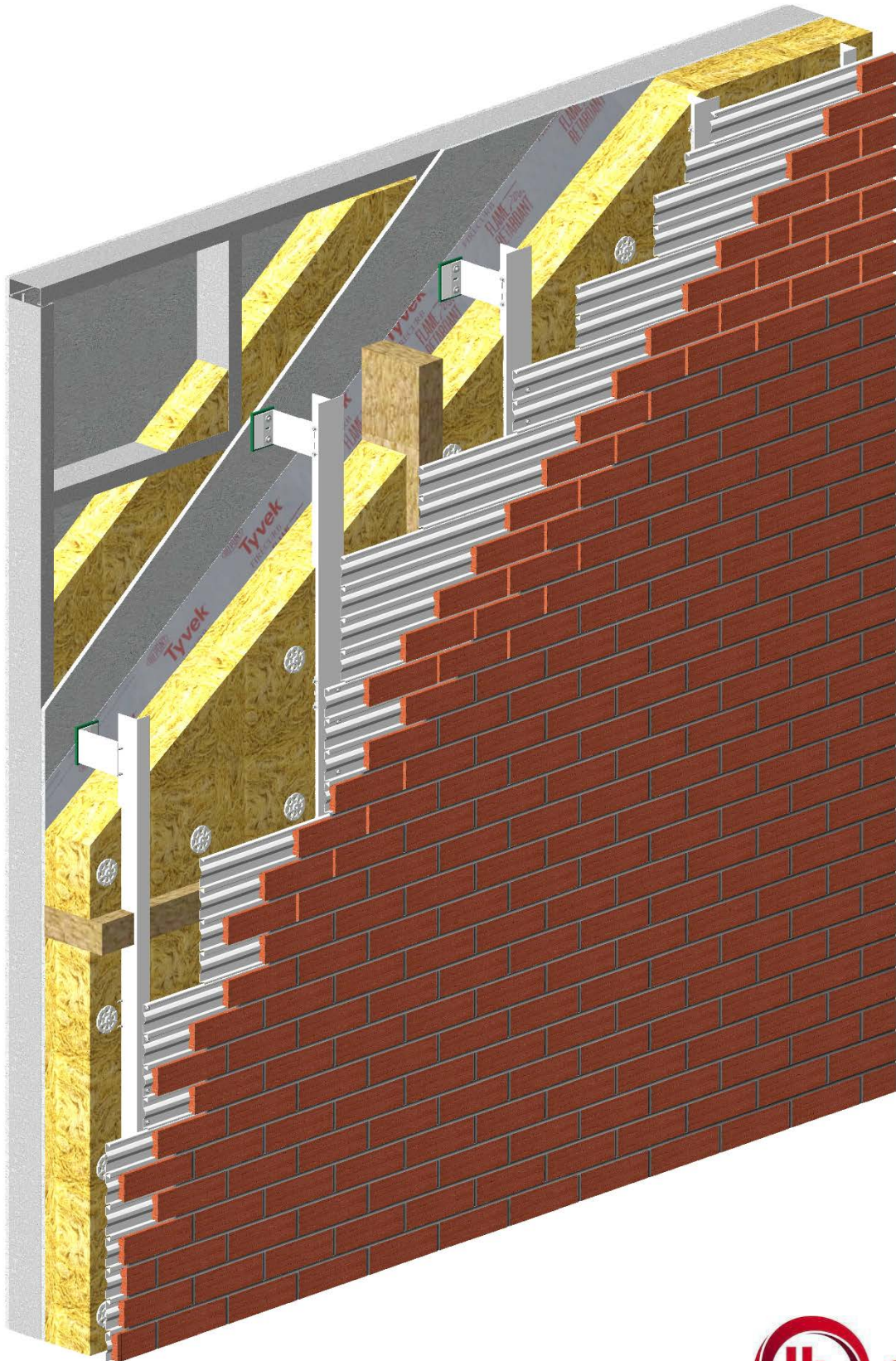


SALAMANDER BRICK SLIP INNOVATION LIMITED

SALAMANDER BRICKSLIP SYSTEM

TECHNICAL DOCUMENTATION

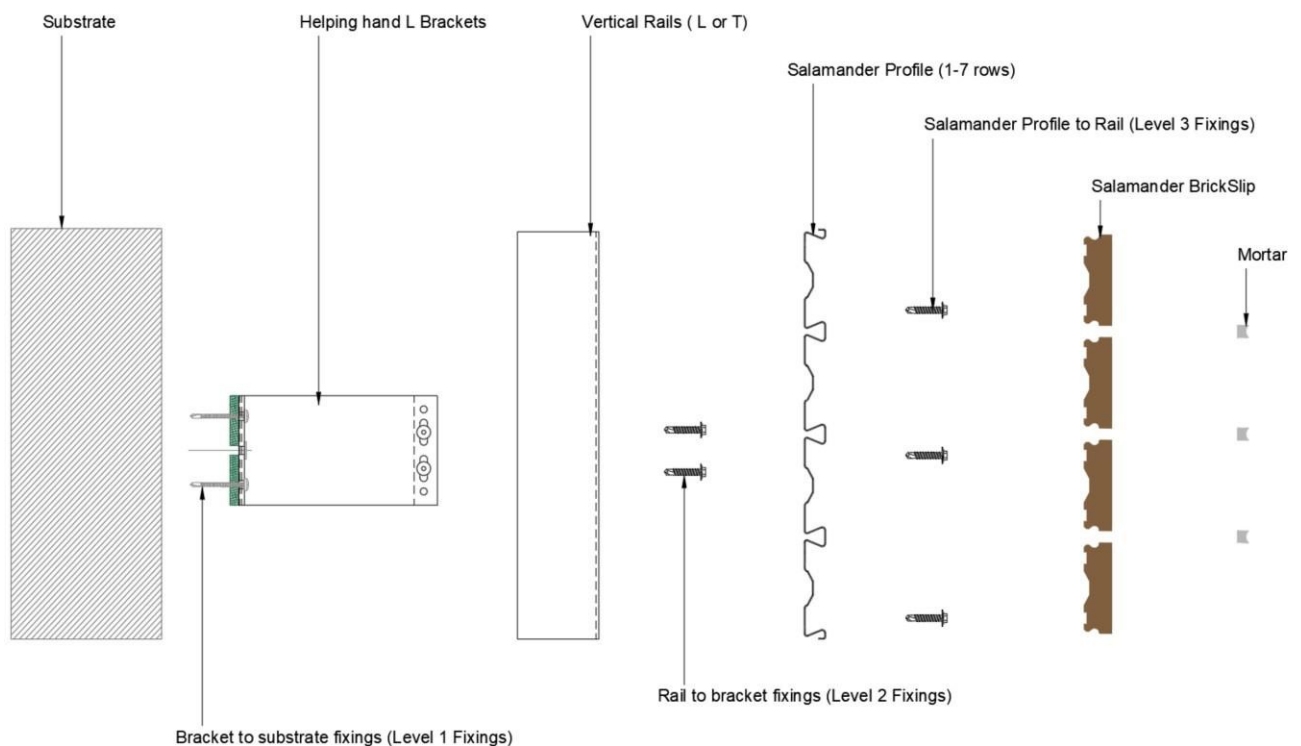


1. Salamander BrickSlip System Description and Intended Use

The Salamander BrickSlip System consists of clay brickslips, mechanically push fitted to the salamander profile (1-7 rows), fixed to the sub frame comprising T rails or L rails and helping hand L Brackets which creates a cavity. The helping hand L brackets are mechanically fixed to the Substrate. The System is suitable for installation above damp-proof course level. The Salamander profile is designed to course fit the shape of Brickslips, profile can be available either as single row profile or up to 7 rows profile.

The Salamander BrickSlip Cladding System is suitable for use as protective and decorative back-ventilated and drained cavity rain-screen cladding to existing substrates. The system is designed to provide substantial cost savings compared to similar systems and delivers the flexibility and aesthetic appeal of real brick in a fraction of the time. The system is ideal for external walls of domestic and non-domestic buildings, above the damp-proof course level in areas with non-severe exposure to chemicals.

Salamander BrickSlip System Overview:



Use Salamander on:

- Steel frame
- Concrete frame
- Brickwork
- Dense concrete blockwork (minimum 1450kg/m³)
- Lightweight steel framing
- Existing masonry
- Timber frame

Please check suitability of Salamander for your project with an Salamander Brick Slip Innovation Limited Advisor. (Regions and contact details at the end of this document).

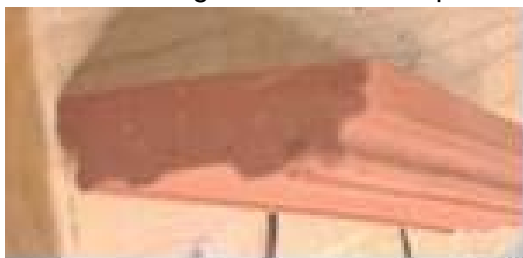
2. DESIGN AND SPECIFICATION

A non-loadbearing external cladding tested to CWCT standards, fixed back to provide weather protection to an inner leaf, drained and back ventilated, suitable for both new build and refurbishment projects.

2.1. System Composition

2.1.1. Salamander BrickSlip

Clay fired bricks of any size format can normally be accommodated. Standard BrickSlips are 20mm thickness and grooves in each slip are designed in order to sit on the salamander profile.



Standard bricks are 215x 65mm however; Imperial or Linear sizes can be specified (supplied to the published size tolerances for each brick type).

Durability

Suitable for severe exposure applications.

May be considered equivalent to F2 designation to BS EN 771-1.

Soluble Salt Content

Soluble salt content is negligible and is not tested.

May be considered equivalent to S2 designation to BS EN 771-1.

Water Absorption

The water absorption of the tiles to BS EN 771-1 is < 7 %.

2.1.2. Mortar

The system has been tested using Parex Historic gun injection pointing mortar, which has excellent adhesion and movement accommodation properties. You have a large choice of mortars from sand and cement (to match existing brickwork) or we can recommend various colours.

2.1.3. Salamander Profile (1-7 rows)

Salamander Profile 1- 7 rows rails can be affixed either directly to Substrate, or to vertical L or T rails fixed back to a substrate by means of wall brackets. The Salamander profile is profiled to suit the brickslip coursing height in different course of row, starting from Single row profile up to 7 rows. It is available in 0.7mm thick Magnelis metallic coated Steel (ZM310 and ZM340) or 0.5mm thick Stainless steel (grades 304 and 316).



2.1.3.1. Magnelis

Magnelis is a flat carbon steel product coated on both sides with a zinc-aluminium-magnesium alloy. This alloy, composed of 93.5% zinc, 3.5% aluminium and 3% magnesium, is applied by means of a continuous hot dip galvanising process.

Salamander are available in two coating thicknesses:

ZM310 - Coating weight of 310g/m² (25 µm)

ZM430 - Coating weight of 430g/m² (35 µm)

2.1.3.2. Stainless Steel

Grade 304

Grade 316 – coastal applications

Grade 316 includes molybdenum which significantly increases resistance to salt corrosion making it more suitable for saline or chloride exposed environments.

Note: As optional Galvanized steel can also be used as Salamander Profile



2.2. Sizes and Weights

Vertical (T) support rail lengths: 2.4 metres, 3 metres or 6 metres available.

Vertical (L) support rail lengths: 3 metres available.

Backing Rails - Salamander Profile 1 to 7 rows available

Brick slips typically 215mm x 65mm x 20mm weigh approximately 32kg per m². Cut and bonded variants for corners, sill and rebates are available which will increase individual slip weights.

Rail System weight approximately 8.61kg/m²

Pointing mortar weight approximately 5kg/m²

System Weight approximately 45.6kg/m²

Thermal Conductivity -The average thermal conductivity (k value) for clay brick slips is 0.84W/mK.

3. Design Consideration

3.1. Substrates

The Salamander Brickslip Cladding System, when installed in accordance with the Installation guide is satisfactory for use as protective and decorative back-ventilated and drained cavity rain-screen cladding systems on external walls of domestic and non-domestic buildings above the damp-proof course (DPC) level in areas with non-severe exposure to chemicals. The system transfers its self-weight and design wind loads through the supporting sub-frame to the substrate wall. The substrate walls and supporting sub frame must be capable of supporting the associated loads. Ensure the substrate is robust enough to support the envisaged weight.

Salamander is suitable for new build construction and for renovating existing structures, and is suitable to be fixed to the following materials:

- Existing masonry/brickwork
- Existing concrete frame
- Dense concrete blockwork (min. 1450 kg/m³) Steel frame
- * Lightweight steel framing
- * New build blockwork
- * Timber frame

The substrate walls to which the systems are fixed must be structurally sound, and designed and constructed in accordance with the requirements of the relevant national Building Regulations and Standards.

- timber-frame walls must be designed and constructed in accordance with PD 6693-1: 2019, BS EN 1995-1-1: 2004 and BS EN 1995-1-2: 2004 and their UK National Annexes, with workmanship in accordance with BS 8000-5: 1990, and preservative-treated in accordance with BS EN 351-1: 2007 and BS 8417: 2011.
- steel-frame walls must be structurally sound, and designed and constructed in accordance with BSEN 1993-1-1 :2005, BS EN 1993-1-2: 2005 and BS EN 1993-1-3: 2006, and their UK National Annexes.
- masonry walls must be designed and constructed in accordance with the relevant recommendations of BS EN 1996-1-1: 2005, BS EN 1996-1-2: 2005, BS EN 1996-2: 2006 and BS EN 1996-3: 2006, and their UK National Annexes, and BS 8000-0: 2014 and BS 8000-3:2020.
- concrete walls must be designed and constructed in accordance with BS EN 1992-1-1: 2004 and BS EN 1992-1-2:2004, and their UK National Annexes.

The substrate walls to which the systems are fixed must satisfy the requirements of the relevant national Building Regulations and Standards with regard to water-tightness, and heat and sound transmission. The systems transfer their self-weight and design wind actions through the supporting sub-frame to the substrate wall. The substrate walls and supporting sub-frame must be capable of resisting the associated actions. Particular care is required around window and door openings to ensure that the structure is capable of sustaining the additional weight of the systems. The maximum spacing between vertical and horizontal sub-frame supports must not exceed 600 mm centres.

3.2. Loads

Salamander BrickSlip System can be used where the maximum design wind load does not exceed ± 2.4 kN for serviceability & ± 3.6 kN for safety.

All applicable loads shall be transferred safely to the building's structure without undue permanent deformation or deflection of any component.

3.3. Support and Fixings

The Salamander Profile backing sheet can be mounted horizontally or vertically and are mechanically fixed to the supporting subframe.

Salamander Profile is typically fixed to an aluminium sub-frame consisting of extruded aluminium L and T shaped vertical profiles secured to the backing wall with aluminium helping hand support brackets.

On Project basis Individual Structural Calculation must be performed in accordance with BS EN 1991-1-1 and BS EN 1991-1-4. Allowance for movement should be provided in accordance with the design.

All supports are required at a maximum of 600mm centres either vertical or horizontal.

Fixings

All system fixings should be Aluminium / stainless steel. Rail fix screws, thermal pad, fixing screws, and bracket/wall fix screws are supplied where necessary. Fixings, brackets and support rails are supplied by Salamander Brick Slip Innovation Ltd. The quantity calculated on an individual project-by project basis.

Primary fixing (Level 1 Fixing) The method of (Level 1) fixation depends on the type of substrate the Helping hand L bracket system is going to be fixed to. Level 1 fixing range includes insulation fasteners and support anchors designed to fix to a variety of substrates including concrete, steel, and timber. To Further consideration must also be made regarding the design loading capabilities of the level 1 fixings as defined by Technical Performance Values within European Technical Approval (ETA) standards or determined via On-Site "Pull-Out" strength testing.

Level 2 Fixings, Fixing Vertical "L or T" rails to brackets within the subframe.

Level 3 Fixings, Fixing Salamander Profile to Vertical "L or T" rails to Rails.

3.4. Movements

3.4.1. Existing Structures

Provision for thermal movement in the Salamander system should be provided at 6m centres vertically and horizontally.

Leave a 10mm gap between Salamander Profile, place 20mm low density, compressible, closed cell polyethylene filler at a depth of 10mm and seal with a suitably coloured low modulus neutral cure silicone sealant (such as Arbosil 1090 as the modulus is flexible enough to accommodate envisaged movement). This does not cover structural considerations, which depend on the substrate.

Provision for movement is the responsibility of the project designer/engineer and must be confirmed by the installer before proceeding with installation.

3.4.2. New Build Structures

Salamander is applied to new build Structures, vertical movement joint spacing for the Structure should be in accordance with BS EN 1996 and PD6697.

Vertical expansion joints to allow for horizontal movement should be provided through brick, mortar and Salamander Profile at a maximum of 6 m centres in the brick slip cladding. The actual spacing and position of the joints should coincide with movement joints in the substrate wall and allow for the same degree of movement. They should extend throughout the full height of the building including parapets etc. Movement joints in the structure of the building should be carried through to the face of the cladding

Horizontal expansion joints, to allow for vertical movement, should be provided at a maximum of 6 m centres coincident with a floor, and more frequently in timber-frame structures.

For structures containing timber-frame or steel-frame, reference should be made to the structural engineer's details for deflection at floor level and movement joints in the substructure.

Leave a 10mm gap between Salamander Profile, place 20mm low density, compressible, closed cell polyethylene filler at a depth of 10mm and seal with a suitably coloured low modulus neutral cure silicone sealant (such as Arbosil 1090 as the modulus is flexible enough to accommodate envisaged movement). This does not cover structural considerations, which depend on the substrate.

Provision for movement is the responsibility of the project designer/engineer and must be confirmed by the installer before proceeding with installation.

4. Rainscreen Cladding

4.1 Durability

The durability and service life of the system will depend on the location, height and the intended use of the building, and the immediate environmental conditions. Provided regular maintenance is carried out, as described by SBSI and in accordance with the SBSI Façade's instructions, the system will have a design life in excess of 60 years in normal UK conditions. For use in very severe exposure zones the steel backing rail must be made of stainless-steel grade 316 to obtain a design life in excess of 60 years.

After natural weathering, a slight change in colour of the tiles may occur. However, this is not likely to be progressive.

The substrate wall face to which the system is fixed should be flat, vertical and capable of supporting appropriate loads. Vertical subframe supports are required at maximum 600 mm centres.

Magnelis Salamander profiles can be fixed directly to aluminium without the need for isolation tape.

This Data Sheet will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

are maintained at or above the levels which have been assessed and found to be satisfactory by SBSI Facade, continue to be checked as and when deemed appropriate by SBSI Facade under arrangements that it will determine

are reviewed by the SBSI Facade as and when it considers appropriate.

The Salamander brickslip cladding system is Designed to be used on any Modular or Traditional Building, and is suitable for Steel, Wood, Block/brick Substrates

4.2 Ventilation and drainage

To provide adequate ventilation (and to satisfy NHBC Chapter 6.9 requirements) a minimum 15mm continuous cavity between the back of the Salamander profile and the face of the insulation and/or backing wall is required. The cavity zone should be continuous and unobstructed apart from any vertical cavity fire barriers that are installed to comply with building and statutory regulations. All horizontal cavity fire barriers should allow for adequate ventilation and drainage of the rainscreen system.

Ventilation gaps are required at the top and the bottom of the facade and above and below every facade aperture to ensure sufficient air circulation.

All ventilation air gaps greater than 10mm should be fitted with a suitable perforated vent profile to prevent the ingress of insects and vermin.

This must be provided behind the systems. The minimum cavity width between the back face of the steel backing sections and the substrate wall (or insulation if installed within the cavity) should be 38mm, and a minimum ventilation area of 5000mm² per metre run must be provided at the building base point and at roof edge. Joint gaps between the bricks are filled in with pointing mortar.

For retrofit installation, any existing external plumbing should be removed before installation, and alterations made to underground drainage, where appropriate, to accommodate repositioning on the finished face of the systems.

4.3 Thermal bridging and condensation

The Thermal options incorporate the addition of thermal insulation in the form of a bonded non-compressible insulating pad to enable exceptional thermal performance to be achieved.

A ventilated layer behind the chosen façade material ensures the risk of condensation is minimized as well as dissipating solar gain on the building. Brackets, primary fixings, rails and carriers are an integral part of the Rainscreen Cladding build up and their impact on heat loss in the construction, plays a key

role. Thermal performance improvements within the façade of a building are often achieved via the addition of plastic or polymer composites incorporated within or used in conjunction with certain thermal break components with rainscreen framing.

4.4 Interfaces

The system has suitable interfaces and resist the penetration of water and wind. Various Interface details are shown in the detail sketches. The cladding system wall cavity will be fully drained and vented in accordance with NHBC Chapter 6.9 requirements for a minimum 38mm clear cavity width.

4.5 Insulation

SBSI Facades can supply Rainscreen Mineral wool insulation with various densities and thickness. It is Mineral wool - Thermal insulation material formed by melting of basalt stone at 1350°C- 1400°C into fiber - for thermal, sound and fire insulation product. The products are natural fibrous material with its thermal and sound insulating properties, water-repellent, excellent performance for the fire protection of residential area and industrial structures. It is noncombustible with a melting point of approximately 1000°C. The products may also be manufactured with facings with excellent thermal insulation, with a very low thermal conductivity coefficient and excellent thermal resistance even at high temperatures. Available in a wide range of thicknesses to suit most requirements and are CE marked to EN 13162. Warrington fire test report on A1 Classification of reaction to fire can be supplied up on request.

Report reference from Warringtonfire WF525688. Copies available from the SBSI Facades.

Insulation Fixings

A minimum of 9 No. fixings per full board $9/2.88=3$ fixings/m²

These should be positioned greater than 50mm but less than 150mm from the board edge (except centre fixing). We just say the fixings are 100mm in from the edge as standard.

In order to comply with CWCT standards and therefore NHBC requirements must be noncombustible i.e. a metal disc in place of a nylon disc. If there is a fire in the rainscreen cavity this ensures the slabs do not fall off the backing wall. Therefore, on a full board we must use 3 metal discs.

Obliviously site conditions vary, we may be using special sized boards, or boards with irregular cut outs.... however, the active rules still apply and we must ensure we install a min of 3 fixings/m² of which 1/m² must be metal not nylon.

4.6 Damp Proofing and Vapour Control

The system may be used below the DPC level and at sub-basement level below the ground. The Salamander system is non-loadbearing, so the sub-ground structural wall needs to be able to support the Cladding system, the sub-frame, and any imposed loads from the surrounding terrain. We would always recommend that the project structural engineer be consulted on this type of application. The Salamander BrickSlip System, including damp proofing materials is designed to adequately resist the passage of water into a building and allows water vapour to pass outwards. EPDM adhesive sealant and EPDM membranes are utilised. Cavity trays are to be fitted at the base of the system and above any openings.

4.7 Electrical continuity and earth bonding

Electrical continuity and earth bonding is to be managed by separate contactors onsite during installation

4.8 Fire Classification

The Salamander BrickSlip System achieves Reaction to fire classification "A1" in accordance with BS EN 13501-1. Report reference from Warringtonfire WF546431. Copies available from SBSI Facades.

The fixings and support system are classified as 'non-combustible' or 'of limited combustibility' in accordance with the relevant national regulatory guidance.

Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction (for example, thermal insulation).

Wall brackets with a thermal break isolator pad are used to reduce the risk of cold bridging across the bracket/wall interface. They are largely protected by the cladding panels and, as they are considered present in relatively small quantities, are unlikely to significantly affect the overall fire performance of the cladding.

The systems are classified as 'non-combustible' and are not subject to any restriction on building height or proximity to boundaries. The use of Rainscreen insulation can be supplied in association with Salamander Brickslip system.

4.9 Air Infiltration

The Salamander BrickSlip system recommends Breather membrane Tyvek Du-point Fire Curb House wrap, A continuous layer that limits air leakage through the backing wall. Before installation of the system, the backing wall should be considered in regard to airtightness. Each joint should be taped or sealed on framed walls, including a rigid sheathing on the cavity face.

4.10 Cavity barriers and firestops

To limit the risk of fire spread between the floors in buildings subject to the national Building Regulations, fire barriers must be incorporated in the cavity behind the system as required under these Regulations, but should not block essential ventilation pathways. Guidance on fire barriers can be found in BRE Report BR 135 : 2013.

Both horizontal and vertical cavity fire barriers should be installed in the rainscreen cavity zone to comply with building and statutory regulations. The cavity fire barriers must be designed and tested for use in a rainscreen system and be fully passive and noncombustible.

The number and location of the cavity fire barriers is determined by the respective design teams and their fire consultants on an individual project basis.

5 Installation and Tolerance

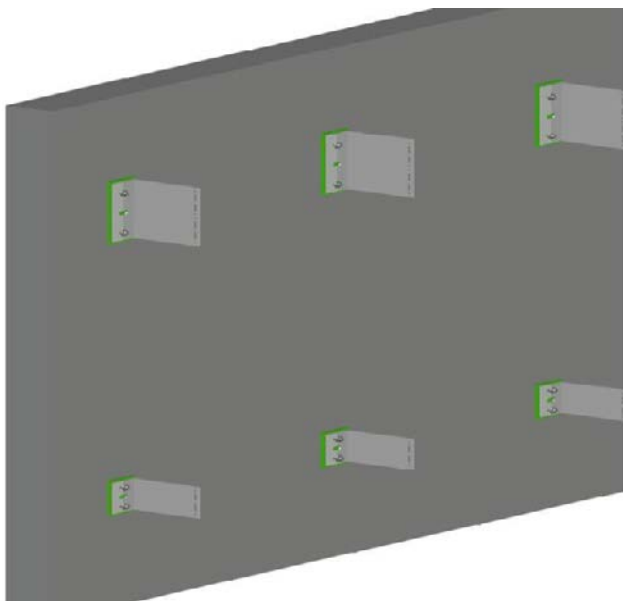
Installers must be trained and approved by SBSI Facades who can provide technical assistance at the design stage and at the start of installation. The substrate wall face to which the systems are fixed should be flat, vertical and capable of supporting appropriate loads. Vertical sub-frame supports are required at maximum 600 mm centres.

A pre-installation survey must be done to check the condition of the substrate wall with regard to being flat and vertical within the acceptable tolerances. The brackets can provide up to 30 mm adjustment to accommodate deviations in the substrate wall. Using the appropriate grid layout, vertical or horizontal rails are fixed to the supporting brackets using stainless steel screws, identifying positions where cut-outs are required. When using 65 mm high brick slips, the brick rails should be fixed at the vertical supports at 75 mm vertical centres.

Salamander brick slips are pushed firmly into place, guided by the pre-formed upper and lower ribs of Salamander profile. Brick spacers should be used between each brick to create a nominal 10 mm vertical joint for pointing mortar.

Step -1

Masonry substrates - Mechanically fix vertical support rails to the building substructure using brackets supplied at 600mm maximum centres. The project specific approved drawings shall be followed for the Single or double / Fixed / Sliding point Helping Hand L brackets.



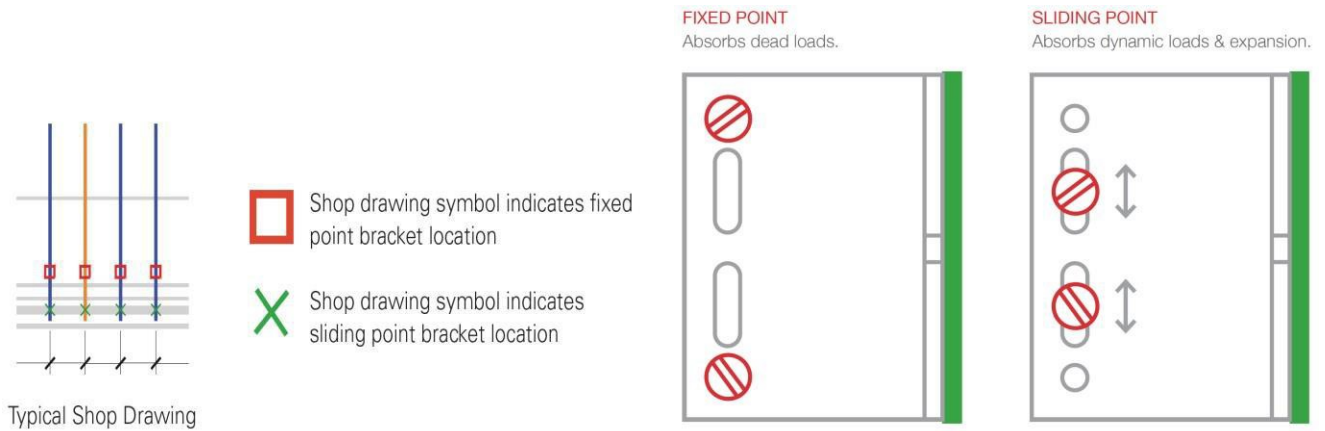
Brackets



Single Bracket



Double Bracket



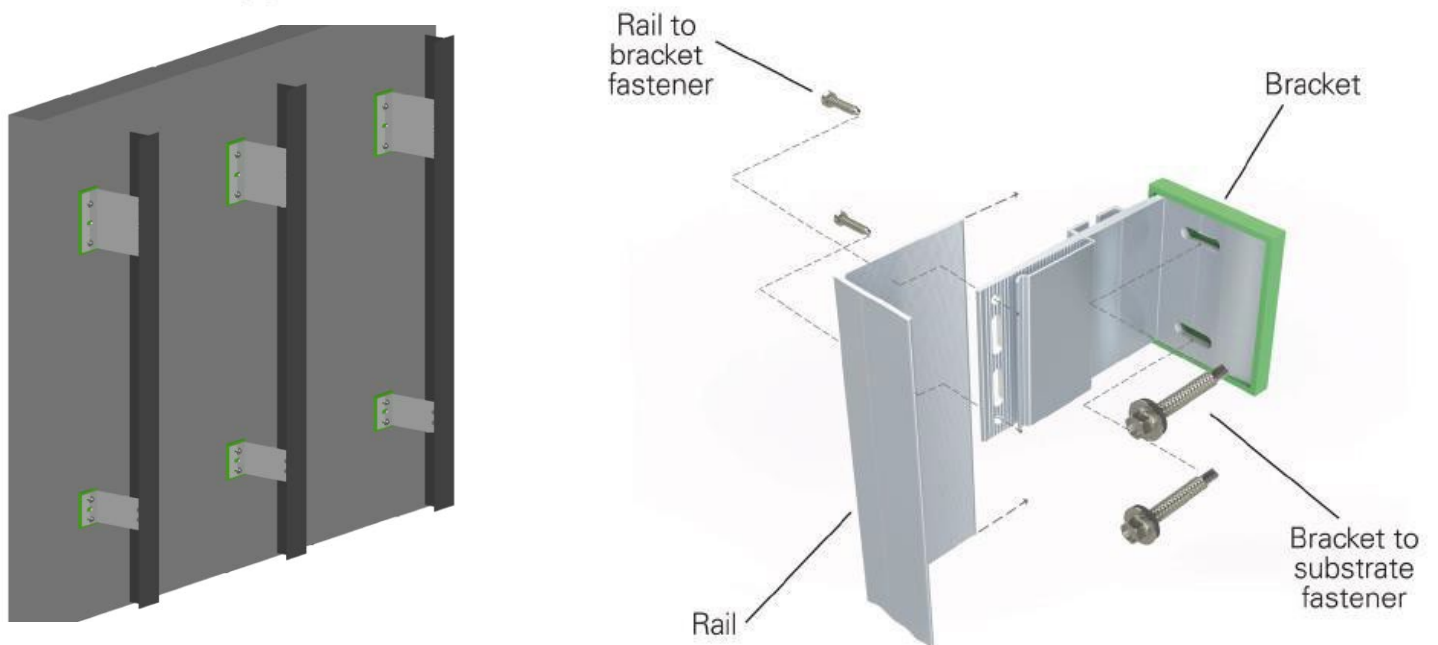
Step -2

Once a line of vertical brackets is installed, 'L' rail / 'T' rail can be attached using the 'helping hand' at each bracket position. Each 'L' or 'T' rail should be cut to the required length, from standard length rails. Place the rail in each of the brackets using the helping hand to support the rail. Move the rail into its vertical position - allowing 10mm expansion gaps between rails.

Generally, profiles are cut to lengths that reflect the storey height. Typically, storey height profiles are cut so that the panel(s) are located on one set of vertical profiles and does not 'bridge' the 10mm expansion gap between two profiles.

As each profile is secured to the brackets ONE, near the centre of the profile, MUST be connected with fixings going through the HOLES. (Fixed point) ALL other brackets should then be fixed in the SLOTS (sliding point). For precise fixed point and sliding points - a project specific static calculation to be prepared. Secure the rail using stainless steel screws to the fixed or sliding points

Typical Installation Orientation



Note: facade and substrate not shown.

Step -3

Fix salamander profile to vertical rails using Level 3 fixings. Recommended fixing layout shown in detail drawings.

Cutting and Drilling

Also, refer to section 8 COSHH.

If brick slips require cutting down to shorter lengths it is recommended to wet cut using a water fed angle grinder or chop saw and wear a suitable facemask when cutting. The minimum length of a brick slip should not fall below 50mm.

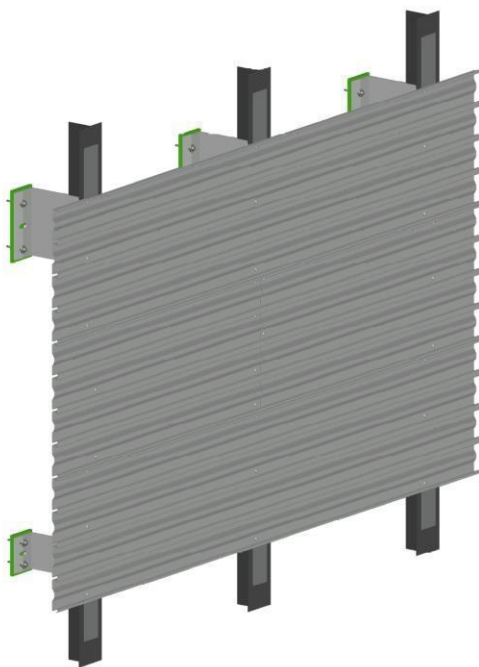
Salamander Profile and Aluminium rails are likely to require cutting to size and when cutting aluminium elements the cutting disk must be suitable for aluminium and not a standard slitting disk.

Wear suitable eye and hand protection when cutting.

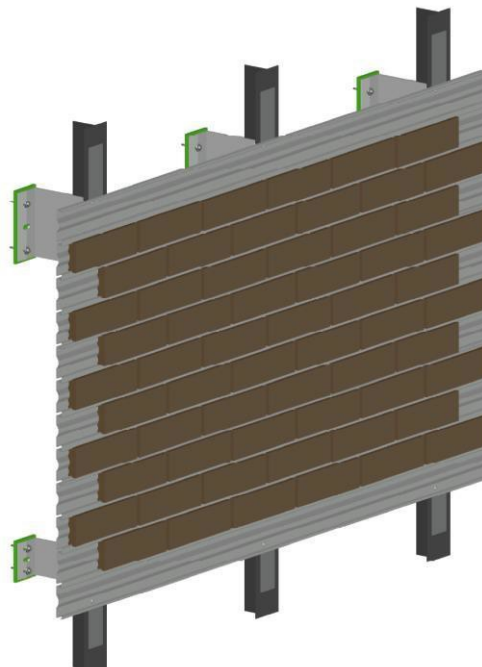
Suitable ear defenders should be worn by everyone in the vicinity of mechanical cutting machines.

Step-4

Push Salamander brick slips firmly into place, guided by the pre-formed upper and lower ribs on the profile.



(Step-3)

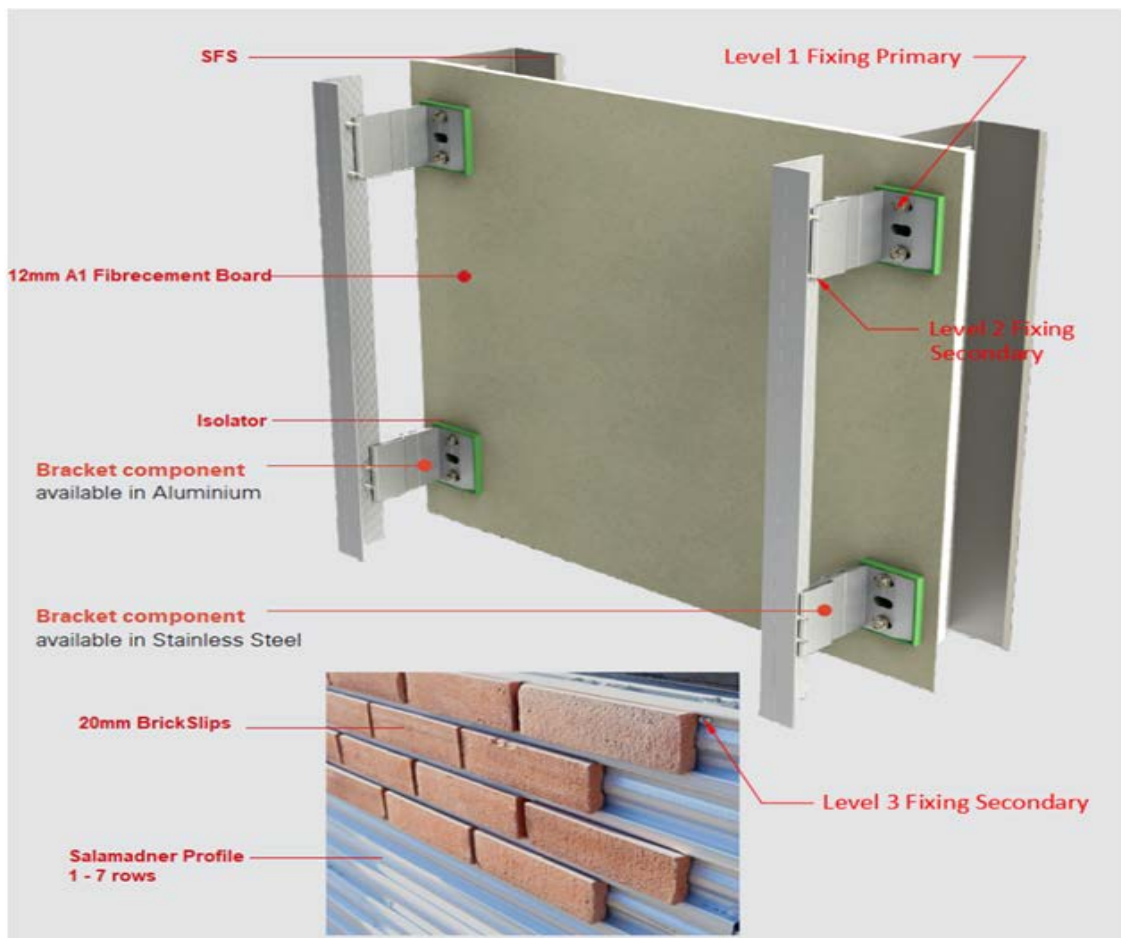
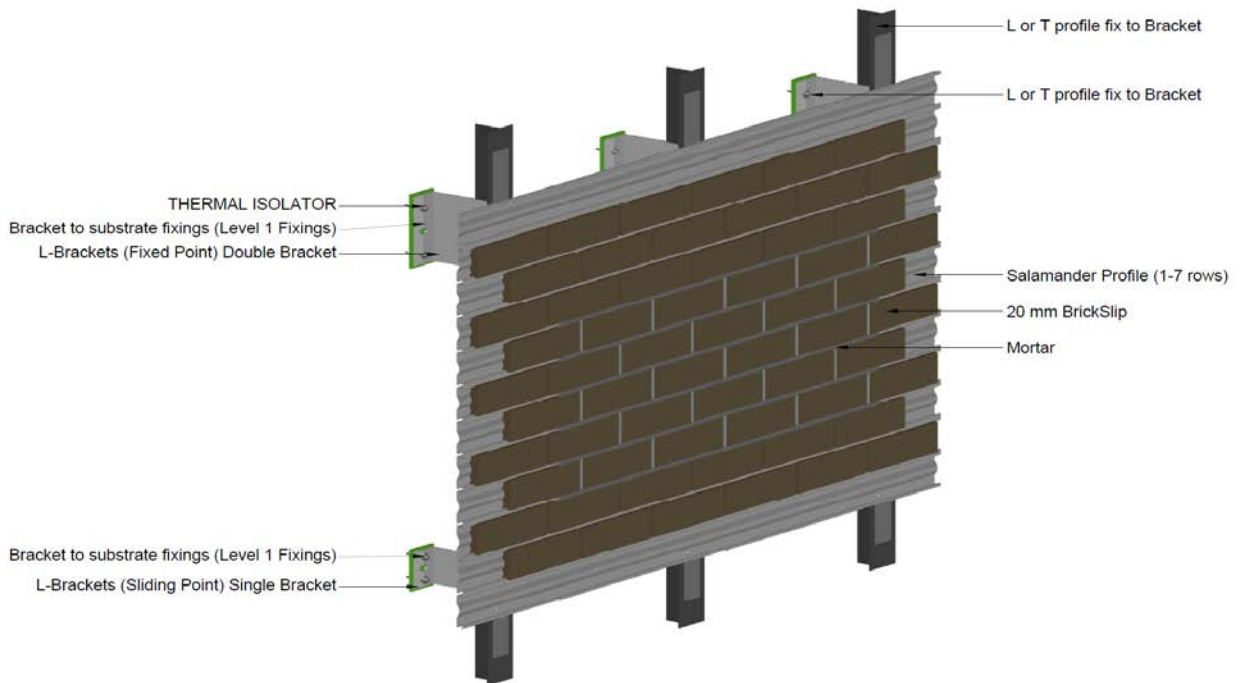


(Step-4)

Step-5

Once the BrickSlip installation is complete simply injection point with Pointing mortar in a bucket handle profile to realise a classic clay brick finish. The 'cutting off' of excess mortar prior to tooling is recommended when smooth faced tiles are being used.

Mortar is a dry packed blend of lime, GGBS, selected silica sands and natural aggregates together with additives to provide water resistance, workability and colour. A minimum Class (iii) designation mortar can be used. Bucket Handle joint profile is recommended, however for certain products a slightly recessed joint, no more than 3mm, may be more aesthetically suitable. Follow the mixing guidelines supplied on the packaging and allow sufficient curing time. Avoid mortar contamination on bare aluminium rails.



6 Cleaning and Maintenance

6.1 Cleaning

The procedures and recommendations available from SBSI should be followed.

Additional information is contained within BS8221-1, which refers to general cleaning of building materials with a useful reference on brick masonry repair, and BDA Note 2 on cleaning of brickwork.

Take care if considering acid based cleaners as this may adversely affect any bare aluminium.

6.2 Maintenance

The Salamander system requires little or no maintenance. Check mortar pointing at 5-year intervals as part of a maintenance review. Refer to SBSI for guidance on specific topics if required.

6.3 Repairing Damaged Areas

The nature of the damage needs to be assessed by a competent person. Minor damage may only require mortar and tile removal and replacement in a limited area only. More serious damage may involve tile and mortar removal, together with salamander profile replacement. This will require removal of profile up to and including the standard fixing centres of 600mm, re-setting the structural frame (if provided) and re-fixing as for a new build application.

7 Handling and storage

Consider the access arrangements and ensure that the delivery vehicle can be safely manoeuvred to the desired point of delivery.

Provide a firm, level, clean and well drained base to allow safe delivery and storage.

This area should not be at risk of soiling from passing vehicles or other adjacent site operations.

Check that the consignment is the correct type and quantity. A number of bricks should be randomly selected from the delivery to ensure that their appearance is reasonably consistent with the site reference panel.

Fired clay is hard and durable but can be susceptible to chipping so care should always be taken to place the packs carefully with the forklift and avoid allowing any distortion of the pack shape to occur. Some products are not suitable for lifting by a grab; consult the manufacturer.

Bricks must be kept covered in storage and protected from inclement weather. Excessively wet or saturated bricks are difficult to lay and can give rise to the risk of efflorescence, lime leaching and mortar staining.

8 Health Safety

COSHH

Salamander brick slips and carrier rails will require cutting on site. If powered tools are used to cut this product, amounts of dust may be produced.

Depending on the environment and the method of cutting, it is possible that some respirable silica may be generated from the brick slips. The main effect in humans of the inhalation of respirable silica dust is silicosis.

There is sufficient information to conclude that the relative lung cancer risk is increased in persons with silicosis.

Therefore, preventing the onset of silicosis will also reduce the risk of cancer. Since a clear threshold for silicosis development cannot be identified, any reduction of exposure will reduce the risk of silicosis.

Under the COSHH Regulations, the Workplace Exposure Limit (WEL) for respirable silica is 0.1mg/m³ (from October 2006). The only reliable way to ascertain the levels of individual exposure during cutting is to carry out detailed personal monitoring.

Flammable dust may be generated from cutting aluminium. The use of water fed cutting equipment is recommended to minimise dust generated by cutting operations

Dust may cause skin irritation, wear suitable gloves and barrier cream to avoid abrasion.

Wear eye protection and ear defenders when mechanically cutting materials.

Salamander components are manufactured in the UK from naturally inert materials and are not prone to off-gassing of volatile materials. Clay products are non-toxic.

8.1 Processing

The use of personal protective equipment (PPE) will minimise the risks associated with falling objects and sharp edges.

Salamander components may be grouped together into packs. Care should be taken in their handling. Equipment used for lifting packs must be adequate for the weight involved. The weight of the pack varies according to the content. These packs are delivered on disposable wooden pallets and are contained by plastic shrink-wrap.

All personnel involved in the handling of packs should be made aware that shrink-wrap and banding straps contain the products and tilting of the pack could allow the products to fall:

AVOID abnormal shocks to the packs

AVOID sliding one pack against any face of another pack

NOTE packaging can deteriorate over a period of time.

Packs should be placed singly on dry, level ground.

Any pallets supplied by the client to store or transport packs must be very close in size to the pack dimensions and must be of adequate strength to support the weight of product placed on it.

8.2 On Site Handling

To lift pallets by a mobile fork truck, only use the holes in the pallets provided. "Side grabs" should not be used to lift packs from the lorry. Do not move opened packs of stacked units around site. Ensure units are laid flat. Where packs are lifted more than 1 metre above ground level, a safety cage of adequate dimensions around the pack should be used. All personnel must stand well clear of packs when they are being lifted or moved. If it is considered necessary to store a pack above ground level, it should only be placed on a suitably designed staging with guardrails of appropriate height to prevent any components falling to lower working areas.

8.3 Manual Handling

Repetitive handling of any product including brick slips can give rise to upper limb disorders such as muscular

strains and sprains. Specialist help should be sought for anyone involved in this type of work.

IT IS THE CUSTOMERS RESPONSIBILITY TO OBTAIN TECHNICAL DATA ON ALL MATERIALS TO BE USED WITH SBSI. NO LIABILITY CAN BE ACCEPTED IN RESPECT OF OTHER MATERIALS USED IN CONJUNCTION WITH THESE PRODUCTS.

8.4 Disposal of Packaging

Redundant packing materials should be gathered together daily and placed in waste disposal skips for removal to an approved tip. The burning of any packaging materials is not normally permitted on sites.

9 DESIGN / CAD / TECHNICAL

9.1 Technical and Design SERVICES

Email technical@echofacade.co.uk for advice on suitability and specification considerations.

On site trouble shooting.

Application guidance.

9.2 Salamander System Drawings

- System Exploded View
- Salamander Profile (1-7 rows)
- Wall Built Up on (SFS) Plan
- Window Head Detail
- Window Reveal Detail
- External Corner Detail
- Roof Capping Detail
- System Wall Built Up Detail
- Typical Salamander Profile Fixing
- Ground – Base Detail
- Window Cill Detail
- Separating Floor Detail
- Internal Corner Detail
- Vertical Movement Joint Detail

- ✓ Horizontal Movement Joint Detail
- ✓ Salamander System Isometric View
- ✓ L Bracket Detail
- ✓ Vertical Movement Joint
- ✓ Rigid Penetration Detail
- ✓ Vertical L or T Rail Detail

For a complete set of typical details please speak with a Design Advisor.

10 CONFORMITY & SUMMARY OF TESTING

Salamander BrickSlip System has undergone UL testing and assessment to product (Under process).

The Salamander was independently tested by UL International (UK) Limited in Telford for wind resistance (serviceability and safety), water tightness and impact resistance. Test Report no. R4790609825

Materials

Fired clay brick slips supported by Magnelis / Stainless Steel backing sheet affixed to steel

Salamander BrickSlip

Declared performance:

Essential Characteristics	Performance	Harmonised Technical Specification
Dimensions and Dimensional Tolerances	Complies Tolerance Class T2 Range Class R1	EN771-1:2011
Active Soluble Salts	Class S2	EN771-1:2011
Reaction to Fire	Class A1	Commission Decision 2000/605/EC
Water Absorption	< 7%	EN771-1:2011
Durability Against Freeze Thaw	F2	EN771-1:2011
Dangerous Substances	NPD	EN771-1:2011

Magnelis Salamander Profile

Corrosion category for Zn (ISO 12994-2:2017)	Coating design life (years ¹)	
	Magnelis® ZM310	Magnelis® ZM430
C2	> 50	> 50
C3	30 to > 50	40 to > 50
C4	15 to 30	20 to 40
C5	8 to 15	10 to 20

Test Programme

The test programme was carried out with results as follows:

Wind Resistance – serviceability and safety

CWCT testing achieved ± 2400 Pascals serviceability, ± 3600 Pascals safety. PASS

Wind Penetration – (Static Pressure)

CWCT testing achieved ± 600 Pascals. PASS

Water Tightness –dynamic pressure

CWCT testing achieved 600 Pascals - PASS

Impact Resistance

Soft and hard body impact tests - CWCT testing achieved Cat B, Class 2 serviceability, negligible risk safety. PASS.

Classification to Fire Reaction

The Salamander Brickslip system is classified as “A1” Reference Warrington Fire Test Report WF546431

11 Quality & Sustainability

Recycling

Despite the potential longevity of fired clay products, they are sometimes demolished well before the end of their useful life.

The following are possible uses for recycled clay building materials:

- Reclaim and re-use.
- Filling and stabilising material for infrastructure works.
- Aggregates for in-situ and precast concrete and mortars.

The majority of the aluminium used in carrier and support rail extrusions is from recycled sources and can be recycled by a licensed company.

'Adaptable building' is used to describe a structure that has the ability to be modified or extended at minimum cost to suit the changing needs of the people using the structure. Thoughtful design can provide the flexibility for these needs to be met without requiring expensive and energy intensive renovations. The ease of assembly and disassembly of the Salamander system components means a structure can be re-shaped or extended incorporating the re-use of the Salamander system.

Thermal and Energy Benefits:

Cladding systems that offer ventilation, such as a rainscreen cladding system, deliver additional thermal insulation, resulting in lower energy bills, keeping the interior warmer in winter and cooler in summer.

Natural Materials:

Cladding manufactured from natural materials is free from contaminants and generally requires less energy consumption to produce. Often natural cladding will not need ongoing resealing or maintenance as they have natural durability.

Lower Emissions:

Better sustainable cladding solutions offer the benefit of lower emissions, reducing the harmful chemicals often produced in the production process of building materials. This results in a cleaner environment for workers and the surrounding community.

12 Salamander Warranty Details

Salamander, when installed correctly, has a service life in excess of 35 years.

SBSI Facades guarantee the durability (resistance to weathering) of the brick slip components from the date of delivery and the durability of the salamander profile and associated components for a period of 35 years PROVIDED THAT the components are properly and correctly incorporated and;

- are incorporated into the building structure in accordance with best construction practice and all published recommendations, including SBSI Facades specification, handling and laying guidelines published at the time;
- are handled using the best available techniques in the course of delivery and construction, and are
- incorporated into the building structure without having received impact, abraded or in any way having their surface or integrity damaged by whatever cause;
- subsequent to being incorporated into the building structure, suffer no damage of whatever nature caused by the effect of impact of extraneous objects or materials.
- the building does not undergo modification, which may affect the performance of the components.
- The building has been properly and fully maintained and/or repaired when and if necessary.

THIS WARRANTY excludes any liability on the part of SBSI Facades for any impairment to durability, which may be caused by faulty design or maintenance of the building, including the effect that such may have on the components. It also excludes liability for any impairment caused directly or indirectly to the components by any pointing to the components carried out at any time during the building's life, and not adhering to the relevant Code of Practice for masonry recommendations, especially with regard to mortar strength and workmanship, and excludes any direct and/ or consequential loss howsoever arising.

For further information on warranty details and period for these components please contact SBSI Facades and include project details.

13 Additional Resources

Handling

- Health and Safety Executive
- Manual Handling Operations Regulations

Installation

- PD 6697 and Eurocode 6 parts.
- BS 8103-2 low rise masonry design
- BS 8000-3 workmanship on building sites
- BDA – Good site practice and workmanship
- BDA – Severely exposed brickwork
- BDA – Mortar for brickwork
- NHBC standards
- LABC standards
- Construction Design & Management Regulations

Operation & Maintenance

- BDA – Cleaning of clay brickwork
- Building Safety Regulator

Disposal

- BDA – Clay brick, end of life cycle
- Technical Information Sheets on various topics

14 Contact

Please check suitability of Salamander for your project with an Salamander Brick Slip Innovation Limited. Design Advisor or Technical Support Engineer.

SBSI Facades Design and Technical Advice Helpline T: 0000 000 0000

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