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BAW-20-172-S-A-UK
BDA Agrément®
Slip Fast Clay Slip System
Façade Cladding System

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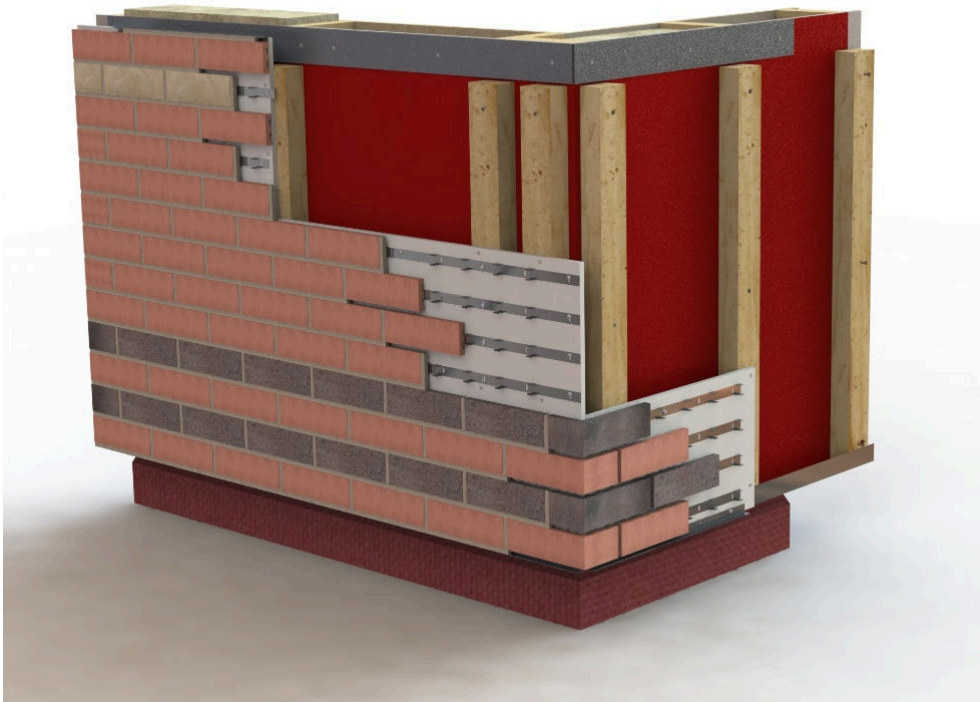
SCOPE OF AGRÉMENT

This Agrément relates to the Slip Fast Clay Slip System (hereinafter the 'System'). The System is a mechanically fixed brick slip façade cladding system and is suitable for installation above damp-proof course (hereinafter 'DPC') level on external sheathed structural timber frame (hereinafter 'STF') or cross laminated timber (hereinafter 'CLT') supporting walls (where STF include exterior-grade cement-bonded particle board (hereinafter 'CBPB'), marine-grade plywood or exterior-grade oriented strand board (hereinafter 'OSB') with suitable strength and stiffness). The System is for existing and new dwellings.

DESCRIPTION

The System consists of clay brick slips, mechanically clamped with clips to supporting rails, fixed to a carrier board. The carrier board is fixed to a sheathed STF or CLT supporting wall with either timber battens or top hat rails to create a cavity. The System is finished with clay brick slips pointed with cement mortar.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

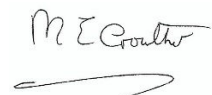
STATEMENT

It is the opinion of Kiwa Ltd. that the System is safe and fit for its intended use, provided it is specified, installed and used in accordance with this Agrément.

Chris Vurley, CEng
Operations Manager, Building Products



Mark Crowther, M.A. (Oxon)
Kiwa Ltd. Technical Director



SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, building control personnel, contractors, installers and other construction industry professionals considering the safety of and fitness for the intended use 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 - the System (see Section 2.2.9):

- can contribute to limiting the risk of interstitial and surface condensation;
- will resist wind-driven rain penetration across the ventilated cavity to the supporting wall.

Strength - the System has adequate strength and is designed to adequately resist impact damage and wind loads normally encountered in the UK (see Section 2.2.10).

Fire performance - the System is classified as European Classification A2-s1, d0, in accordance with BS EN 13501-1 (see Section 2.2.11).

Durability - the service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used (see Section 2.2.12).

UKCA and CE marking - the product manufacturers have responsibility for conformity marking, in accordance with all relevant British and European Product Standards (see Section 2.2.13).

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1 GENERAL CONSIDERATIONS

1.1 CONDITIONS OF USE

1.1.1 Design considerations

See Section 2.2.

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 must be controlled by a competent person who must 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 Chapter 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this BDA Agrément® is to provide for well-founded confidence to apply the System within the scope described. The validity of this Agrément is three years after the issue date, and as published on www.kiwa.co.uk/bda.

1.2 PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has determined that the Agrément holder fulfils 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 its 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 as an assessment of safety and fitness for purpose only.

2.1 SYSTEM COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

The following components are integral to the use of the System:

Component	Description	Dimensions	
spacer support battens/rails	Slip Fast Top Hat Rail	galvanised stainless steel top hat rail to create a minimum 25 mm cavity	2.4 m long by 25 mm
	mechanical fixings for Slip Fast Top Hat Rail	Evolution WHX42 self-drilling cement board screw with countersunk head	42 mm long by 4.2 mm diameter
	timber battens	timber battens, in accordance with BS 5534, preservative treated in accordance with BS EN 351-1, to create a minimum 25 mm cavity	minimum 25 mm by 50 mm
	mechanical fixings for timber battens	Timco Velocity double countersunk BZP carbon steel self-drilling fixings, in accordance with BS EN 14592	50 mm long by 5 mm diameter
carrier board	A2 Slip Fast Carrier Board	cellulose fibre cement board, in accordance with BS EN 12467. Classified as European Classification A2-s1, d0 in accordance with BS EN 13501	2.4 m by 1.2 m by 12 mm thick
	mechanical fixings for Slip Fast Top Hat Rail	Evolution WHX32 self-drilling cement board screw with countersunk head	32 mm long by 4.2 mm diameter
	mechanical fixings for timber battens	Evolution WHX42 self-drilling cement board screw with countersunk head	42 mm long by 4.2 mm diameter
supporting rails	SF-Flat	flat support rail, grade 304 stainless steel	2.475 m long by 20 mm wide by 1.2 mm thick
	SF-Crimp	crimped support rail with pre-defined positions for SF-Clips, grade 304 stainless steel	
	SF-Clip	mechanical brick slip clip, grade 304 stainless steel	20 mm wide by 0.6 mm thick
	mechanical fixings for SF-Flat and SF-Crimp	R-PHST-48016-A2 grade 304 stainless steel self-tapping screw with pan head	4.8 mm diameter by 16 mm long
brick slips	Slip Fast Clay Slips	clay brick slips/pistols, in accordance with BS EN 771-1	65 mm by 215 mm by 15 mm thick
pointing mortar	PM1	pre-coloured, water-repellent, frost-resistant, cement-based polymer modified mortar, in accordance with BS EN 13888	

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 or CLT supporting wall;
- sheathing board;
- breathable membrane;
- ethylene propylene diene monomer (hereinafter 'EPDM') membrane;
- barrier tape;
- mechanical fixings for sheathing board;
- bonding primer;
- Slip Fast ventilated beads, base and edge;
- under-and-over cills, cill extenders;
- roof verge extenders;
- backing rod - polyethylene foam;
- movement joint sealant - low modulus silicone sealant;
- cavity barriers.

2.2 POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 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 installing contractor is responsible for the final as-built design.

2.2.2 Applied building physics (heat, air, moisture)

A competent specialist shall check the hygrothermal behaviour of a project-specific design incorporating the System, and if necessary, offer advice in respect of 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 consultant specialist co-operates closely with the Agrément holder).

2.2.3 General design considerations

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

This Agrément covers the use of the System in any exposure zone, in accordance with BS EN 12154.

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

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

Assessment of the structural performance of the System shall be carried out by a suitably qualified structural engineer to confirm that the System can resist the design impact, dead, imposed and wind loads, can safely transfer loads to the building and can accommodate all anticipated thermal movements without damage. Deflection shall be limited to prevent damage to the System.

The U-value of a completed wall construction will depend on the insulation type, thickness, degree of ventilation to the drained cavity, fixing method, type of fixing and the insulating value of the supporting wall and its internal finish.

For the purposes of U-value calculations and to determine if the requirements of national Building Regulations are met, the thermal resistance and U-value of the walls incorporating the System shall be calculated according to BS EN ISO 10211 (taking into consideration BS EN ISO 6946, BS EN ISO 10456 and BRE Report 443), using the declared thermal conductivity (λ_D) of the insulation.

Sheathing boards shall be weather resistance category A or B and bending strength class 2 or 3, in accordance with BS EN 12467.

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.

Supporting walls shall be designed in accordance with:

- the relevant Standards to limit mid-span deflections - see Section 2.2.10;
- BS EN 1995-1-1 and BS EN 14081-1 (STF and CLT supporting walls);
- BS EN 16351 and BS EN 14080 (CLT supporting walls).

STF supporting walls shall be constructed from timbers not less than 37 mm thick with a minimum width of 72 mm.

The System can be installed on supporting walls constructed from STF where sheathing consists of CBPB, marine-grade plywood or OSB:

- 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 manufactured in accordance with BS EN 300, with a minimum thickness of 11 mm.

Sheathing boards shall be covered with a breather membrane; if a breather membrane is omitted water can penetrate a wall via taped butt joints, fasteners and penetrations (e.g. flues, ducts).

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. This shall be in accordance with BS 6093.

The System shall incorporate a drained and ventilated cavity between the sheathing boards and carrier board, a minimum depth of 25 mm.

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

The System shall be secured to the supporting wall with fixings installed into/through the spacer support battens/rails that form the cavity between the CLT or 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 and contraction 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:

- reflected through carrier board joints;
- located on no more than two floor levels (horizontally) and 12 linear metres (vertically);
- in accordance with the project-specific design.

2.2.4 Project-specific design considerations

The project-specific design shall take into account the service life durability required - see Section 2.2.12.

The project-specific design shall take into account the requirements of the 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.

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

- structural adequacy of the supporting wall;
- thermal 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.

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

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

2.2.5 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.

2.2.6 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.

2.2.7 Delivery, storage and site handling

The System is delivered to site in suitable packaging bearing the System name, the Agrément holder's name and 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. The System components are not susceptible to damage from environmental conditions normally encountered in the UK. However, good housekeeping protocols should be followed to avoid damage.

Where required, particular care shall be taken to:

- avoid exposure of pointing mortar 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 timber battens away from sources of ignition.

Pointing mortar has a shelf life of 12 months from date of manufacture.

2.2.8 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 loose brick slips; dislodged slips shall be re-fixed;
- signs of damage in brick slips; damaged 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, gutter and drainpipes.

The brick slip finish may become discoloured by algae and lichens in damp areas. Cleaning with fresh warm water and light brushing 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.

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

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.

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

Performance factors in relation to the Major Points of Assessment

2.2.9 Moisture control

Condensation risk

External walls incorporating the System can adequately limit the risk of surface and interstitial condensation when designed in accordance with BS 5250 and BRE Report 262.

A condensation risk analysis (CRA) shall be completed at project-specific design stage for all elements of the construction, including at junctions, openings and penetrations to minimise the risk of surface and interstitial condensation. When correctly installed on an occupied building, no condensation will form on the internal wall.

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

Resistance to precipitation including wind-driven rain

The System, when properly installed in accordance with this Agrément, will resist rain penetration across the drained and 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 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.

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

Drainage deflection beads and EPDM membrane are incorporated into the System to deflect any water present in the drained and ventilated cavity around openings, penetrations or items that block the cavity.

The System has adequate resistance to artificial weathering and resistance to thermal shock, in accordance with EAD 040287-00-0404 and EAD 090062-00-0404.

2.2.10 Strength

Structural loading

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 metal structural frame 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 1991-1-1 and BS 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/360 (mid-span) and L/200 (cantilever).

The System has adequate dynamic wind uplift load (suction) resistance and suitable mechanical strength to EAD 040287-00-0404 and EAD 090062-00-0404. For the design load value, see Section 2.5.2.

Positive wind load is transferred to the supporting wall directly via bearing and compression of the brick slips, supporting rails, carrier board to the spacer support battens/rails and through the sheathing boards. Negative wind load is resisted by the mechanical bond between brick slips and supporting rails. 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 040287-00-0404 and EAD 090062-00-0404, 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.

2.2.11 Fire performance

The System is classified as European Classification A2-s1, d0, in accordance with BS EN 13501-1.

The following System components are classified as European Classification A1, without need of further testing (CWFT) in accordance with European Directive 96/603/EC and classified as non-combustible in accordance with the relevant national Building Regulations:

- brick slips;
- SF-Flat, SF-Crimp and SF-Clips;
- Slip Fast Top Hat Rail.

STF/CLT supporting walls and timber battens are not classified as non-combustible or of limited combustibility in accordance with the relevant national Building Regulations.

The System is subject to restriction on proximity to boundaries and to building height under the national Building Regulations:

- the System may be specified for use up to and including 18 m in height in England, Wales and Northern Ireland. Refer to the national Building Regulations for full details of building types where restrictions apply;
- in Scotland, the System is not classified as 'non-combustible' and 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 full details of building types where restrictions apply.

Walls shall be designed and constructed:

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

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 or 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 and CLT supporting walls can be found in:

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

2.2.12 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 60 years.

2.2.13 UKCA and CE marking

There is no relevant Product standard for the System.

2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - typical construction detail of the System

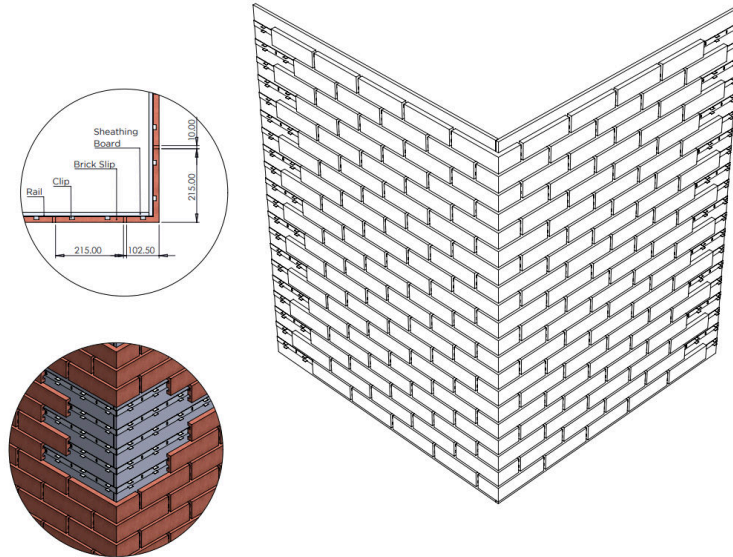


Diagram 2 - typical starter track with Slip Fast Top Hat Rail

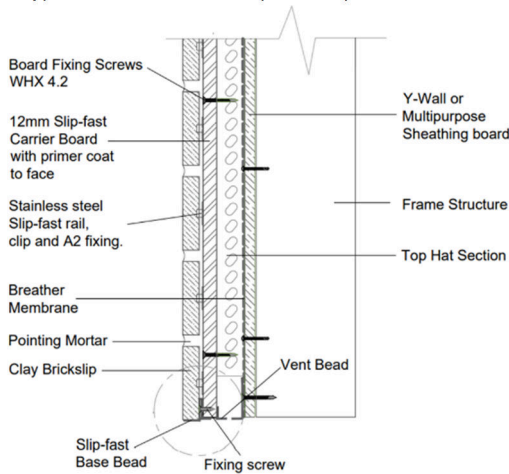


Diagram 3 - typical window jamb with Slip Fast Top Hat Rail

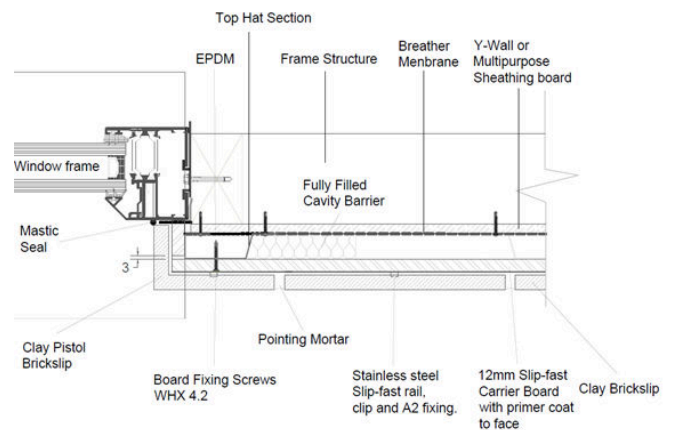


Diagram 4 - typical horizontal movement joint with Slip Fast Top Hat Rail

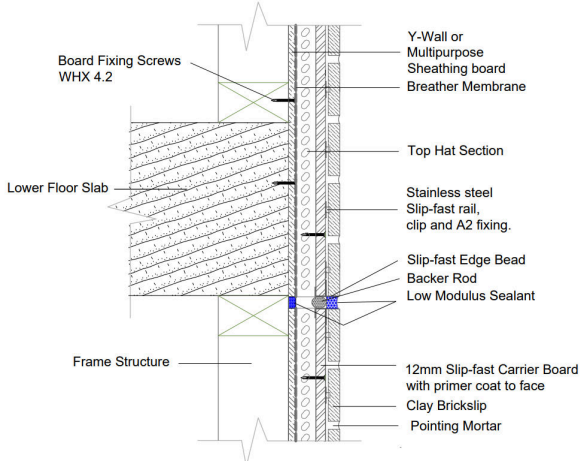


Diagram 5 - typical external corner with Slip Fast Top Hat Rail

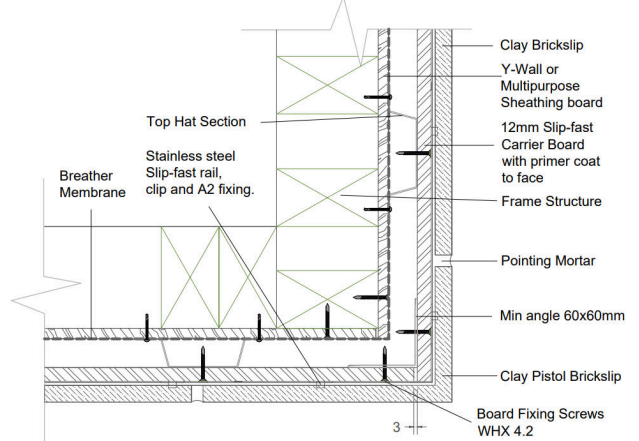


Diagram 6 - typical cavity barrier with Slip Fast Top Hat Rail

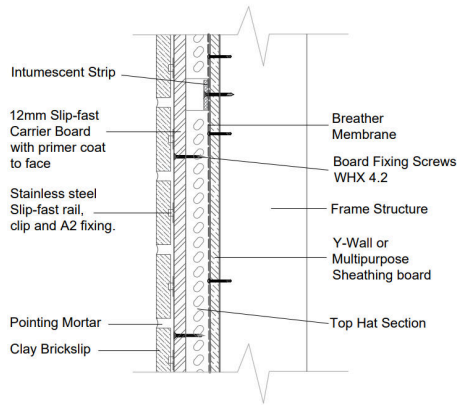
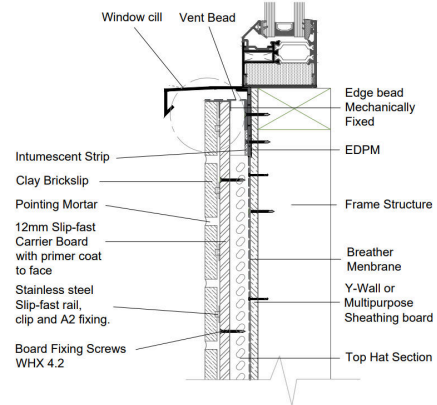


Diagram 7 - typical cill with Slip Fast Top Hat Rail



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 Installer competence level

See Section 2.2.6.

2.4.2 Delivery, storage and site handling

See Section 2.2.7.

2.4.3 Project-specific installation considerations

The project-specific design shall be determined from a pre-installation survey.

A specification has been prepared for each elevation of the building indicating where appropriate:

- DPC level, the position of starter track, vented profile, water deflection beads/battens/rails, expansion joints and weather seals;
- detailing around windows, doors, etc.;
- identification of:
 - services and 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. The characteristic resistance of fixings to be subject to the partial factor, as advised by the System designer and the Agrément holder. The design pull-out resistance strengths of the supporting wall and spacer support battens/rails mechanical fixings shall be checked by a competent person and shown to be adequate before installation of the System.

Subsequent project-specific design considerations include confirmation that 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 frostbound walls.

2.4.4 Preparation

The following considerations apply before starting the work:

- care shall be taken to ensure fixings are suitable for project location and exposure zone;
- Slip Fast Top Hat Rails and timber battens shall be installed in a manner that does not prevent free flow ventilation or drainage;
- all rail locations are subject to design by the Agrément holder and shall be based on project design loads.

The following works shall be undertaken before the installation of the System:

- treat the cut edges of Slip Fast Top Hat Rails to reduce the risk of corrosion.

2.4.5 Outline installation procedure

The detailed installation sequence can be found in full in the Agrément holder's Installation Manual.

The key sequence for installation is:

- install spacer support battens/rails; mechanically fix:
 - vertical timber battens to the supporting wall using Timco Velocity fixings at 300 mm centres or to suit the project-specific design loads; or
 - Slip Fast Top Hat Rails vertically to the supporting wall using WHX42 fixings at maximum 300 mm centres.
- install cavity barriers in accordance with the project-specific design with fixings at maximum 250 mm centres;
- fix the carrier board to the spacer support battens/rails using WHX fixings at 300 mm centres according to the project-specific design. The carrier board is delivered to site with factory fixed Slip Fast supporting rails. Slip Fast supporting rails incorporating SF-Clips are fixed to the carrier board using R-PHST-48016-A2 fixings at maximum 225 mm centres;
- a nominal gap of up to 3 mm can remain between adjoining carrier boards;

- install Slip Fast base and edge beads using the appropriate fixings;
- fit the clay brick slips at an angle into the SF-Clip (minimum two SF-Clips per brick) securing the top of the brick slips and pushing the bottom (rear of brick slip) into the SF-Clip. Brick slips shall be installed with a gap of 10 mm bed and 10 mm perpend joint or to suit the project-specific design;
- align the brick slips with a laser or a level;
- apply pointing mortar using a gun or trowel into the joints.

2.4.6 Finishing

The following finishing is required on completion of the installation:

- apply silicone sealant around windows, door frames, etc., and where the installation abuts any other building or surface, to ensure a weathertight joint;
- once pointing mortar is dry, brush down the wall to remove all loose mortar etc., and once completely dry, remove any excess mortar using a stiff brush.

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	Result
Hygrothermal and freeze-thaw conditioning	EAD 040287-00-0404 EAD 090062-00-0404	no defects
Air leakage	CWCT	no leakage
Watertightness	CWCT BS EN 12154	Class R7

2.5.2 Strength

Test	Standard	Result	
Dynamic wind uplift [^]	EAD 040287-00-0404 EAD 090062-00-0404	2.4 kN/m ²	
Hard-body impact		Use Category I	
Soft-body impact			
Pull off design resistance NRd	brick slip off the supporting rail	EAD 040083-00-0404 EAD 040287-00-0404	129 kN/m ²
Pull out design resistance NRd	mechanical fixings off the carrier board ^{^^}	ETAG 014	0.30 kN

[^] design load with partial factor of 1.5

^{^^} R-PHST-48016-A2 grade 304 stainless steel self-tapping screw

2.5.3 Fire performance

Test	Standard	Result	
Reaction to fire	System	BS EN 13501-1	A2-s1, d0

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 Chapter 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 and transmit combined dead, imposed and wind loads to the ground via the supporting wall
- B3(4) Internal fire spread (structure) - the System can inhibit the unseen spread of fire 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 a building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect a building from interstitial and surface condensation
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - the System can contribute to satisfying this Requirement

3.2.2 Wales

The Building Regulations 2010 And Subsequent Amendments

- A1 Loading - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting wall
- B3(4) Internal fire spread (structure) - the System can inhibit the unseen spread of fire 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 a building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect a building from interstitial and surface condensation
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - the System can contribute to satisfying this Requirement

3.2.3 Scotland

The Building (Scotland) Regulations 2004 And Subsequent Amendments

3.2.3.1 Regulations 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, provided it is installed in accordance with the requirements of this Agrément

3.2.3.2 Regulation 9 Building Standards - construction

- 1.1 Structure - the System can sustain and transmit combined dead, imposed and wind loads to the ground via 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
- 3.15 Condensation - the System can be designed and constructed to inhibit surface or interstitial condensation
- 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(a)(i)(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
- 29 Condensation - the System can be designed and constructed to prevent interstitial condensation
- 30 Stability - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting structure
- 35(4) Internal fire spread (structure) - the System can inhibit the unseen spread of fire 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

3.3 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 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 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 351-1:2007 Durability of wood and wood-based products. Preservative-treated solid wood. Classification of preservative penetration and retention
- BS EN 634-2:2007 Cement-bonded particleboards. Specifications. Requirements for OPC bonded particleboards for use in dry, humid and external conditions
- BS EN 771-1:2011+A1:2015 Specification for masonry units. Clay masonry units
- 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. Densities, self-weight, imposed loads for buildings
- BS EN 1991-1-4:2005+A1:2010 Eurocode 1. Actions on structures. General actions
- NA to BS EN 1991-1-4:2005+A1:2010 UK National Annex to Eurocode 1. Actions on structures. General 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 12154:2000 Curtain walling. Watertightness. Performance requirements and classification
- BS EN 12467:2012+A2:2018 Fibre-cement flat sheets. Product specification and test methods
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- BS EN 13888:2009 Grout for tiles. Requirements, evaluation of conformity, classification and designation
- BS EN 13914-1:2016 Design, preparation and application of external rendering and internal plastering. External rendering
- BS EN 14080:2013 Timber structures. Glued laminated timber and glued solid timber. Requirements
- BS EN 14081-1:2016+A1:2019 Strength graded structural timber with rectangular cross section. General requirements
- BS EN 14592:2008+A1:2012 Timber structures. Dowel type fasteners. Requirements
- BS EN 16351:2021 Timber structures. Cross laminated timber. Requirements
- BS 5534:2014+A2:2018 Slating and tiling for pitched roofs and vertical cladding. Code of practice
- BS 5250:2021 Management of moisture in buildings. Code of practice
- BS 6093+A1:2013 Design of joints and jointing in building construction. Guide
- BS 8000-0:2014 Workmanship on construction sites. Introduction and general principles
- BRE Report 262:2002 Thermal insulation: avoiding risks
- BRE Report 443:2006 Conventions for U-value calculations
- BSRIA/TRADA IEP6:2006 Services in timber framed construction. Guidance to a defect-free interface
- CWCT:2005 Standard for systemised building envelopes
- EAD 040083-00-0404:2019 External thermal insulation composite systems (ETICS) with renderings
- EAD 040287-00-0404:2017 Kits for external thermal insulation composite systems (ETICS) with panels as thermal insulation product and discontinuous cladding as exterior skin
- EAD 090062-00-0404:2018 Kits for external wall cladding mechanically fixed
- EAD 330196-01-0604:2017 Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering
- EOTA TR 051:2018 Recommendations for job site tests of plastic anchors and screws
- ETAG 014:2011 Plastic anchors for fixing of external thermal insulation composite systems with rendering
- Government Accredited Construction Detail for Part L:2019
- IGE/UP/7 Edition 2 +A:2008 - Gas installations in timber framed and light steel framed buildings

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, and the Agrément holder should be contacted for the clarification of revisions.

5 AMENDMENT HISTORY

Revision	Amendment description	Author	Approver	Date
-	First Issue	C Devine	C Vurley	March 2022

6 CONDITIONS OF USE

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