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BDA Agrément®
NatureWall IWI
Internal Wall Insulation System

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SCOPE OF AGRÉMENT

This BDA Agrément® (hereinafter 'Agrément') relates to NatureWall IWI (hereinafter the 'System'). The System is an internal wall insulation (IWI) system, comprising wood-fibre (hereinafter 'WF') insulation and a vapour control layer (hereinafter 'VCL'). The System is for use in the internal face of external masonry (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks) or concrete supporting walls, for installation above damp-proof course (hereinafter 'DPC') level. The System is for existing residential and non-residential buildings.

DESCRIPTION

The System consists of tongue-and-groove WF insulation boards which are mechanically fixed to the supporting wall, a VCL and flexible WF insulation boards pressure fitted in-between the timber stud frame, which is mechanically fixed to the supporting wall.

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
Technical Compliance 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 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 transfer loads to the main structure.

Fire performance - see Section 2.2.9 - the integral System components (detailed in Table 1) are 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 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 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 (mm)		
		Length	Width	Thickness
UdiTherm NF	tongue-and-groove WF insulation board, with density of 150 kg/m^3, λ_D 0.038 W/mK, manufactured in accordance with BS EN 13171, mechanically fixed to the supporting wall	1,186	366	40 and 60
STEICOFlex 036	flexible WF insulation board, with density of 50 kg/m^3, λ_D 0.036 W/mK, manufactured in accordance with BS EN 13171, fitted in-between the timber stud frame	1,190	575	40 and 50
Ampatex Variano 3	0.29 mm thick VCL with nominal weight of 86 g/m^2 ± 10 %, manufactured in accordance with BS EN 13984, bonded to the UdiTherm NF WF insulation board using Ampacoll DT double-sided tape (outside the scope of this Agrément)			

2.1.2 Ancillary items falling outside the scope of this Agrément

The following ancillary items detailed in this Section are used in conjunction with the System, but fall outside the scope of this Agrément:

- Ampacoll DT double-sided tape (hereinafter 'double-sided tape') - for bonding the VCL onto UdiTherm NF;
- Ampacoll Fenax 15/60 tape - to seal around openings;
- Ampacoll Fenax 40/60 tape - to seal joins and around the perimeter of the wall.

The following ancillary items detailed in this Section may also be used in conjunction with the System, but fall outside the scope of this Agrément:

- masonry and concrete supporting wall (hereinafter 'supporting wall');
- masonry water repellent cream;
- airtight foam tape;
- plaster skim;
- plasterboard lining and mechanical fixings;
- mechanical fixings to install UdiTherm NF insulation board onto the supporting wall;
- timber stud frame and mechanical fixings to install the studs to the supporting wall;
- 20 mm wood fibre reveal boards;
- drilling equipment;
- levelling coat;
- finishes.

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.

Existing external walls shall be:

- weathertight, structurally sound, in good state of repair and free from any damp or mould;
- vapour permeable to ensure that moisture can escape from inside the building.

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

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.

All penetrations and junctions through the System shall be fully sealed with sealant/tape to prevent air leakage and a reduction in the System performance.

Care is needed for design detailing of joints around openings, penetrations and movement joints, in accordance with BS 6093.

The VCL shall be continuous and airtight across the entire wall. Junctions, penetrations and edges (e.g. around sockets, windows and floors) shall be carefully sealed using Ampacoll Fenax 15/60 and 40/60 tapes and appropriate sealants to maintain the integrity of the VCL.

The plasterboard wall lining used to encapsulate the System must satisfy the fire performance requirements and be designed and installed in accordance with BS EN 520 and BS 8000-8. However, this falls outside the scope of this Agrément.

Timber battens shall be preservative treated and comply with the recommendations given in BS EN 335, BS EN 350 and BS 8417.

The project- specific design shall ensure that:
- UdiTherm NF insulation has adequate fixings strength for the attachment to the supporting wall;
- timber studs have adequate fixings strength for the attachment to the supporting wall;
- the bonding strength of the VCL onto the UdiTherm NF insulation is adequate.

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.

A WUFI analysis shall be carried out at project-specific design stage, in accordance with BS EN 15026.

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 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 and high or low temperatures for extended periods of time;
- store in a well-ventilated, covered area to protect from rain, frost and humidity;
- store away from possible ignition sources, organic solvents, chemicals and plasticisers;
- store components so as to avoid the edges or corners being crushed;
- protect from mud and dirt.

2.2.6 Maintenance and repair
Once installed, the System requires regular maintenance. 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;
- 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;
- signs of damage to the plasterboard.

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 damaged 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 EN 15026. 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 and VCL'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 BS EN 15026, including an assessment of junctions, openings and penetrations.

For Severe (Zone 3) and Very Severe (Zone 4) exposure zones, 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.

Care shall be taken to protect the VCL from damage when handling building materials and tools during installation.

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 and suitability of the supporting wall shall be verified by a suitably qualified engineer. The project-specific design shall ensure that the System has adequate bond and mechanical strengths for the attachment to the supporting wall.

The System shall be designed to withstand dead and imposed loads and safely transfer loads to the building, in accordance with BS EN 1991-1-1.

2.2.9 Fire performance

The following System components are classified as European Classification E, in accordance with BS EN 13501-1:
- UdiTherm NF WF insulation board;
- STEICOFlex 036 flexible WF insulation board;
- Ampatex Variano 3 VCL.

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.

Walls shall be designed and constructed to adequately resist the passage and penetration of fire.

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, designers 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.

Proximity of flues and appliances

The components 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.

2.2.10 Thermal performance

The System can assist in reducing the U-value of wall construction. It is essential that detailing is carried out to a high standard to avoid the ingress of water into the insulation boards and timber studs frame and to obtain the full thermal benefit from the installation of the System. Any moisture penetration will affect the thermal conductivity. The System shall be designed to minimise moisture penetration to the 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 thicknesses, 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 (λ_D) of the WF insulation boards - see Section 2.5.4. Design and declared thermal values of other building materials can be found in BS EN ISO 10456.

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.

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 built up of the System

Diagram 2 - Typical System detail

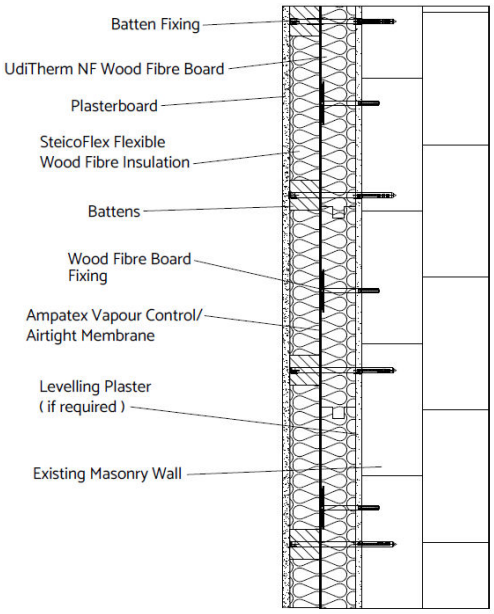


Diagram 3 - Typical corner detail

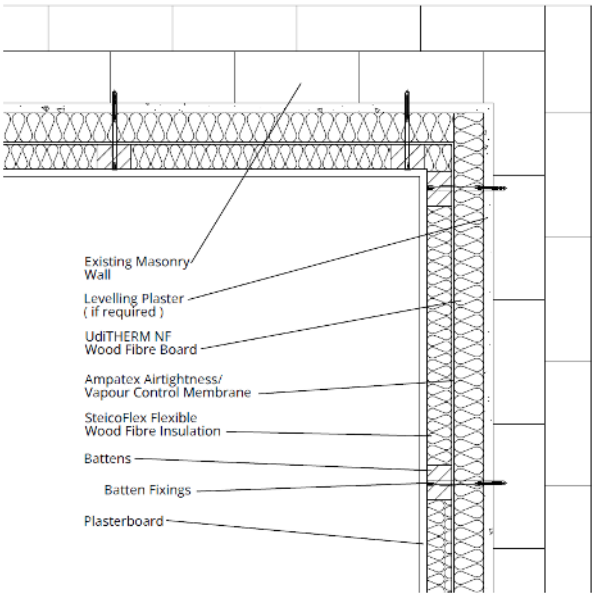
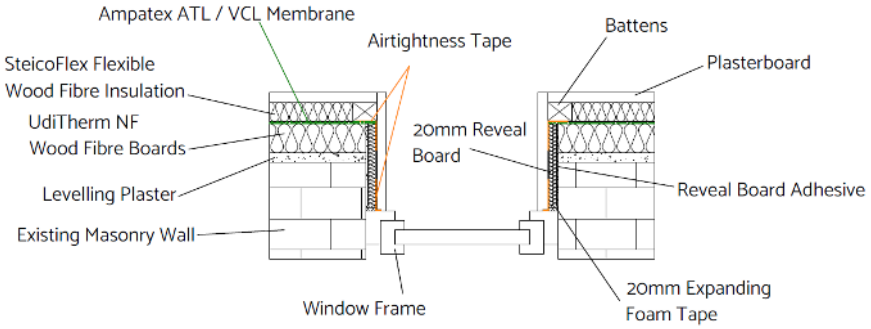


Diagram 4 - Typical window opening detail



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 supporting walls are:
  - structurally sound, in a good state of repair and show no evidence of rain or frost damage;
  - weathertight, 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 has been 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) is deemed suitable;
- openings are intact with no signs of water leakage;
- a levelling coat may be required if the unevenness of the wall exceeds 4 mm. However, this falls outside the scope of the Agrément.

2.4.2 Preparation

The following considerations apply before starting the work:

- care shall be taken to protect the System components from damage when handling during installation;
- if required, arrangements shall be made for isolating or removing services (e.g. gas, electric, water, telephone);
- planning for scaffolding or ladders, ensuring proper safety measures are in place;
- insulation boards shall not be applied inside electrical outlets or junction boxes;
- all ventilation outlets within the external wall shall be preserved, as required, to ensure adequate ventilation in to the property is maintained.

The following works shall be undertaken before installing the System:

- the insulation boards shall be cut to fit around openings or connections. Any gaps shall be minimised and any exposed cut edges shall be sealed;
- reroute electrical services away from the wall or make good services to receive the System components;
- disconnect existing wiring to avoid the risk of electrocution when drilling in fixings;
- for any pre-treatment of the supporting wall prior to installing the System, refer to Agrément holder's Installation Manual.

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 first UdiTherm NF insulation board to the existing supporting wall with suitable mechanical fixings, pushing the board into place to ensure it lies flat against the existing supporting wall;
- continue installing all UdiTherm NF insulation boards without tightening the mechanical fixings until all adjacent insulation boards are installed so the tongue-and-groove joints can be properly engaged;
- apply Ampacoll DT double-sided tape on the surface of UdiTherm NF insulation boards at maximum 1 m centres, and around the perimeter of each wall and edges of all openings;
- install the VCL horizontally to the wall, pressing firmly onto the double-sided tape, ensuring a minimum overlap of 100 mm between adjacent layers;
- affix the timber studs to the supporting wall using suitable mechanical fixings, at maximum 600 mm horizontal spacing centres;
- install horizontal studs around openings and penetrations as required;
- pressure-fit the flexible STEICOFlex 036 insulation boards between the timber studs frame, ensuring there are no gaps between the boards and the studs.

2.4.4 Finishing

The following finishing is required on completion of the installation:

- install plasterboard and any suitable finish;
- check all trunked air vents to verify they are clear and unobstructed;
- apply suitable sealant around windows and door frames as appropriate.

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	System Component	Result
Water vapour diffusion resistance factor (μ)	BS EN ISO 10456	UdiTherm NF	5
	BS EN 12086	STEICOflex 036	2
Diffusion equivalent air layer thickness (S_d)	BS EN ISO 12572	Ampatex Variano 3	0.87 - 57.6 m
Watertightness	BS EN 1928		Pass

2.5.2 Strength

Test		Standard	System Component	Result
Tensile strength perpendicular to surfaces		BS EN 1607	UdiTherm NF	TR2.5
Compressive strength		BS EN 826	UdiTherm NF	CS(10)50
Resistance to impact		BS EN 12691, method A	Ampatex Variano 3	150 mm
Resistance to tearing	Maximum force longitudinal	BS EN 12310-1J		125 N
	Maximum force transversal			110 N

2.5.3 Fire performance

Test	Standard	System Component	Result
Reaction to fire	BS EN 13501-1	UdiTherm NF	E
		STEICOflex 036	
		Ampatex Variano 3	
		Internal Wall System including other elements*	B-s1, d0

* specimen build-up (outside the scope of the Agrément):

- Gypsum pink skim coat plaster Thistle Multifinish 2 mm thick, application rate dry 2.7 kg/m^2, Class A1 in accordance with BS EN 13501-1;
- Gyproc WallBoard Ten plasterboard 12.5 mm thick, density of 10.1 kg/m^2, Class A2-s1, d0 in accordance with BS EN 13501-1, fixed to battens using drywall screws at 150 mm centres;
- Timber battens light brown 50 mm by 25 mm, density of 500 kg/m^3;
- STEICOFlex 036 flexible wood fibre insulation, 50 mm thick, density of 60 kg/m^3;
- Ampatex Variano 3, 0.5 mm thick, weight per area 0.09 kg/m^2, fixed to battens using screws at 380 mm centres with nylon washers;
- UdiTherm NFinsulation 40 or 60 mm thick, density of 160 kg/m^3.

2.5.4 Thermal performance

Test	Standard	System Component	Result
Thermal conductivity (λ_D)	BS EN 12667	UdiTherm NF	0.038 W/mK
		STEICOflex 036	0.036 W/mK

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

- A1 Loading - the System can sustain impact loads and transmit dead loads to the supporting structure
- 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 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
- 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 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
- 3.15 Condensation - the System can be designed and constructed to inhibit surface or 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 satisfying this Requirement
- 30 Stability - the System can sustain impact loads and transmit dead loads to the supporting structure
- 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+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 ISO 12572:2016 Hygrothermal performance of building materials and products. Determination of water vapour transmission
- BS EN 335:2013 Durability of wood and wood-based products. Use classes: definitions, application to solid wood and wood-based products
- BS EN 350:2016 Durability of wood and wood-based products. Testing and classification of the durability to biological agents of wood and wood-based materials
- BS EN 826:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 520:2004+A1:2009 Gypsum plasterboards. Definitions, requirements and test methods
- BS EN 1607:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 1928:2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness
- 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 12086:2013 Thermal insulating products for building applications. Determination of water vapour transmission
- BS EN 12310-1:2000 Flexible sheets for waterproofing. Determination of resistance to tearing (nail shank) - Bitumen 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 12691:2018 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of resistance to impact
- 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 13984:2013 Flexible sheets for waterproofing. Plastic and rubber vapour control layers. Definitions and characteristics
- BS EN 15026:2023 Hygrothermal performance of building components and building elements. Assessment of moisture transfer by numerical simulation
- 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
- BS 8104:1992 Code of practice for assessing exposure of walls to wind-driven rain
- BS 8417:2024 Preservation of wood. 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
- 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	L Tosi	C Devine	March 2026

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