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BAW-23-278-S-A-UK
BDA Agrément®
Wetherby Timber Frame Cavity
Rail Carrier Board System
Uninsulated Façade Cladding
System

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SCOPE OF AGRÉMENT

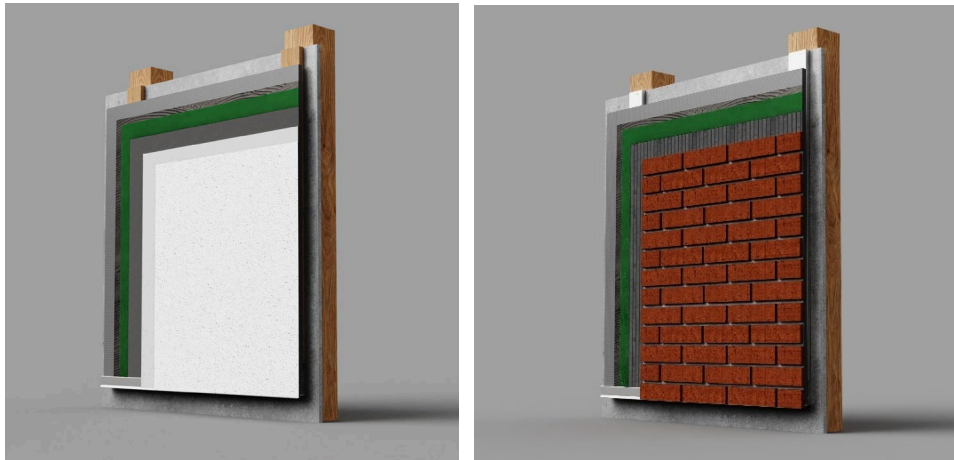
This BDA Agrément® (hereinafter 'Agrément') relates to Wetherby Timber Frame Cavity Rail Carrier Board System (hereinafter the 'System'). The System is a mechanically fixed façade cladding system finished with brick slips, acrylic brick slips or silicone render finish. The System is for installation above damp-proof course (hereinafter 'DPC') level on external sheathed structural timber-frame (hereinafter 'STF') supporting walls; or above or below DPC level on buildings of modular off-site manufacture (hereinafter 'OSM'). The System is for existing and new residential and non-residential buildings.

DESCRIPTION

The System consists of render carrier boards, mechanically fixed into timber battens or galvanised-steel rails (hereinafter 'spacer support battens/rails'), which are mechanically fixed into the sheathing boards that form the outer face of the STF supporting wall. This forms a drained and partially ventilated cavity between the sheathing boards and the render carrier board. The resultant cavity shall have a minimum depth of 15 mm. If required, the cavity can be formed to a maximum depth of 50 mm, depending on the profile of the spacer support battens/rails used. The System can incorporate silicone, brick slip or acrylic brick slip finishes:

- adhesive and primer is applied before the application of a silicone finish;
- adhesive is applied before the application of the brick slip or acrylic brick slip finishes; the brick slips are then pointed with mortar.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

See Section 3.3 (Third-Party Acceptance).

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 provide a degree of protection against rainwater ingress.

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

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

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

Durability - see Section 2.2.10 - the service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used.

UKCA, UKNI and CE marking - see Section 2.2.11 - the manufacturers of the constituent products used within the System have responsibility for conformity marking, in accordance with all relevant British and European Product Standards.

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- 3.1 - The Construction (Design and Management) Regulations 2015 and The Construction (Design and Management) Regulations (Northern Ireland) 2016
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1 GENERAL CONSIDERATIONS

1.1 CONDITIONS OF USE

1.1.1 Limitations

This Agrément has been prepared in accordance with the mandatory requirements defined in the relevant Kiwa Technical Requirement. Some information in this Agrément is provided for guidance or reference purposes only; this information falls outside the scope of the Technical Requirement.

1.1.2 Application

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

1.1.3 Assessment

Kiwa Ltd. has assessed the System in combination with relevant test reports, technical literature, the Agrément holder's quality plan, DoPs and site visit, as appropriate.

1.1.4 Installation supervision

The quality of installation and workmanship shall be controlled by a competent person who shall be an employee of an Approved Installer.

The System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

1.1.5 Geographical scope

The validity of this document is limited to England, Wales, Scotland, Northern Ireland and Ireland, with due regard to Section 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this Agrément is to provide well-founded confidence to apply the System within the scope described. The validity of this Agrément is as published on www.kiwa.co.uk/bda.

1.2 PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has conducted an audit of the Agrément holder and determined that they fulfil all their obligations in relation to this Agrément in respect of the System.

The initial audit demonstrated that the Agrément holder has a satisfactory Quality Management System (QMS) and is committed to continuously improving their quality plan. Document control and record-keeping procedures were deemed satisfactory. A detailed Production Quality Specification (PQS) has been compiled to ensure traceability and compliance under the terms of this Agrément.

1.3 ANNUAL VERIFICATION PROCEDURE - CONTINUOUS SURVEILLANCE

To demonstrate that the System conforms with the requirements of the technical specification described in this Agrément, an Annual Verification Procedure has been agreed with the Agrément holder in respect of continuous surveillance and assessment, and auditing of the Agrément holder's QMS.

2 TECHNICAL ASSESSMENT

This Agrément does not constitute a design guide for the System. It is intended only as an assessment of safety and fitness for purpose.

2.1 SYSTEM COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

The components listed in Table 1 below are integral to the System.

Table 1 - Integral components

Component	Description	Dimensions	
base rail	Wetherby Base Rail	aluminium base rail, incorporating 11 mm diameter drainage holes at 150 mm centres, 200 mm from each side of the edge, to create a drained and partially ventilated cavity in accordance with BS 5250	
	mechanical fixings for Wetherby Base Rail	R-QCP - hardened screws Ejot LS case hardened, carbon steel, self-drilling screws	
spacer support battens/rails	Wetherby Cavity Spacer Rails	galvanized steel top-hat rail section to create a cavity [^]	
	timber battens	treated timber battens to create a cavity	
	mechanical fixings for spacer support battens/rails	R-QCP - hardened screws Ejot LS case hardened, carbon steel, self-drilling screws	
carrier board	Kemwell Weatherkem	a calcium silicate fibre-cement carrier board with a density of 1,300 kg/m ³ , manufactured in accordance with BS EN 12467	
	Knauf Aquapanel	aggregated Portland cement board with coated glass-fibre mesh embedded in both sides, classified category B, in accordance with BS EN 12467, with a density of 1,151 kg/m ³	
	STS Construction	fibre-cement board comprising ordinary Portland cement reinforced with organic fibres, with mean density of 1,280 kg/m ³ manufactured in accordance with BS EN 12467	
	mechanical fixings	EJOT SH3-STS stainless steel fixing grade 304 for use with timber battens	5 mm diameter ^{^^}
		EJOT JT3-STS-2-6.0 stainless steel fixing grade 304 for use with Wetherby Cavity Spacer Rails	28 mm long by 6 mm diameter
EJOT JT4-STS-3-4.8 stainless steel fixing grade 304 for use with Wetherby Cavity Spacer Rails	35 mm long by 4.8 mm diameter		
basecoat	Wetherby Heck K+A	cement-based, polymer-modified basecoat comprising limestone and sand, cement conforming to BS EN 197-1 and additives	
reinforcing mesh	Wetherby Alkali Resistant Reinforcing Mesh Cloth	alkali-resistant, multi-stranded, glass-fibre reinforcing mesh with a nominal weight of 160 g/m ²	
silicone finish	Wetherby Primer	a polymer-modified primer comprising pigments and quartz grits, to be used with silicone finish	
	Wetherby Silicone Textured Finish	silicone-modified render comprising mineral fillers, conforming to BS EN 15824	
acrylic brick slip finish	Wetherby Izoflex Adhesive	organically bound, water based, polymer dispersion cement-free adhesive consisting of liquid pigments and fillers, for acrylic brick slips	
	Wetherby Acrylic Brick Slips	organically bound, water based, polymer dispersion cement-free flexible brickslips consisting of liquid pigments and fillers	
brick slip finish	WBS Brick Slip Adhesive (WS)	cement based, polymer-modified adhesive conforming to BS EN 12004-1, cement conforming to BS EN 197-1 and additives	
	WBS brickslips and pistols	ceramic brick slips/pistols/corners conforming to BS EN 14411, with dry density of 2,250 kg/m ³ ; available in a range of colours, with water absorption of ≤ 6%	
		ceramic brick slips/pistols conforming to BS EN 14411, with a dry density of 2,100 kg/m ³ ; available in a range of colours, with water absorption of ≤ 12%	
WBS Pointing Mortar (WS)	polymer-modified sand/cement-based mortar with fresh mortar density of 1,650 kg/m ³ , in accordance with BS EN 998-2		

[^] wider top-hat sections can be used provided they have similar or better characteristics and have been approved by the Agrément holder

^{^^} length dependent on the project-specific design; alternative fixings may be used provided it can be demonstrated that they have equivalent (or greater) pull-out strength, plate diameter, plate stiffness and load resistance characteristics

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:

- STF supporting wall;
- sheathing board;
- barrier tape;
- mechanical fixings for sheathing board;
- ventilated beads, base and edge;
- under-and-over cills, cill extenders;

- roof verge extenders;
- joint sealant;
- cavity barriers.

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 System is suitable to be used in all exposure zones detailed in BRE Report 262.

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

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

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

Deflection shall be limited to prevent damage to the System.

The System shall be installed on STF supporting walls, where sheathing consists of exterior-grade cement-bonded particle boards (hereinafter 'CBPB'), marine-grade plywood, oriented strand boards (hereinafter 'OSB') or fibre cement boards. Manufacturing requirements are as follows:

- CBPB shall be manufactured in accordance with BS EN 12467 or BS EN 634-2, with a minimum thickness of 10 mm;
- marine-grade plywood shall be manufactured in accordance with BS EN 313-1, with a minimum thickness of 12 mm;
- OSB shall be OSB/3, manufactured in accordance with BS EN 300, with a minimum thickness of 11 mm;
- fibre cement boards shall be weather resistance Category A or B and bending strength Class 2 or 3, manufactured in accordance with BS EN 12467, with a minimum thickness of 9 mm.

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.

Supporting walls shall be designed in accordance with BS EN 1995-1-1 / I.S. EN 1995-1-1, BS EN 14081-1 and PD 6693-1; structural timber shall be not less than 37 mm thick with a minimum width of 72 mm.

If required, the sheathing board shall be covered with a Class W1 breather membrane, in accordance with BS EN 13859-2. The breather membrane shall have adequate resistance to tearing and be regularly inspected during installation, to ensure it is not damaged. If damage occurs to the membrane, it shall be repaired appropriately in accordance with the manufacturer's instructions.

Butt joints, fasteners and penetrations (e.g. flues, ducts) shall be sealed and taped to ensure that water does not penetrate into a wall.

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

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

The System shall be secured to the supporting wall with mechanical fixings installed into the battens/rails that form the cavity between the sheathing board of the supporting wall and the carrier board.

Where required, properly constructed movement joints (designed to cater for the calculated degree of movement to control expansion, contraction, and cracking without reducing the stability and weathertightness of the wall) shall be carried through the System using movement beads of PVC, powder-coated galvanised steel or stainless steel. Movement joints within the System shall be installed as follows:

- reflected through the carrier board joints;
- to allow for horizontal movement, vertical expansion joints shall be provided through the System at a maximum of 12 m centres;
- to allow for vertical movement, horizontal expansion joints shall be provided at each floor level in STF supporting walls;
- in accordance with the project-specific design.

The System shall incorporate a drained and partially ventilated cavity between the sheathing boards and the carrier boards, a minimum depth of 15 mm to a maximum of 50 mm.

Ventilation openings shall be arranged to prevent the ingress of rain, snow, birds and small animals, and reduce the risk of blockage by other building operations.

2.2.1.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Specifier;
- consider the exposure zones where the System is installed;
- take into account the requirements of the relevant national Building Regulations - see Section 3.2;
- take into account the service life durability required - see Section 2.2.10.

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

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

- thermal expansion effects of the supporting wall and the System;
- likely local impact resistance;
- pull-through of fixings;
- pull-out of fixings;
- effect of wind actions on the System;
- accommodation of structural movement.

The local spell index method for assessing the exposure zones to wind-driven rain shall be considered at the project-specific design phase, taking into consideration:

- geographical location and orientation of the proposed wall;
- terrain upwind;
- obstructions;
- characteristics of the proposed wall.

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

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

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

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

2.2.2 Applied building physics (heat, air, moisture)

A Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the System and, if necessary, offer advice on improvements to achieve the final specification. The Specialist can be either a qualified employee of the Agrément holder or a suitably qualified consultant (in which case it is recommended that the Specialist co-operates closely with the Agrément holder).

2.2.3 Permitted applications

Only applications designed according to the specifications given in this Agrément are permitted. In each case, the Specifier and Installer shall co-operate closely with the Agrément holder.

2.2.4 Installer competence level

The System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

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

2.2.5 Delivery, storage and site handling

The System components are delivered in suitable packaging bearing relevant identification information (such as the System name, production identification date or batch number, the Agrément holder's name, etc.) and, where applicable, the BDA Agrément® logo incorporating the number of this Agrément.

Prior to installation, the System components shall be stored in accordance with the Agrément holder's requirements. Good housekeeping protocols shall be followed to avoid damage.

Where required, particular care shall be taken to:

- avoid exposure to direct sunlight for extended periods of time;
- avoid exposure to high or low temperatures for extended periods of time;
- store System components in a well-ventilated covered area to protect them from rain, frost and humidity;
- store System components away from sources of ignition.

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

2.2.6 Maintenance and repair

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

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

- signs of damaged areas and cracks in the render exceeding 0.2 mm;
- signs of disbandment in brick slips; dislodged brick slips shall be re-fixed using adhesive;
- signs of damage in brick slips; damaged brick slips shall be removed and replaced with new ones;
- integrity of the sealant around openings and service entry points;
- adequate performance of architectural details designed to shed water away;
- leaks from external plumbing and fittings, guttering and drainpipes.

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

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

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

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

Performance factors in relation to the Major Points of Assessment

2.2.7 Moisture control

The System will resist rain penetration across the drained and partially ventilated cavity to the supporting wall surface and satisfy this requirement, as given in either the relevant national Building Regulations or BRE Report 262.

The project-specific design shall include detailing around openings, penetrations and movement joints to minimise the risk of wind-driven rainwater ingress in accordance with BS 6093.

The drained and partially ventilated cavity between the sheathing boards and the carrier boards shall be a minimum depth of 15 mm. Any moisture forming or collecting in the cavity will be removed by drainage and ventilation.

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

The guidance given in BRE Report 262 shall be followed in connection with the weathertightness of wall constructions. The Agrément holder shall select a construction appropriate to the local wind-driven rain index, in accordance with BS 8104, paying due regard to the design detailing, workmanship and materials to be used.

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

Drainage deflection beads and an ethylene propylene diene monomer (EPDM) membrane are incorporated into the System to deflect any water present in the drained and partially ventilated cavity around openings, penetrations or from items that block the cavity.

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

Vented profiles shall allow any residual trapped moisture from construction to escape. The openings in the base track shall be small enough to prevent the ingress of birds, animals or small insects and shall be kept free of obstructions.

2.2.8 Strength

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

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

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

The supporting wall shall be designed in accordance with the relevant Standards to limit mid-span deflections to L/260 (mid-span) and L/150 (cantilever), and for the System with a brick slip finish, L/360 (mid-span) and L/200 (cantilever).

The System has adequate dynamic wind uplift load (suction) resistance and suitable mechanical strength to EAD 090019-00-0404. For the design load value, see Section 2.5.2.

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

Positive wind load is transferred to the supporting wall directly via bearing and compression of the System finish, carrier board, the spacer support battens/rails and through the sheathing boards. Negative wind load is resisted by the mechanical bond between System finish and the carrier board. The carrier board is retained by mechanical fixings through the spacer support battens/rails which are fixed to the supporting wall.

Impact resistance

When tested for hard- and soft-body impact resistance, in accordance with EAD 090019-00-0404, the System is categorised as for Use Category I and can therefore be used in all Use Categories as detailed below:

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

2.2.9 Fire performance

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

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

STF supporting walls are not classified as 'non-combustible' in accordance with the relevant national Building Regulations.

The following restrictions apply:

- for all building in Wales and Northern Ireland, and non-residential buildings in England, the System shall not be used on buildings with a storey of 18 m or more above ground level; the System can be used without any boundary restrictions. Refer to the relevant national Building Regulations for types of buildings and any exclusions that may apply;
- for residential buildings in England, the System is restricted to buildings with no floor more than 11 m above ground level; the System can be used without any boundary restrictions. Refer to the national Building Regulations for types of buildings and any exclusions that may apply;
- for all buildings in Scotland, the System is restricted to buildings with no floor more than 11 m above ground level and not less than 1 m from the boundary. In such cases, the System may be excluded from the unprotected area calculation regardless of openings. Refer to the national Building Regulations for types of buildings and any exclusions that may apply;
- for dwellings in Ireland, the System shall not be used on buildings with a storey of 15 m or more above ground level; the System can be used without any boundary restrictions. Refer to the relevant national Building Regulations for types of buildings and any exclusions that may apply;
- for buildings other than dwellings in Ireland, the System shall not be used on buildings with a storey of 18 m or more above ground level; the System can be used without any boundary restrictions. Refer to the national Building Regulations for types of buildings and any exclusions that may apply.

The fire resistance of walls is based on the occupancy, size and use of a building and shall be a minimum of 30 minutes. It is then specified in 60-minute intervals thereafter.

Walls shall be designed and constructed:

- to adequately resist the passage and penetration of fire;
- to inhibit the unseen spread of fire and smoke within concealed spaces in the wall.

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

Proximity of flues and appliances

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

Guidance on separation in STF supporting walls can be found in:

- IGEN IGE/UP/7;
- BSRIA/TRADA IEP6.

2.2.10 Durability

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

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

2.2.11 UKCA, UKNI and CE marking

There is no relevant Product standard for the System.

Diagram 1 - Typical layout of fixings

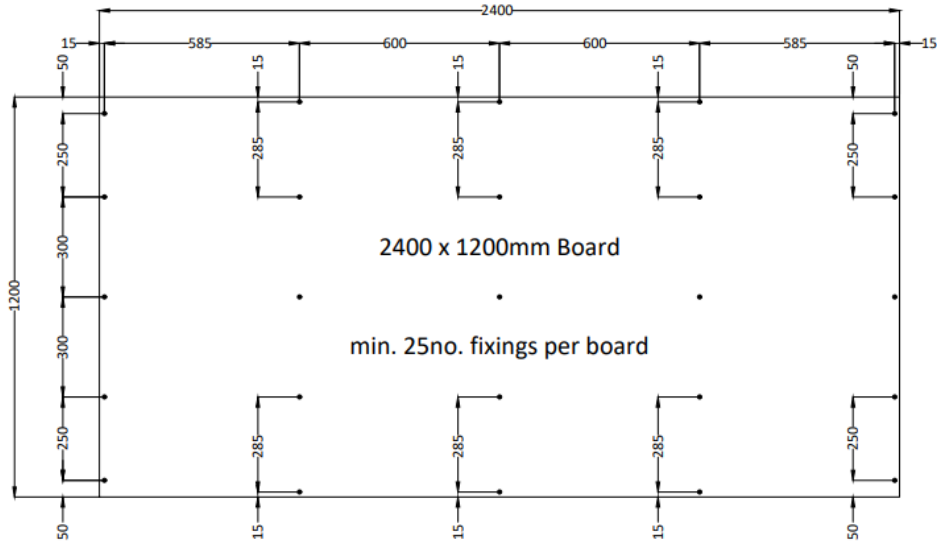


Diagram 2 - Typical carrier board junction

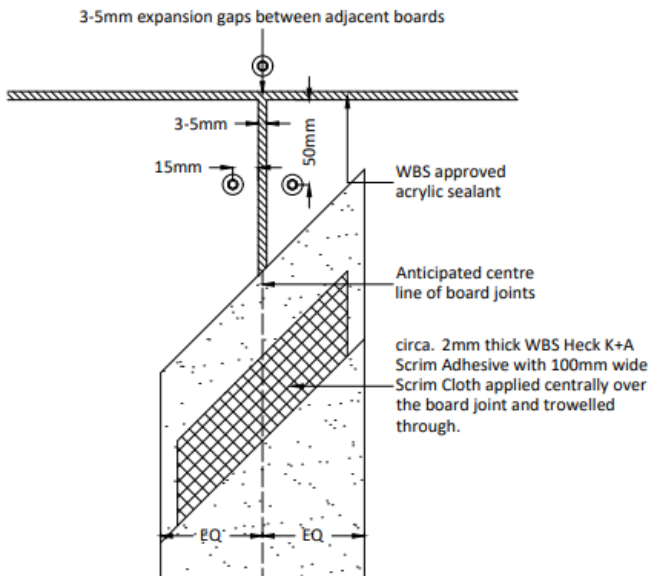


Diagram 3 - Typical build-up detail

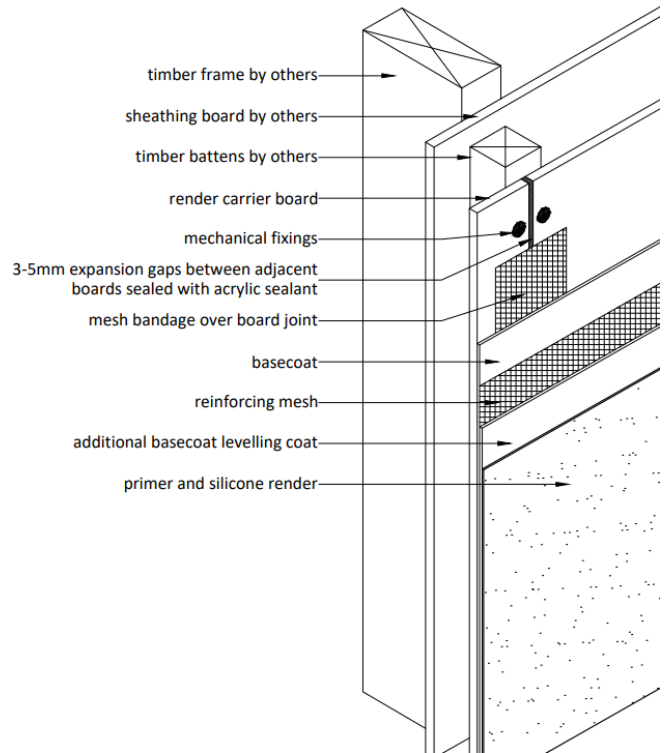


Diagram 4 - Typical movement joint detail

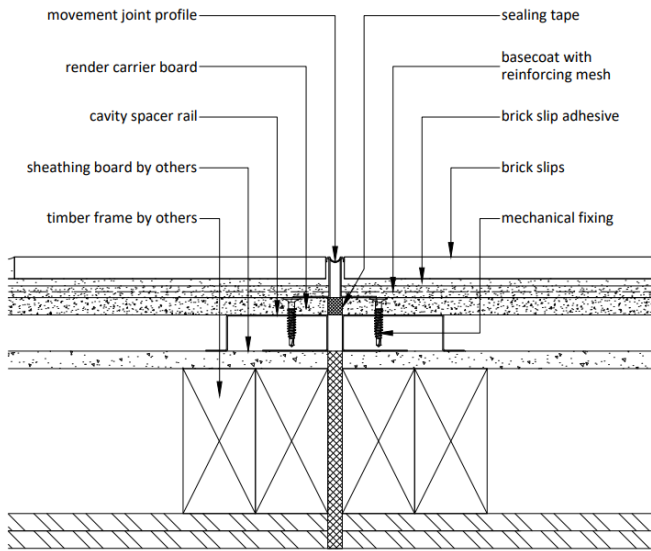


Diagram 5 - Typical base detail

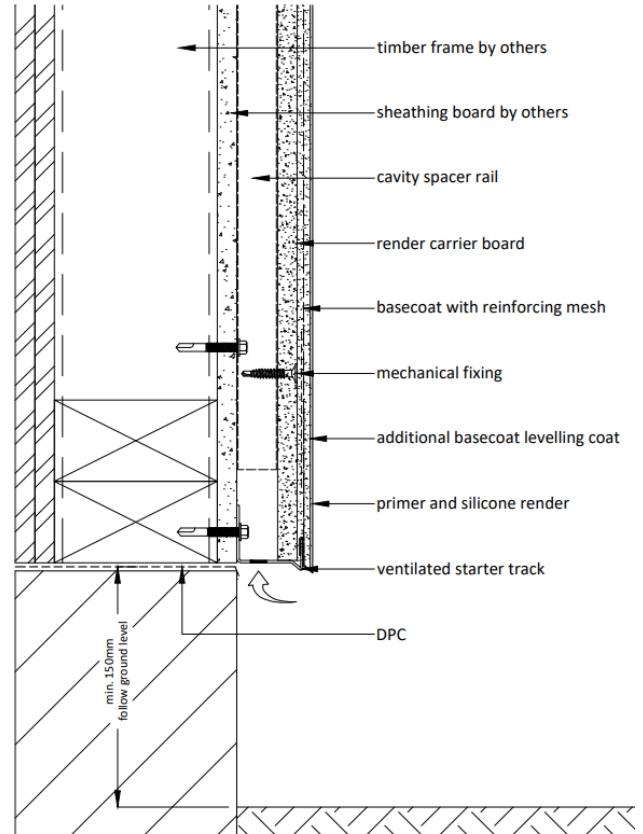


Diagram 6 - Typical window/door jamb detail

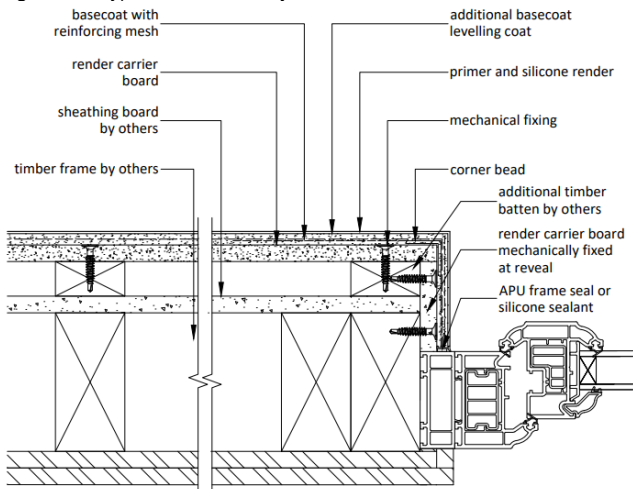


Diagram 7 - Typical horizontal fire barrier detail

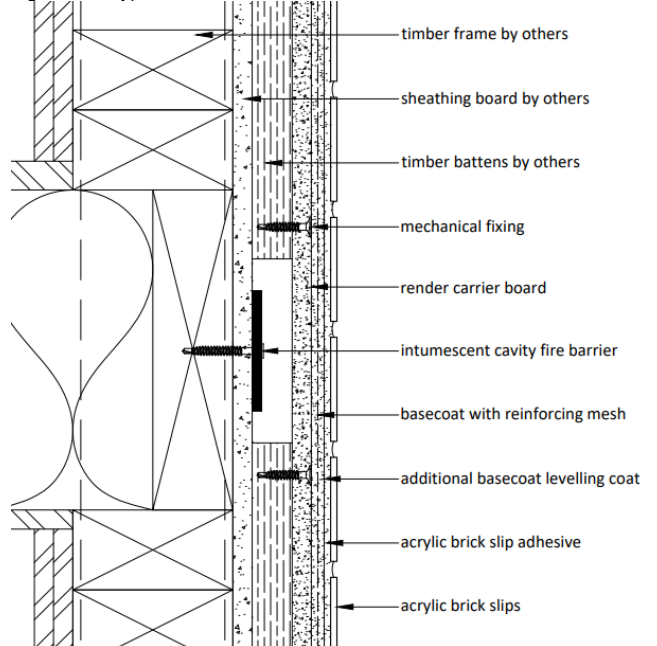


Diagram 8 - Typical window cill detail

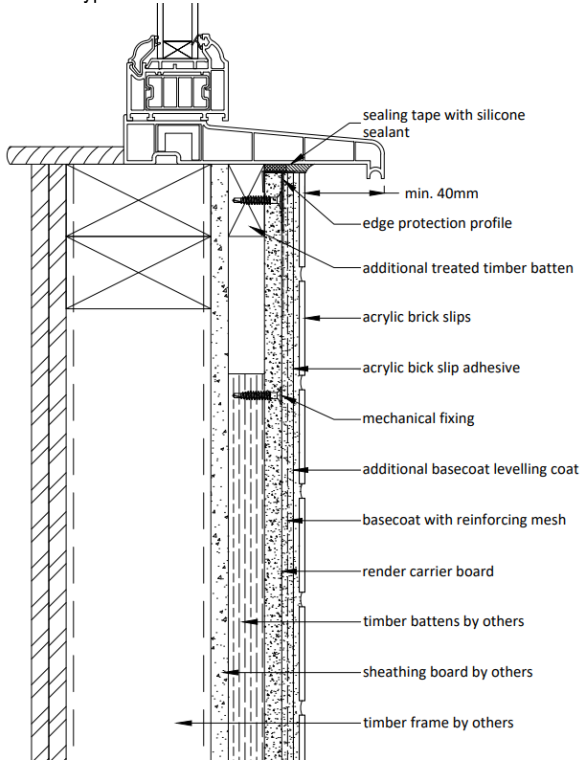
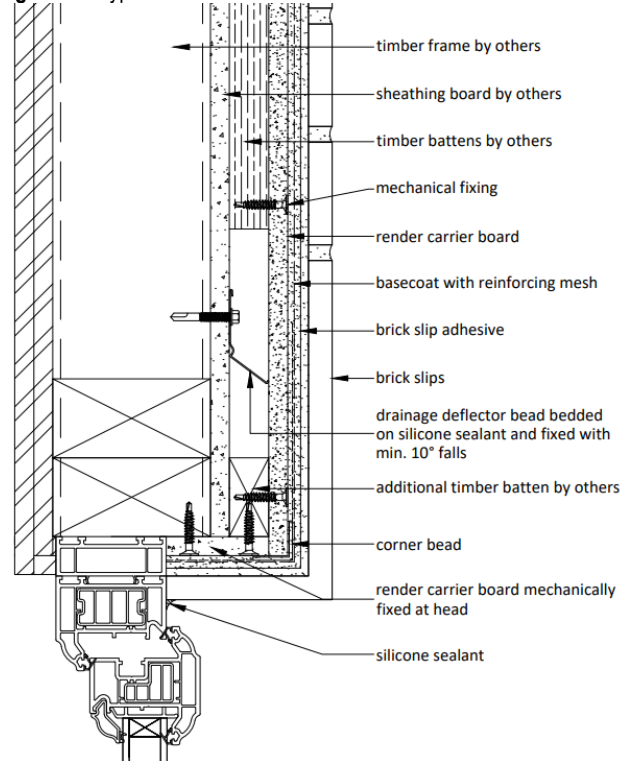


Diagram 9 - Typical window/door head detail



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.

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

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

This process includes fixing pull-out tests of the supporting wall according to the Construction Fixings Association Guidance Note 'Procedure for site testing construction fixings', to determine pull-out strength values - see Section 2.2.1.4. Pull-out test loads shall be 2.5 x design load. The design pull-out resistance strengths of the supporting wall, spacer support battens/rails and mechanical fixings shall be checked by a competent person and shown to be adequate before the installation of the System.

Subsequent project-specific design considerations include confirmation that:

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

Application of the pointing mortar shall only be carried out in suitable weather conditions and shall not be applied in rain, fog or mist, at temperatures below 5 °C or above 30 °C. Pointing mortar shall not be applied to saturated or frost-bound walls.

2.4.2 Preparation

The following works shall be undertaken before installing the System:

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

2.4.3 Outline installation procedure

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

The outline procedure is as follows:

- install spacer support battens/rail system; mechanically fix:
 - timber battens vertically to the supporting wall using mechanical fixings at maximum of 150 mm centres, or to suit the project-specific design loads; or
 - top hat rails vertically to the supporting wall using mechanical fixings at maximum of 300 mm centres fixed each side of the rail, or to suit the project-specific design loads;
- install base rail and edge beads using the appropriate fixings;
- install cavity barriers in accordance with the project-specific design;
- mechanically fix the carrier board to the spacer support battens/rails in a brick-bond sequence and interlock at building corners, according to the project-specific design;
- space the adjoining carrier board with a nominal gap of 3 mm to 5 mm and apply WBS approved acrylic joint sealant between the joints;
- place a 100 mm mesh patch roll over the board joints, which is then encapsulated in a 1 mm to 2 mm thick coat of WBS K+A Scrim Adhesive;
- apply a 4 mm to 6 mm thick coat of Wetherby Heck K+A basecoat to the entire surface of the carrier boards and bed reinforcing mesh into the top third of the wet basecoat, overlapping joints by minimum 75 mm;
- for brick slip finish, create horizontal scratches on the surface of the scrim adhesive in preparation for receiving the Wetherby Brick Slip Adhesive (WS); for silicone and acrylic brick slip finishes, apply a second layer of 2 mm to 3 mm thick coat of basecoat, ensuring any visible scrim cloth is covered and finish smooth;
- apply System finishes as follows:
 - for acrylic brick slips, apply acrylic brick slip adhesive on the basecoat with a notch trowel and then embed the acrylic brick slips into acrylic brick slip adhesive; smoothen the joints between the acrylic brick slips by using a moist brush, ensuring all acrylic brick slip edges are sealed;
 - for brick slips, apply Wetherby Brick Slip Adhesive (WS) on the basecoat and then embed the brick slips into the adhesive and firmly pushed into place, leaving consistent mortar joints between each brick slip; point with WBS Pointing Mortar (WS) using a pointing gun or pointing trowel; once dry, brush down the wall using a stiff brush to remove all excess mortar;
 - for silicone, apply primer and allow to dry for a minimum of 12 hours; once the primer is fully dry, mix and apply Wetherby Silicone Finish, in accordance with the manufacturer's instructions; prior to setting, polish the Wetherby Silicone Finish with a plastic float to remove trowel marks and to give an even texture.

2.4.4 Finishing

The following finishing is required on completion of the installation:

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

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

2.5 INDEPENDENTLY ASSESSED SYSTEM CHARACTERISTICS

2.5.1 Moisture control

Test	Standard	System finish	Result
Hygrothermal and freeze-thaw conditioning	EAD 040914-00-0404 and EAD 090019-00-0404	Wetherby brick slips	No defects
		Wetherby Acrylic brick slips	
		Wetherby Silicone Finish	
Water vapour diffusion resistance, S _d	BS EN ISO 7783	Wetherby brick slips (≤ 6 % water absorption)	1.64 m
		Wetherby brick slips (≤ 12 % water absorption)	0.76 m
		Wetherby Acrylic brick slips	1.33 m
		Wetherby Silicone Finish	0.70 m

2.5.2 Strength

Test	Standard	System finish	Result
Dynamic wind uplift ^a	EAD 090019-00-0404	Wetherby brick slips	2.56 kN/m ²
		Wetherby Acrylic brick slips	
		Wetherby Silicone Finish	
Hard-body impact	EAD 090019-00-0404	Wetherby brick slips	Use Category I
		Wetherby Acrylic brick slips	
		Wetherby Silicone Finish	
Soft-body impact	EAD 090019-00-0404	Wetherby brick slips	Use Category I
		Wetherby Acrylic brick slips	
		Wetherby Silicone Finish	

^a design load with partial factor of 1.5

2.5.3 Fire performance

Test	Standard	System finish	Result
Reaction to fire	BS EN 13501-1	Wetherby brick slips	A1
		Wetherby Acrylic brick slips	A2-s1, d0
		Wetherby Silicone Finish	

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

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

3.2 THE NATIONAL BUILDING REGULATIONS

In the opinion of Kiwa Ltd., the System, if installed and used in accordance with Section 2 of this Agrément, can satisfy or contribute to satisfying the relevant requirements of the following national Building Regulations.

This Agrément shall not be construed to confer the compliance of any project-specific design with the national Building Regulations.

3.2.1 England

The Building Regulations 2010 and subsequent amendments

- A1(1)(2) Loading - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B3(4) Internal fire spread (structural) - the System can adequately inhibit the unseen and smoke within concealed spaces
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect the building from precipitation, including wind-driven spray
- 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

3.2.2 Wales

The Building Regulations 2010 and subsequent amendments

- A1(1)(2) Loading - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B3(4) Internal fire spread (structural) - the System can adequately inhibit the unseen and smoke within concealed spaces
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect the building from precipitation, including wind-driven spray
- 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

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 and transmit combined dead and wind loads to the supporting wall
- 2.4 Cavities - the System can inhibit the unseen spread of fire and smoke within concealed spaces
- 2.6 Spread to neighbouring buildings - the System can inhibit the spread of fire to neighbouring buildings
- 2.7 Spread on external walls - the System can inhibit the spread of fire on external walls
- 2.8 Spread from neighbouring buildings - the System can inhibit the spread of fire to a building
- 3.10 Precipitation - the System can resist precipitation penetrating to the inner face of a building
- 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

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)(ii)(iii)(b) Fitness of materials and workmanship - the System is manufactured from materials which are suitably safe and acceptable as described in this Agrément
- 28(b) Resistance to moisture and weather - the System can be constructed to prevent the passage of moisture
- 30 Stability - the System can sustain and transmit combined dead and wind loads to the supporting wall
- 35(4) Internal fire spread (structural) - the System can adequately inhibit the unseen and smoke within concealed spaces
- 36(a) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another

3.2.5 Ireland

Building Regulations 1997 and subsequent amendments

In order to demonstrate compliance with Irish Building Regulations, this BDA Agrément® certifies that the System complies with the requirements of a recognised document and indicates it is suitable for its intended purpose and use.

- A1(1)(2) Structure - the System can sustain and transmit combined dead and wind loads to the supporting wall
- B3(3) Internal fire spread (structural) - the System can adequately inhibit the unseen and smoke within concealed spaces
- B4 External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- B8(3) Internal fire spread (structural) - the System can adequately inhibit the unseen and smoke within concealed spaces
- B9 External fire spread - the System can adequately resist the spread of fire over walls and from one building to another for dwelling houses
- C4 Resistance to weather and ground moisture – a wall incorporating the System can contribute to adequately protecting a building from the passage of moisture from precipitation
- D1 Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance

3.3 THIRD-PARTY ACCEPTANCE

In the opinion of Kiwa Ltd. if installed, used, and maintained in accordance with this Agrément, this System can satisfy the appropriate structural, fire, moisture and durability requirements of a Structural Warranty provider. Please contact the relevant Structural Warranty provider to ascertain their project specific design requirements and to confirm their acceptance on a case-by-case basis.

- BS EN ISO 7783:2018 Paints and varnishes. Determination of water-vapour transmission properties. Cup method
- BS EN ISO 9001:2015 Quality management systems. Requirements
- BS EN 197-1:2011 Cement. Composition, specifications and conformity criteria for common cements
- BS EN 300:2006 Oriented strand boards (OSB). Definitions, classification and specifications
- BS EN 313-1:1996 Plywood. Classification and terminology. Plywood. Classification and terminology. Classification
- BS EN 634-2:2007 Cement-bonded particleboards. Specifications. Requirements for OPC bonded particleboards for use in dry, humid and external conditions
- BS EN 1991-1-4:2005+A1:2010 Eurocode 1. Actions on structures. General actions. Wind actions
- NA to BS EN 1991-1-4:2005+A1:2010 UK National Annex to Eurocode 1. Actions on structures. General actions. Wind actions
- BS EN 1995-1-1:2004+A2:2014 Eurocode 5: Design of timber structures. General. Common rules and rules for buildings
- NA to BS EN 1995-1-1:2004+A2:2014 UK National Annex to Eurocode 5: Design of timber structures. General. Common rules and rules for buildings
- BS EN 12004-1:2017 Adhesives for ceramic tiles. Requirements, assessment and verification of constancy of performance, classification and marking
- BS EN 12467:2012+A2:2018 Fibre-cement flat sheets. Product specification and test methods
- BS EN 13139:2002 Aggregates for mortar
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using data from reaction to fire tests
- BS EN 13859-2:2014 Flexible sheets for waterproofing. Definitions and characteristics of underlays. Underlays for walls
- BS EN 13888-1:2022 Grouts for ceramic tiles. Requirements, classification, designation, marking and labelling
- BS EN 13914-1:2016 Design, preparation and application of external rendering and internal plastering. External rendering
- BS EN 14081-1:2016+A1:2019 Timber structures. Strength graded structural timber with rectangular cross section. General requirements
- BS EN 14411:2016 Ceramic tiles. Definition, classification, characteristics, assessment and verification of constancy of performance and marking
- BS EN 15824:2017 Specifications for external renders and internal plasters based on organic binders
- 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 Report 262:2002 Thermal insulation: avoiding risks
- BSRIA/TRADA IEP6:2006 Services in Timber Framed Construction
- CIGA Technician's guide to best practice: Flues, chimneys and combustion air ventilators:2016
- Construction Fixings Association Guidance note:2012 Procedure for site testing construction fixings
- EAD 040914-00-0404:2018 Veture kits - Prefabricated units for external wall insulation and their fixing devices
- EAD 090019-00-0404:2006 Kits for ventilated external wall claddings of lightweight boards on subframe with rendering applied in situ with or without thermal insulation
- EOTA TR 051:2018 Recommendations for job-site tests of plastic anchors and screws
- Government Accredited Construction Detail for Part L:2019
- I.S. EN 1991-1-4:2005 Eurocode 1: Actions on structures. Part 1-4: General actions. Wind actions
- I.S. EN 1991-1-4/NA:2005 Irish National Annex to Eurocode 1: Actions on structures. Part 1-4: General actions. Wind actions
- I.S. EN 1995-1-1:2005 Eurocode 5: Design of timber structures. Part 1-1: General. Common rules and rules for buildings
- I.S. EN 1995-1-1/NA:2005+A1:2013 Irish National Annex to Eurocode 5: Design of timber structures. Part 1-1: General. Common rules and rules for buildings
- IGEM IGE/UP/7:2008 Gas installation in timber framed and light steel framed buildings
- PD 6693-1:2019 Recommendations for the design of timber structures to Eurocode 5: Design of timber structures - General. Common rules and rules for building

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	May 2024

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.

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

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

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