- fix counter battens (horizontally or vertically) perpendicularly to the timber battens at maximum 600 mm centres while compressing the insulation;
- finish the installation by installing a suitable plasterboard lining.

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.

2.5 INDEPENDENTLY ASSESSED SYSTEM CHARACTERISTICS

2.5.1 Moisture control

Test		Standard	Result
Watertightness (at 2 kPa)		BS EN 1928, Method A	pass
Water vapour diffusion resistance factor (μ)	initial	BS EN 1931, Method B	1.82×10^6
	after heat ageing (BS EN 1296)		2.05×10^6
Water vapour resistance	initial		1,365 MNs/g
	after heat ageing (BS EN 1296)		2,050 MNs/g

2.5.2 Strength

Test		Standard	Result
Resistance to tearing (nail shank)	Longitudinal	BS EN 12310-1	275 N
	Transverse		305 N
Tensile strength (initial)	Longitudinal	BS EN 12311-2, Method A	606 N/50 mm
	Transverse		514 N/50 mm
Tensile strength at break (after heat ageing)	Longitudinal		580 N/50 mm
	Transverse		526 N/50 mm
Elongation at break (initial)	Longitudinal		24 %
	Transverse		23 %
Elongation at break (after heat ageing)	Longitudinal		24 %
	Transverse		23 %
Soft-body impact^		EAD 090062-00-0404	Category III (10 Joules)

^ Wall structure comprises 52 mm by 37 mm timber battens installed horizontally, SuperFOIL SF 19+, 45 mm by 45 mm cross timber battens fixed at 560 mm centres with battens' fixings, 12.7 mm thick plasterboard fixed at 250 mm centres with plasterboard's fixings

2.5.3 Fire performance

Test	Standard	Result
Reaction to fire^	BS EN 13501-1	E

^ SuperFOIL SF19+ tested loosely behind plasterboard and loose laid over calcium silicate board

2.5.4 Thermal performance

Test		Standard	Result
Thermal conductivity (λ_D)	SuperFOIL SF19+	BS EN 12667	0.035 W/mK
Thermal resistance			1.50 m^2K/W
Property calculations			
Thermal transmittance (U-value) example^		BS EN ISO 6946	0.30 W/m^2K

^ the wall build up comprises a 215 mm thick brick outer leaf, 47 mm thick cavity formed from timber battens, SuperFOIL SF19+ compressed to 3.3 mm thickness with overlaps and joints taped and sealed using SuperFOIL MultiFOIL tape, 47 mm thick cavity formed from timber battens, 12.5 mm thick plasterboard and a 3 mm thick plasterboard skim, for a total thickness of 327.8 mm

3 CDM, NATIONAL BUILDING REGULATIONS AND THIRD-PARTY ACCEPTANCE

3.1 THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 AND THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS (NORTHERN IRELAND) 2016

Information in this Agrément may assist the client, principal designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

3.2 THE NATIONAL BUILDING REGULATIONS

In the opinion of Kiwa Ltd., the 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

- C2(c) Resistance to moisture - the System can contribute to limiting the risk of surface and interstitial 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 Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO_2 emission rates for new buildings - the System can contribute to satisfying this Regulation
- Regulation 26A Fabric energy efficiency rates for new buildings - the System can contribute to satisfying this Regulation
- Regulation 26C Target primary energy rates for new buildings - the System can contribute to satisfying this Regulation

3.2.2 Wales

The Building Regulations 2010 and subsequent amendments

- C2(c) Resistance to moisture - the System can contribute to limiting the risk of surface and interstitial 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 Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO_2 emission rates for new buildings - the System can contribute to satisfying this Regulation
- Regulation 26A Primary energy rates for new buildings - the System can contribute to satisfying this Regulation
- Regulation 26B Fabric performance values for new dwellings - the System can contribute to satisfying this Regulation
- Regulation 26C Energy efficiency rating - the System can contribute to satisfying this Regulation

3.2.3 Scotland

The Building (Scotland) Regulations 2004 and subsequent amendments

3.2.3.1 Regulation 8 (1)(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

- 3.15 Condensation - the System can contribute to limiting the risk of surface and interstitial condensation
- 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 limiting the risk of surface and interstitial condensation
- 39(a)(i) Conservation measures - the System can contribute to satisfying this Requirement
- 40(2) Target carbon dioxide emission rate - a wall incorporating the System must be designed and constructed as not to exceed its target CO_2 emission rate
- 43 Renovation of thermal elements - the renovation work carried out can ensure that external wall complies with Requirement 39(a)(i)

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+A1:2024 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 520:2004+A1:2009 Gypsum plasterboards. Definitions, requirements and test methods
- BS EN 1296:2001 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roofing. Method of artificial ageing by long term exposure to elevated temperature
- BS EN 1928:2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness
- BS EN 1931:2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of water vapour transmission properties
- BS EN 1991-1-1:2002 Eurocode 1. Actions on structures - General actions - Densities, self-weight, imposed loads for buildings
- NA to BS EN 1991-1-1:2002 UK National Annex to Eurocode 1. Actions on structures - General actions. Densities, self-weight, imposed loads for buildings
- BS EN 12310-1:2000 Flexible sheets for waterproofing. Determination of resistance to tearing (nail shank). Bitumen sheets for roof waterproofing
- BS EN 12311-2:2013 Flexible sheets for waterproofing. Determination of tensile properties. Plastic and rubber sheets for roof waterproofing
- BS EN 12667:2001 Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests
- BS 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+A1:2024 Workmanship on construction sites. Introduction and general principles
- BS 8000-8:2023 Workmanship on construction sites. Design and installation of dry lining systems. Code of practice
- 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 090062-00-0404:2018 Kits for external wall claddings mechanically fixed
- PAS 2030:2023 Installation of energy efficiency measures in existing dwellings. Specification
- PAS 2035:2023 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	C Hewer	C Devine	April 2025
A	Addition of U-value information	A Tsourlini	C Devine	July 2025

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®.

For full terms and conditions, refer to Kiwa Ltd.