



Certificate

Certificate No.

R41443-1

Issue date

26-02-2025

Expiration date

25-02-2028

This is to acknowledge that

Echo Facades Engineering Ltd

Rainscreen Cladding System



- Salamander BrickSlip System (Cladding System)

Evaluated and meets the requirements of the certification scheme.

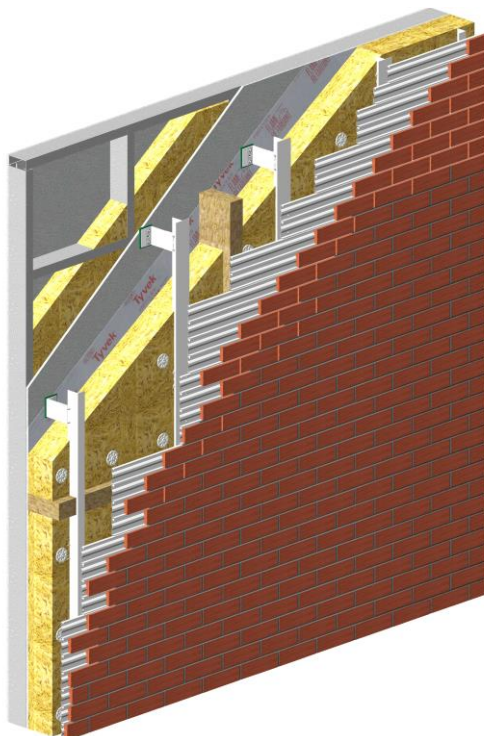
BSFO - Performance of Cladding and Cladding Supports Systems for use in the United Kingdom Systems V3.0

Certificate for the UL Mark – Performance of Cladding and Cladding Supports Systems for use in the United Kingdom

Section 1 – Certificate Details:

Customer Name:	Echo Facades Engineering Ltd	Certification Body:	UL International (UK) Ltd
Customer Address:	Suite 401-402 Cumberland House, 80 Scrubs Lane, London, NW10 6RF	Certification Body Address:	Halesfield 2 Telford Shropshire TF7 4QH
UL Scheme:	BSFO Performance of Cladding and Cladding Support Systems Revision 3	Certificate Number:	R41443-1
Date of Certification Commencement:	26 th February 2025	Date of Certification Expiry:	25 th February 2028
Certificate Compiled by:	Mark Swanborough Staff Engineer	Certificate Approved by:	Michael Wass Senior Laboratory Manager
Signed:		Signed:	

Section 2 – Product covered by this Certificate:



System Name	System Type
Salamander BrickSlip System (Cladding System)	Brick Slip Cladding System, for use as protective/decorative cladding
This Certification Covers	
<ul style="list-style-type: none"> - A detailed overview of the certified product - An assessment of the certified company's factory production control system. - A review of the products documentation to help demonstrate compliance with the applicable requirements of the NHBC standard 2025 chapter 6.9. - A review of the certified products contribution to any key requirements of the building regulations. - An overview of the certified company's product installation requirements and procedures. - An overview of all supporting test documentation used for the product evaluation. - Ongoing surveillance of the certified company's factory production control system and procedures. - The conditions under which this product certification is valid. 	

Section 3 – Product Specification and full description of the certified and tested product

System Overview

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 for external walls of domestic and non-domestic buildings, above the damp-proof course level in areas with non-severe exposure to chemicals.

The Salamander BrickSlip System consists of clay brickslips, mechanically push fitted into the Steel Salamander profile. These fixed to the sub frame comprising T rails or L rails and helping hand L Brackets creating a cavity.

These helping hand L brackets are mechanically fixed to the Substrate. 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 of profile.

Brick Types & Sizes

Salamander Brickslip Cladding Systems offer Brickslip to suit the standard UK brick format of 215mm x 65mm x 20mm. Brick Slips are purpose made units to suit the Salamander Brickslip Cladding System. The Brick Slips general manufacturing specifications conforms to BS EN 771-1. Further details feature in Section 4 of this certificate. 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 10mm vertical joint for pointing mortar.

Brick Tolerances

Bricks of tolerance and range group T2-R1 or better are to be used as per BS EN 771-1. A maximum brick size (height) of 67mm and a minimum brick size of 63mm can be used.

Support System

Helping hand brackets are manufactured to suit project specific requirements. Extruded L and/or T rails are inserted into the helping hand brackets for setting-out and then fixed.

Mortar

The system has been tested using Parex Historic gun injection pointing mortar. Mortar must be stored, handled and used strictly in accordance with the manufacturer's instructions.

Product Details

Full product name:	Salamander BrickSlip Cladding System
Product type:	Drained and back ventilated rainscreen
Manufactured by:	Echo Facades Engineering Solutions Ltd.

Support Framing and Bracketry

Material:	Nvelope NV1 (helping hand support system)
Finish:	Aluminium
Vertical rail Ref:	02/T60-100-2.2-3000 & 02/L60-40-2.2-3000
Fixing Ref:	04/SX3/28-S16-6.0X48
Fixing method (rail to rail):	Nvelope Standard Fixings
Fixing Ref:	04/SDA5/5.5X22
Max Span between vertical rails:	600mm
Brackets ref:	01/VB150S & 01/VB150D-6.5
Construction tolerance allowed between fixings, rails and brackets (+/-)	2-5 mm

Brickslips:

Material:	Brick Slips manufactured to BS EN 771-1
Thickness:	Brick slip (standard) – 20 mm Salamander Profile – 0.7 mm Salamander Profile – 0.7 mm
height of slip:	UK Brick dimensions format – 65 mm
Width of slip:	UK Brick dimensions format – 215 mm
Fixing method:	Mechanically fixed brick
Bracket/clip ref:	Metal sheet / Profile Salamander Profile (metal rails comprising S220GD+ZM310 hot dip zinc-magnesium coating to BS EN 10346) / Stainless Steel (Grades 304/316) Salamander M-Linear Profile (Galvanized metal rails)
Motor/pointing:	Pointing Mortar - Parex Historic KL.

Drainage

Drainage type (pressure equalised etc.)	Drained and back ventilated
Drained and ventilated Drainage specification and weep holes etc.	Ventilated at head and edges, drained at base. Additional drainage required at window heads and other openings.

Backing wall

support type:	LGSF Wall
Insulation type:	N/A
Insulation thickness:	N/A
Airtight membrane:	Arbo tape & Breather membrane TYVEK Fire Curb House wrap (DuPont)
Watertight membrane:	Arbo tape & Breather membrane TYVEK Fire Curb House wrap (DuPont)
Particle board detail:	EcoBoard - Fibrecement Board
Sealants and tapes:	Soudal FR, Arbosil 1090, Arbo tape
Fixings ref:	EJOT: HS 5.5 X 38 R-CWT-55050-LG
Construction tolerance allowed between SFS (+/-)	5-10mm

Figure 1.0 Salamander BrickSlip Cladding System Overview

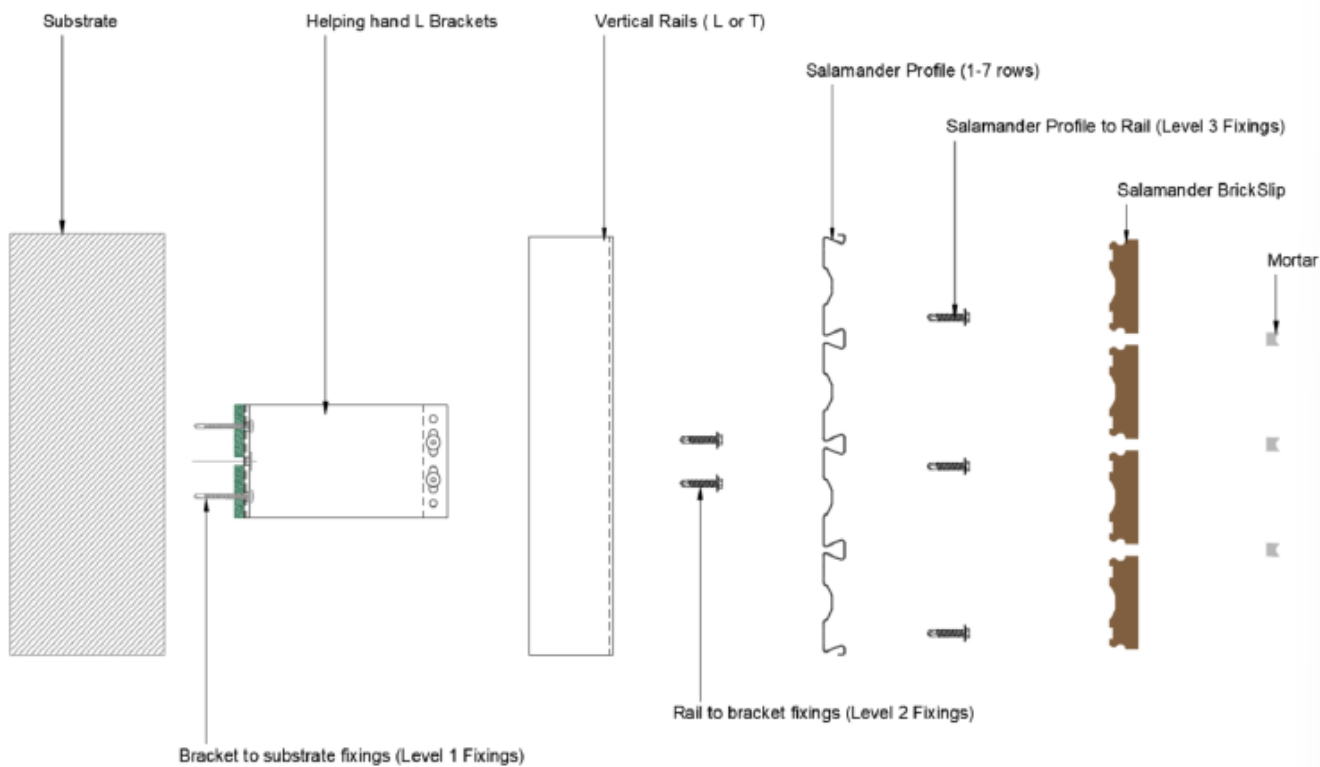


Figure 2.0 System Wall Built Up Detail

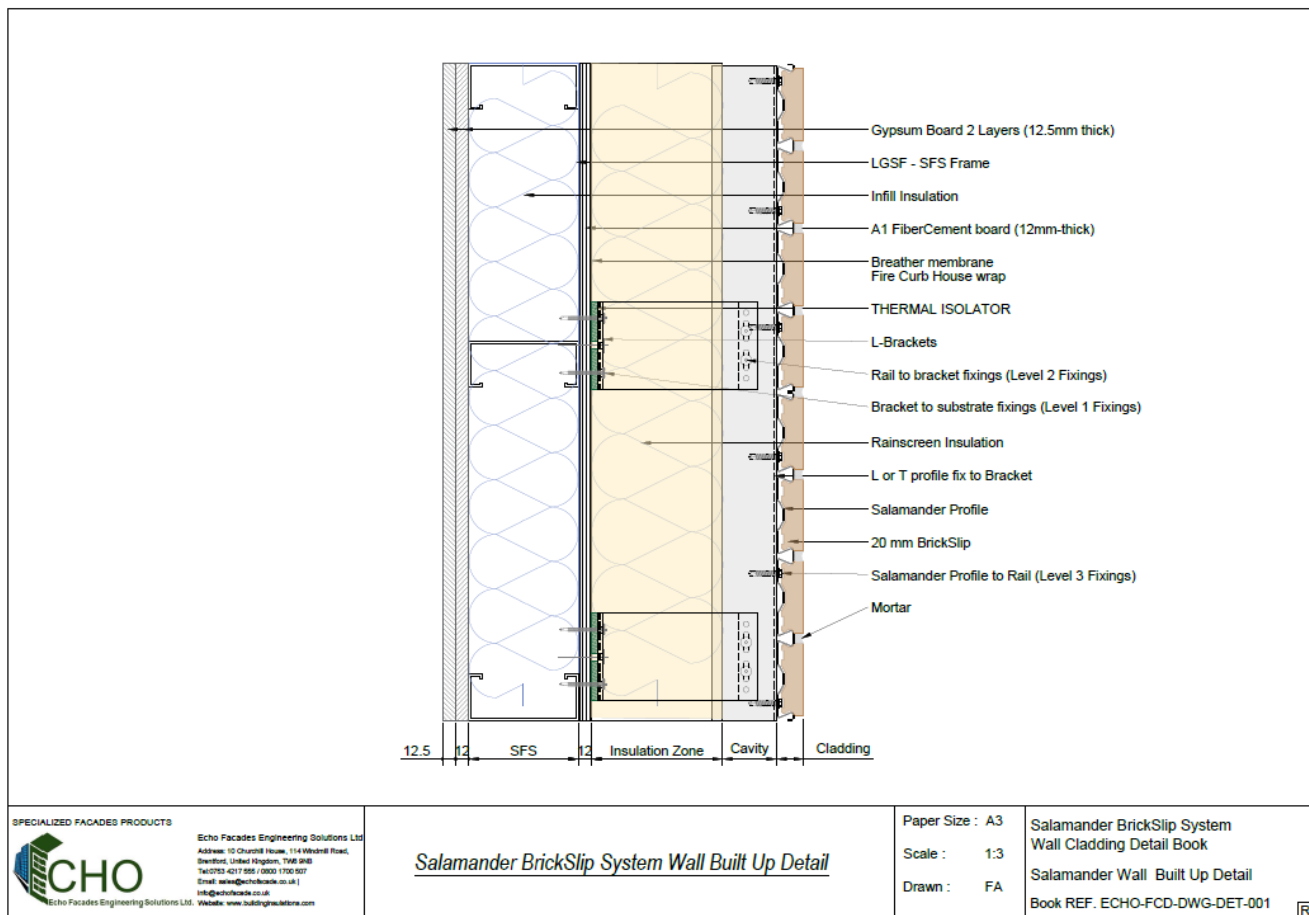


Figure 3.0 Salamander Profile

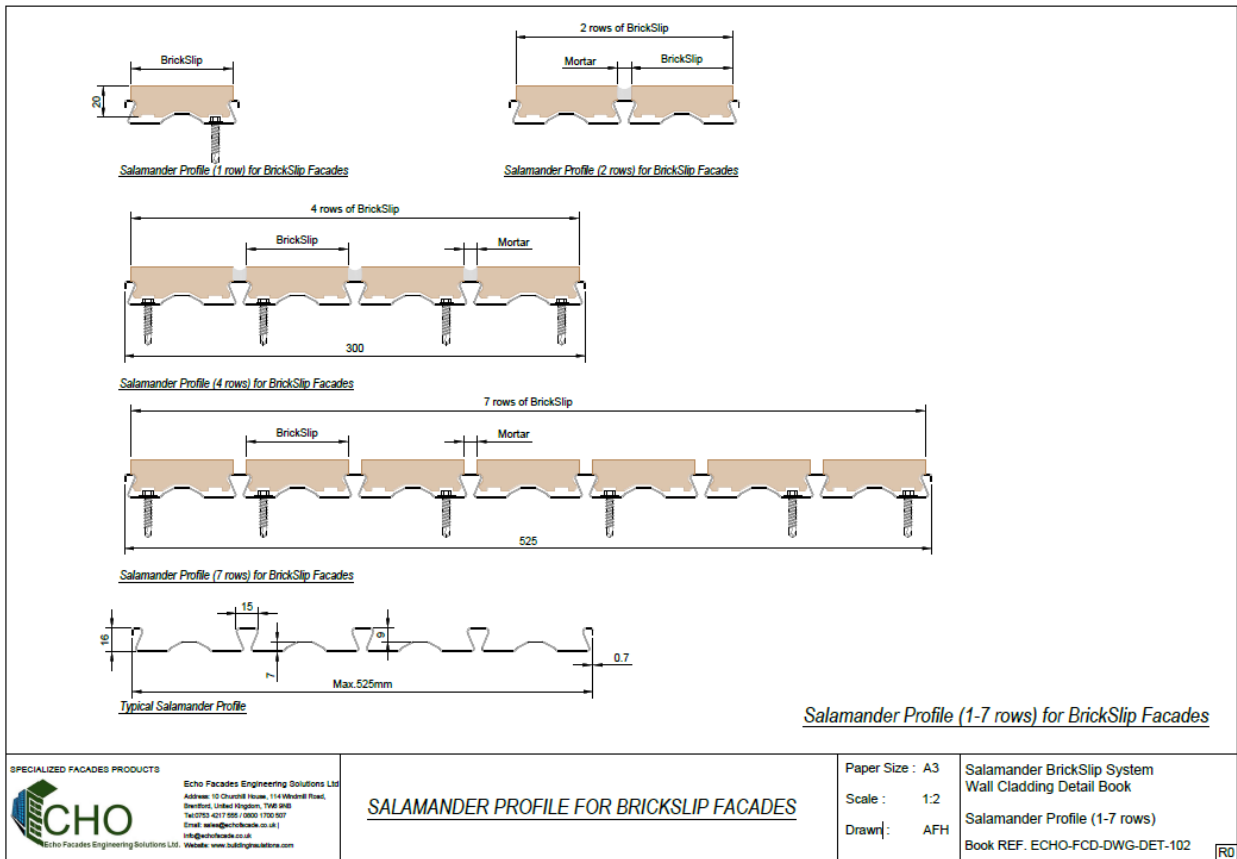


Figure 4.0 Base detail

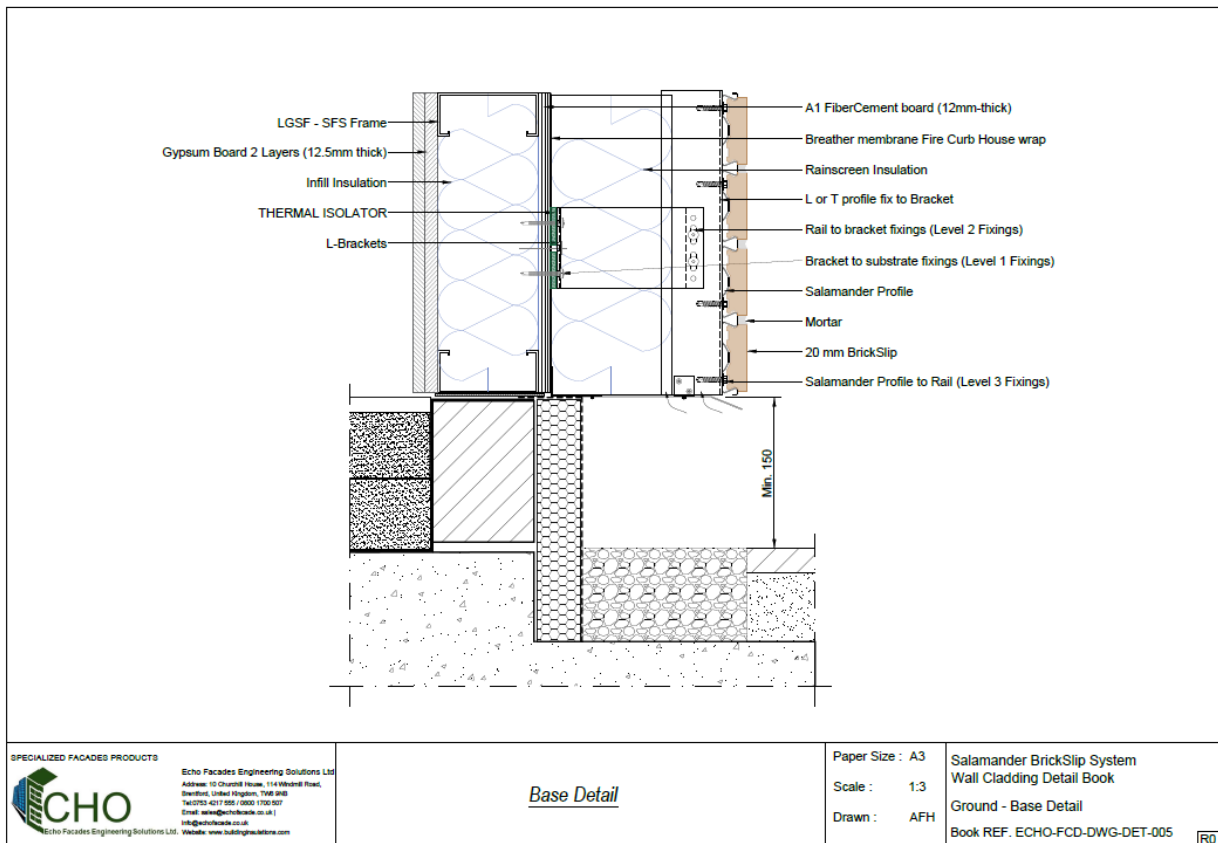


Figure 5.0 Window Head Detail

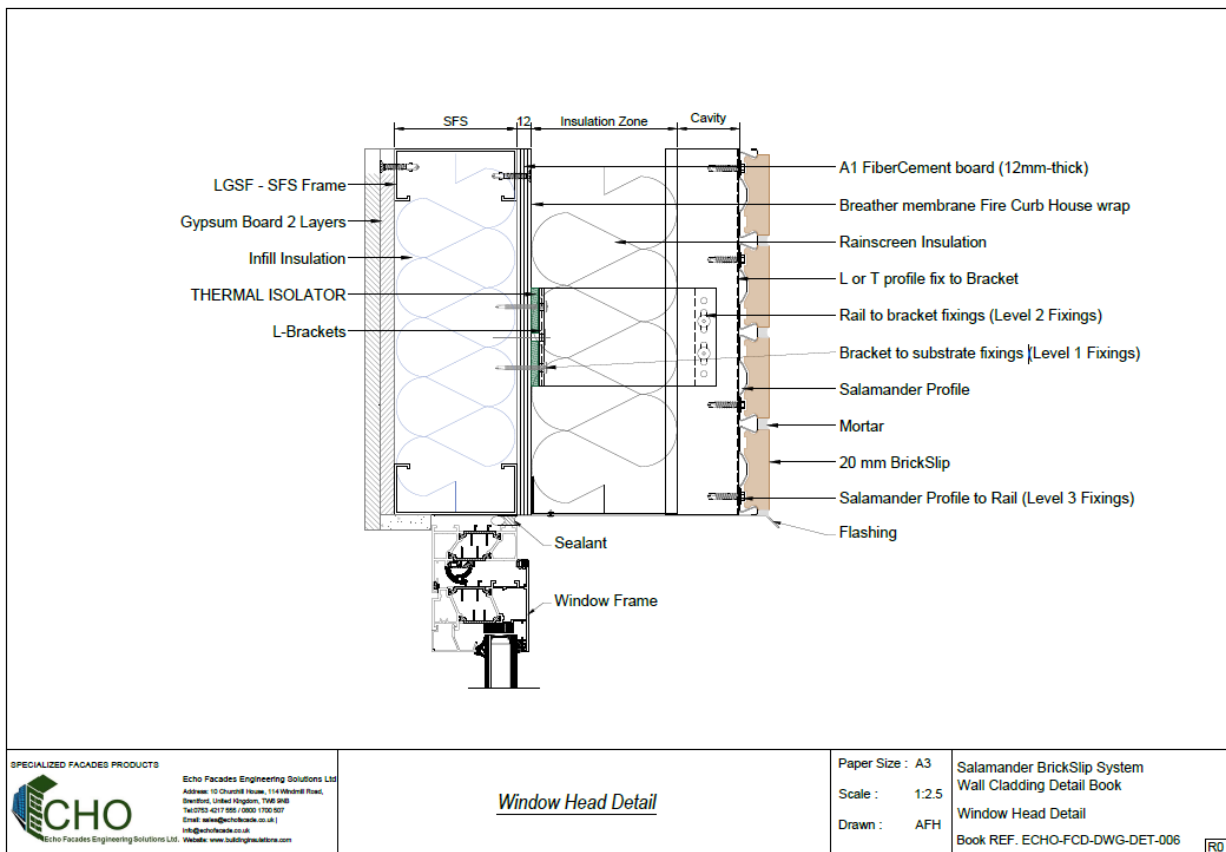


Figure 6.0 Window Cill Detail

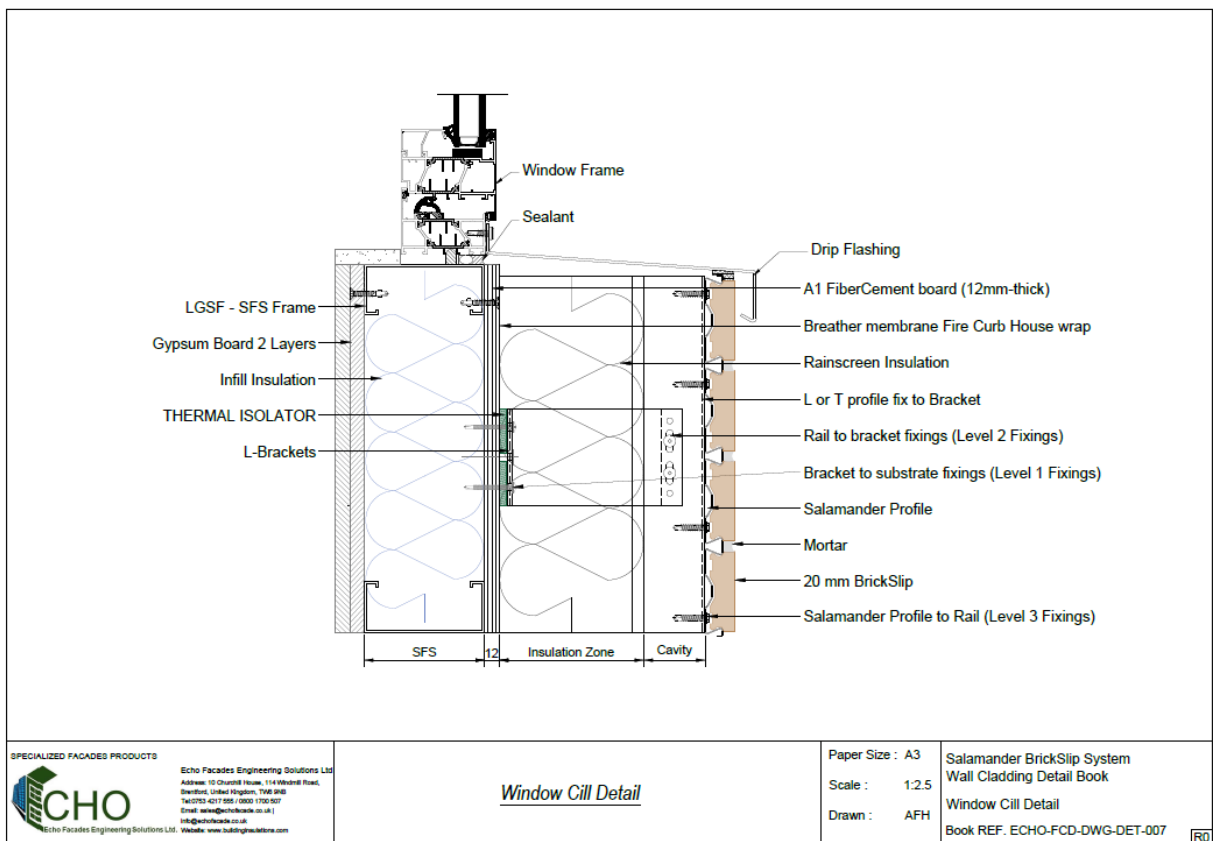


Figure 7.0 Intermediate Floor Detail

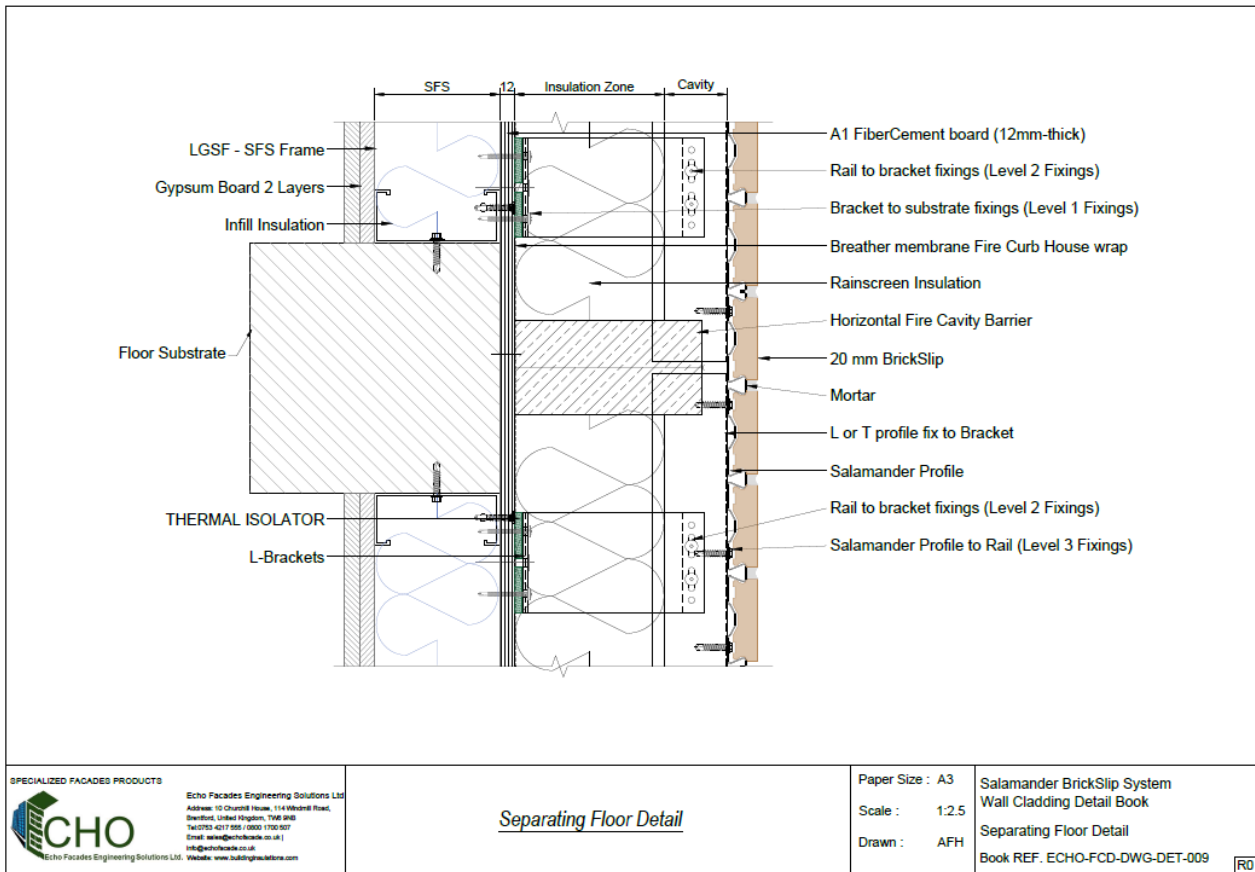
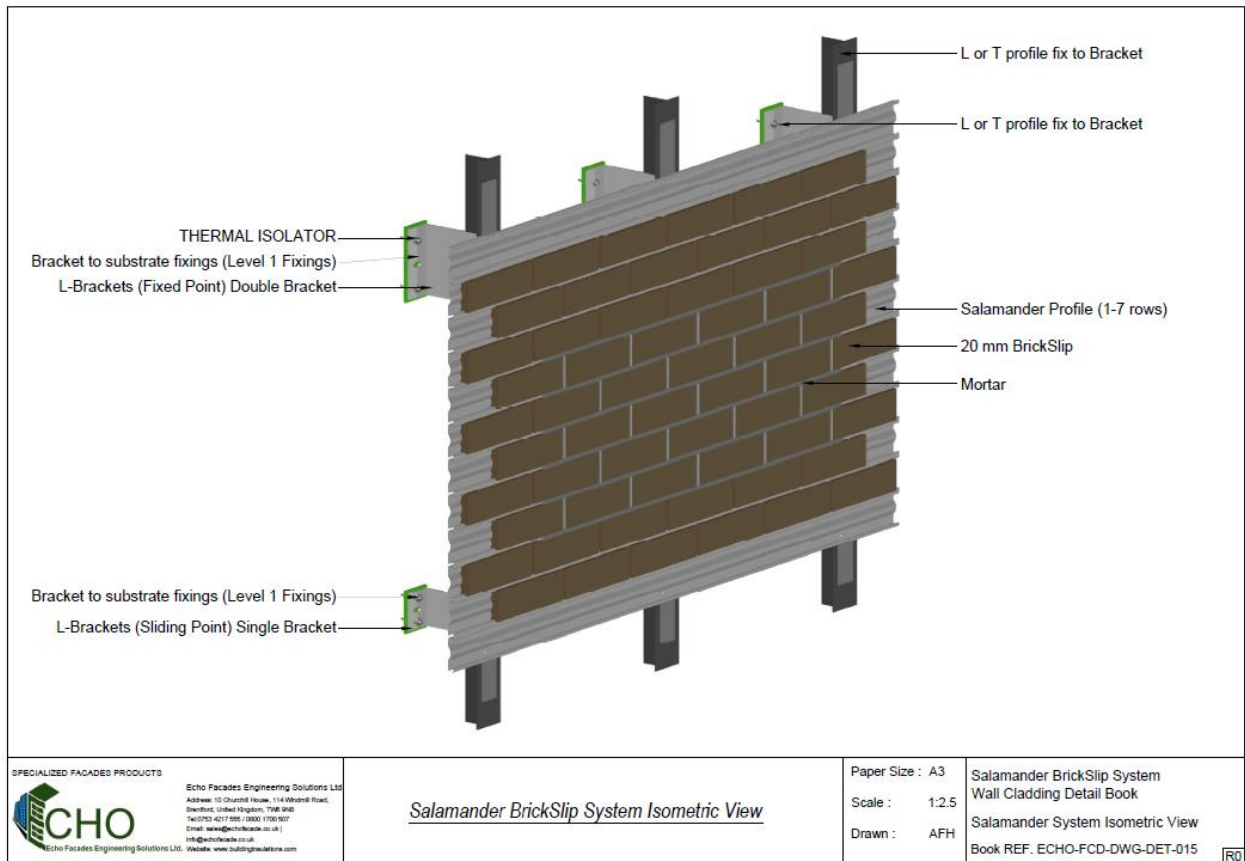
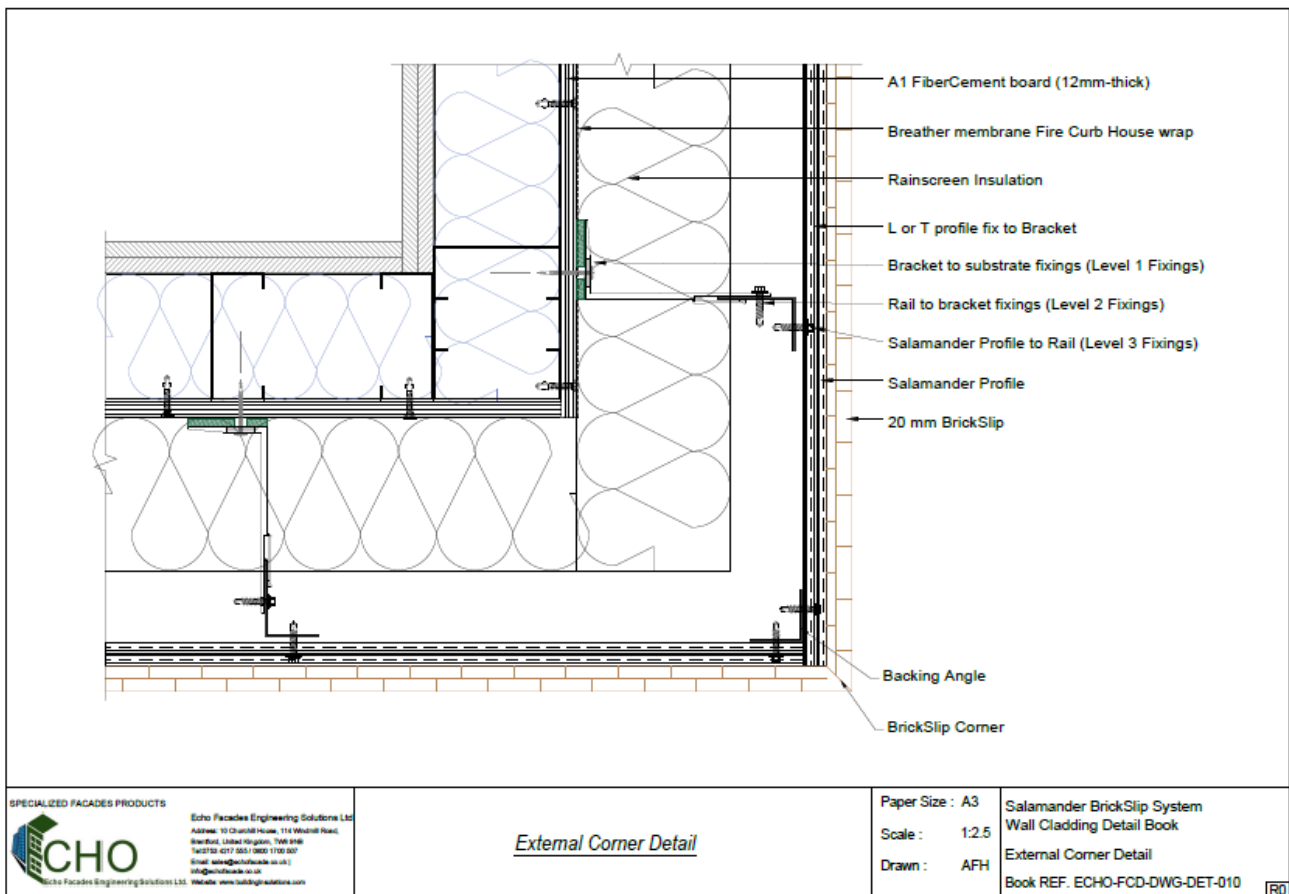


Figure 8.0 BrickSlip System Isometric View



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Figure 9.0 External corner detail



Section 4 – Factory Production Control

This certificate incorporates the partnership between the certificate holder (Echo Facades Engineering Ltd) and their approved supply chain to produce The Salamander Brickslip Cladding System - Rainscreen System Cladding System.

The Salamander Brickslip Cladding Systems have been designed for use as protective/decorative cladding (including soffit units) over masonry, concrete, steel frame and timber frame external walls in new or existing domestic and non-domestic buildings. The certificate holder supplies this system into the UK marketplace. The company head office is situated in London in the United Kingdom. The brick carriers, rails and associated support brackets are manufactured by a UL approved site in the UK. The brick slips and clay tiles are manufactured by a UL approved supply chain in the UK to an agreed specification – any other brick slip and clay tiles specifications utilised must be declared by the certificate holder to their respective clients and these will fall out of the scope of this certification.

An initial factory production control audit has been carried out at the certified products fabrication site to assess the effectiveness of the following:

- Contract review – enquiries, quotations, and orders
- Production planning and organisation
- Control of purchasing, including supplier approvals
- Control and storage of incoming materials and components
- Control of documentation related to the production, quality control/inspection, packaging and despatch
- Identification and traceability of certified products
- Ongoing production inspection, testing and records thereof
- Maintenance of production equipment
- Training Records of personnel
- Internal audit reports including non-conformances and corrective actions
- Customer complaint procedures
- Installation guide and processes
- Non-conforming products processes
- Labelling of products

UL International (UK) Ltd, witnessed the production processes at site listed above and it can be confirmed that procedures and controls were carried out as specified/documented and were in line with the UL certification scheme requirements. This manufacturing site will be subjected to annual surveillance audits by UL to ensure ongoing compliance and effectiveness.

Section 5 – Design documentation review of the certified product

A review of the certified products documentation was conducted in order to help demonstrate compliance with the appropriate sections of the NHBC Standard 2024 requirements section 6.9 and the UL scheme document. At least the following requirements were evaluated in the review and were found to show evidence that complies or contributes.

5.1 Loads and movements

The Salamander Brickslip Cladding System, including brackets and fixings, allow movement without causing damage or deformation, and calculations are carried out by external third-party structural engineers with regards to the support structure to demonstrate that loads are safely transferred to the building. The 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. Movement joints in the building structure should be carried through to the face of the cladding. The framing support system will also have engineering calculations based on project specifics. The maximum spacing between vertical and horizontal sub-frame supports must not exceed 600 mm centres.

Recommended fastening spaces will be based on a project-by-project basis and loading calculations should be sought in accordance with Eurocode EN 1991-1-4:2005. Movement joints within the cladding system must be as per the Salamander systems details and guidance.

5.2 Support and Fixings

The Salamander Brickslip Cladding System has successfully passed a CWCT Sequence 'B' Facade testing regime as detailed in Section 2.4 of the UL International (UK) Limited test report reference R4790609825. This included both a Wind Resistance Serviceability test conducted at a peak test pressure of 2400 Pa, and a Wind Resistance Safety test being conducted at 150% of the design wind load giving a safety factor of 3600 Pa.

As part of the test sequence carried out, the sample was also subjected to impact testing in accordance with CWCT Technical Notes 75 & 76. All testing carried out was undertaken by a UKAS accredited specialist Façade Testing Laboratory – see Section 8 of this certificate for further details. 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 Echo Facades Engineering Solutions Ltd. The quantity is calculated on an individual project-by project basis.

5.3 Durability

The product provides satisfactory durability (subject to routine inspection and maintenance). The system has been designed to avoid the need for disproportionate work when repairing or replacing individual components. Corrosion resistant fixings can be provided, and bimetallic corrosion has been considered. Carriers are anodized. Isolator pads for foot of helping hand bracket to isolate from structure. The Salamander Brickslip cladding system, when installed correctly, has a warranty of 35 years. Provided regular maintenance is carried out, as described by Echo Facades and in accordance with the Echo Façade's instructions, the system can actually achieve a design life in excess of 60 years in normal UK conditions. 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.

5.4 Interfaces

The Salamander Brickslip Cladding System has suitable interfaces and resists the penetration of water and wind and has been designed to be weather resistant. A CWCT Section 9 hose test was successfully conducted on a window interface installed in the system. The certificate holder supplied drawings provide details on how to fit/install and ensure that the window detail doesn't compromise the system erecting or build. EPDM adhesive sealant between EPDM membrane and the window interface is used. EPDM is bonded to the Sheathing board and around the slab edge detail. Technical report – R4790609825– Standard for systemised building envelopes – 2005.

5.5 Insulation

Insulation is to be supplied by others and will be project specific. When insulation is purchased the installation manufacturers guidance supplied is to be followed and guidance can be sought from the certificate holder where appropriate. Echo Facades can supply Echo Bonus 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 fibre - for thermal, sound and fire performance.

5.6 Damp proofing and vapour control

The Salamander Brickslip Cladding 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 breather membrane membranes supplied by others are to be utilised.

5.7 Electrical continuity and earth bonding

The certificate holder specifies that electrical continuity and earth bonding is to be managed by separate specialist contactors onsite during installation.

5.8 Maintenance

The system design allows for appropriate access arrangements for the purposes of cleaning, inspection, maintenance and repair. Guidance via the Salamander system manual specifies a maintenance plan and technique. Mortar pointing at 5-year intervals as part of a maintenance review Should there be a requirement where a brickslip or section of brickslip require replacing this can be carried out in an isolated section rather than stripping full elevations to replace in some cases. If the project is in a coastal or marine environment, or may be subject to any hazardous environmental factors, then Echo Facades Ltd must be consulted on an individual project basis.

5.9 Condensation - Interstitial

The Salamander Brickslip Cladding System has been designed to adequately manage condensation. Condensation is designed to evaporate through adequate ventilation. Any excess condensation will drain from the rear of the system through drainage slots.

- 5.10 Ventilation screens
Any ventilation openings over 10mm are to be protected from the entry of birds and animals, a suitable anti-vermin mesh will be supplied to ensure compliance.
- 5.11 Handling and storage
An onsite assessment of the manufacturer/supply chain confirmed that materials, products and systems are protected and stored in a satisfactory manner to prevent damage, distortion, uneven weathering and any degradation. Guidance is supplied by the certificate holder in the Salamander Technical Documentation on the proper product Handling and Storage.
- 5.12 Weather resistance
The Salamander Brickslip Cladding System has been designed to resist the passage of water to inside the building. A CWCT Sequence B test has been carried out on this system by a UKAS accredited laboratory – see section 8 tests 5 and 6 for further details. All external seals and joints are made from suitable materials to prevent unwanted water ingress.
- 5.13 Thermal bridging and condensation
The Salamander Brickslip Cladding System and the components used have been designed/considered so that thermal bridging can be managed. Thermal performance improvements within the façade of a building are contributed too via the addition of plastic or polymer composites incorporated within or used in conjunction with certain thermal break components with rainscreen framing. If required, project specific risk analysis can be completed by 3rd party specialist engineers or consultants.
- 5.14 Air infiltration and compartmentation
The cladding system has air barriers and vapour barrier drawings and further details can be provided by the certificate holder. Tyvek Du-point Fire Curb House wrap is specified, 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. Both horizontal and vertical cavity fire barriers should be installed in the rainscreen cavity zone to comply with building and statutory regulations when appropriate.
- 5.15 Opening doors and lights
Openable windows can be installed so that they fit neatly and have minimal gaps to ensure effective weatherproofing of the system is maintained, detailed drawings are available on request see figure 1.5.
- 5.16 Ventilation and Drainage
The support system has a drained and ventilated cavity between the substrate wall and cladding allow any moisture to dissipate without collecting/puddling within the system. 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. 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.
- 5.17 BS EN 13501-1: Fire Classification of Construction Products & Building Elements
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 Echo Facades. Fire approval is outside the scope of this Certificate.
- 5.18 EAD / additional performance
The Salamander Brickslip has data and a DoP to support EN 771-1 performance for
Tolerances
Active Soluble Salts Class S2,
Water absorption <7%,
Freeze Thaw durability F2,
No dangerous substance and,
Reaction to Fire Class A1
Thermal conductivity 0.84 W/mK
Lucideon test report No. UK242578/Ref.1.

Section 6 – Product installation

General

This product must be installed in accordance with the manufacturer and supplier recommendations. The certificate holders have specified that all product installers can be trained directly by them at their head office training facility on installation and best practices.

Product delivery

The product is delivered to clients in component form on suitable pallets transported by long distance haulage companies. Heavy-duty packaging is used for the products, and this was demonstrated during the onsite visit of the facility. Each delivery will be labelled with details including order number reference, client name, product name, type, size, quantity and weight.

Site survey and Installation

The certificate holder has specified that prior to installation of the Salamander Brickslip Cladding System a pre-installation survey of the property has to be carried out by the installer to determine whether the site is suitable for product installation and if any repairs are required to the building wall. Installers must be trained and approved by Echo Facades who can provide technical assistance and training at the design stage and at the start of installation. Vertical support rails are to be mechanically fix 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. Salamander profile is then fixed to the vertical rails, fixing layouts are shown in system detail drawings. Salamander brick slips are then firmly pushed into place, guided by the pre-formed upper and lower ribs on the profile. Pointing mortar is then used to create a classic clay brick finished wall.

Section 7 – Comments on the certified products contribution to The Building Regulations

A review of the key related requirements from The Building Regulations 2010 (England and Wales) was conducted based on the information declared by the certificate holder, and the data provided for the documentation review. The following comments have been made on whether the certified product can contribute to the Building Regulations requirements.

The Building Regulations 2010 (England and Wales)

Requirement	Comment/s
A.1 Loading	The externally sourced calculations, statements and reports provided gives confidence that this regulation is contributed towards by the product/system certified.
Regulation 7 (1)	The evidence gathered from factory audits, method statements and staff training provided, gives confidence that this regulation is contributed towards by the product/system certified.
Regulation 7 (2)	Evidence has been provided by the certificate holder that demonstrates all components in the system intended for use on an external wall meet or exceed A2-s1, d0 in accordance with the European classification BS EN 13501-1:2018.
C2 (B) Resistance to moisture	The CWCT Report R4790609825 (details in section 8) gives confidence that this regulation is contributed towards by the product when designed as a fully drained and back vented rainscreen cladding system.

The Building (Scotland) Regulations 2004 (as amended)

Requirement	Comment/s
2.7 Fire spread external walls	Evidence has been provided by the certificate holder that demonstrates all components in the system intended for use on an external wall meet or exceed A2-s1, d0 in accordance with the European classification BS EN 13501-1:2018.
23 Fitness of materials and workmanship	The evidence gathered from Factory audits, method statements and staff training provided gives confidence that this regulation is contributed towards by the product certified.
28(B) Resistance to weather and moisture	The CWCT Report R4790609825 (details in section 8) gives confidence that this regulation is contributed towards by the product certified.
30 Stability	The externally sourced calculations, statements and reports provided gives confidence that this regulation is contributed towards by the product certified.

The Building Regulations 2012 (Northern Ireland)

Requirement	Comment/s
23 Fitness of materials and workmanship	The evidence gathered from Factory audits, method statements and staff training provided gives confidence that this regulation is contributed towards by the product certified.
28(B) Resistance to weather and moisture	The CWCT Report R4790609825 (details in section 8) gives confidence that this regulation is contributed towards by the product certified.
30 Stability	The externally sourced calculations, statements and reports provided gives confidence that this regulation is contributed towards by the product certified.
36 External fire spread	Evidence has been provided by the certificate holder that demonstrates all components in the system intended for use on an external wall meet or exceed A2-s1, d0 in accordance with the European classification BS EN 13501-1:2018.

Section 8 - Supporting CWCT test documentation

General

Air and water testing of the Salamander Brickslip Cladding System was carried out in accordance with the CWCT Standard test sequence B. The Panels tested were of a similar size and configuration to those which will be manufactured and sold in the UK market.

Test sample size and configuration

UL test report R4790609825. The product testing was accordance with UL guidance document WEL 354. The sample was 6.2 m wide by 8.0 m in height featured and was installed on an SFS backing wall. See Fig 1.9 and 2.0.

Testing carried out

CWCT Test Methods for Building Envelopes – Dec 2005; Sections 5, 6, 7, 9, 11, 12 & CWCT TN 76. The testing was conducted on the 19th April 2024 and completed on the 13th May 2024.

Test laboratory

UL International (UK) Ltd, Telford, Shropshire TF7 4QH (UKAS 5772)

Test Results (reference report number R4790609825)

Test type	Peak Test Pressure	Result	Classification
Test 1 – Air Leakage - Infiltration	600 Pa	Pass	A4
Test 2 – Air Leakage - Exfiltration	100 Pa	n/a	-
Test 3 – Water Penetration - Static Pressure	600 Pa	Pass	R7
Test 4 – Wind Resistance (Serviceability) - Backing Wall	2400 Pa	Pass	-
Test 5 – Repeat Air Leakage - Infiltration	600 Pa	Pass	A4
Test 6 – Repeat Air Leakage - Exfiltration	100 Pa	n/a	-
Test 7 – Repeat Water Penetration - Static Pressure	600 Pa	Pass	R7
Test 8 – Repeat Water Penetration - Dynamic Aero Engine	600 Pa	Pass	-
Test 9 – Water Penetration - Hose	-	Pass	-
Test 10 – Wind Resistance - (Serviceability) - Cavity	2400Pa	Pass	-
Test 11 – Wind Resistance (Safety) - Backing Wall	3600 Pa	Pass	-
Test 12 – Wind Resistance (Safety) - Cavity	3600 Pa	Pass	-
Test 13 – Impact Resistance (Retention of Performance)	-	Class 2	CAT B
Test 14 – Impact Resistance (Safety to persons)	-	Negligible Risk	CAT B

Conclusion

A review of the test report demonstrated that the test sample successfully passed all of the above CWCT test requirements. The test sample was supplied and erected on to the test laboratory's test chamber by the certificate holder. The dismantling was conducted on 17th May 2024 by representatives of the certificate holder and was witnessed by representatives of UL International (UK) Limited.

There was no water evident in the system in parts designed not to be wetted, and it was found that the system fully complied with the system drawings provided by the client at the time of the dismantle.

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Figure 9.0 CWCT Test sample mock-up



Section 9 – Certification conditions

This UL Certificate:

1. Covers the product/system that is named and described on the front page only.
2. Should be read in conjunction with the UL Mark – Performance of Curtain Walling and Rainscreen Cladding and Cladding Support Systems for Use in the United Kingdom.
3. Is granted to the company listed front page only.
4. Subject to availability of the referenced manufacturers system information
5. Is valid within the UK only.
6. Will remain valid for the period listed on the front page provided that the product and the manufacturer comply with the UL Mark requirements.

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