Certificate

Certificate No.

R40531-1

Issue date

13/03/2020

Expiration date

12/03/2027

This is to acknowledge that

T.I Tiles International Ltd.

Cladding System

- Aerobrik Brick Slip 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:	T.I Tiles International Ltd.	**Certification Body:**	UL International (UK) Ltd
Customer Address:	Westview House Devro Campus Gartferry Road, Glasgow G69 0JE	**Certification Body Address:**	Halesfield 2 Telford Shropshire TF7 4QH
UL Scheme:	Performance of Curtain Walling and Rainscreen Cladding Systems	**Certificate Number:**	R40531-1 Rev 2
Date of Certification Commencement:	13th March 2020	**Date of Certification Expiry:**	12th March 2027
Certificate Compiled by:	Mark Swanborough Staff Engineer	**Certificate Approved by:**	Michael Wass Engineering Manager
Signed:		**Signed:**	

Section 2 – Product covered by this Certificate:

System Name	System Type
Aerobrik Brick Slip Cladding System	Mechanical Brickslip

This Certification Covers

- A detailed overview of the certified product
- An initial 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 2024 chapter 6.9.
- An assessment 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 product

Product Description

The T.I. Aerobrik Brick Slip Cladding System is a Mechanical Brickslip system. The brick tile material is manufactured from a non-combustible clay material. The brick slips are installed into an aluminium tray/cassette with top hat supports.

Product details

Full product name:	**Aerobrik**
Product type:	**Mechanical Brickslip**
Product description:	**Lightweight Mechanical Brickslip Cladding**
Manufactured by:	**T.I. Tiles International Ltd.**

Support Framing and bracketry

Material:	**Aluminium**
Finish:	**Mill finished to 6063 T6 grade in accordance with BS EN 755-9:2016**
Vertical rail Ref:	**MFT-L 60x40 1,8 6mm**
Horizontal rail Ref:	**35mm deep top hat**
Fixing method (rail to backing wall):	**Through Fix**
Fixing Ref:	**S-MD53S 5, 5x32**
Fixing method (rail to rail):	**Through Fix**
Fixing Ref:	**S-AD01S 5, 5x19**
Max Span between vertical rails:	**600 mm**
Max Span between horizontal rails:	**675 mm**
Brackets ref:	**MFT-MF1 M 45**

Brick Slips:

Material:	**Clay**
Material ref (source, spec):	**Aerobrik to BS EN 771-1:2011+A1:2015**
Finish:	**Oven Fired**
Thickness:	**20 mm**
Reinforcing:	**n/a**
Max height of Brickslip:	**65 mm**
Max width of Brickslip:	**400 mm**
Max size of panel by area (m2):	**-**
Fixing method:	**Tray or Cassette**
Bracket/clip ref:	**Incorporate in fixing Tray/Cassette**
Further info	**S-MD01PS 5,5 x 22**

Interface Details (Back wall to window/door inserts)

Window interface detail:	**D09 – REV.2**
Door interface detail:	**n/a**

Backing Wall

Structural support type:	**Infill Metsec SFS fitted at slab edges and spanning vertically between hot rolled steel frame of the primary building structure.**
Insulation type:	**n/a**
Insulation thickness:	**n/a**
Airtight membrane:	**FSM-0.75 x 200 x 20**
Watertight membrane:	**FSM – 0.75 x 200 x 20**
Particle board detail:	**12mm Weatherkem Fibre Cement Board**
Sealants and tapes:	**FSM Adhesive**
Fixings ref:	**S-DD01z 3, 5x32**

Figure 1.0 – Cill Detail

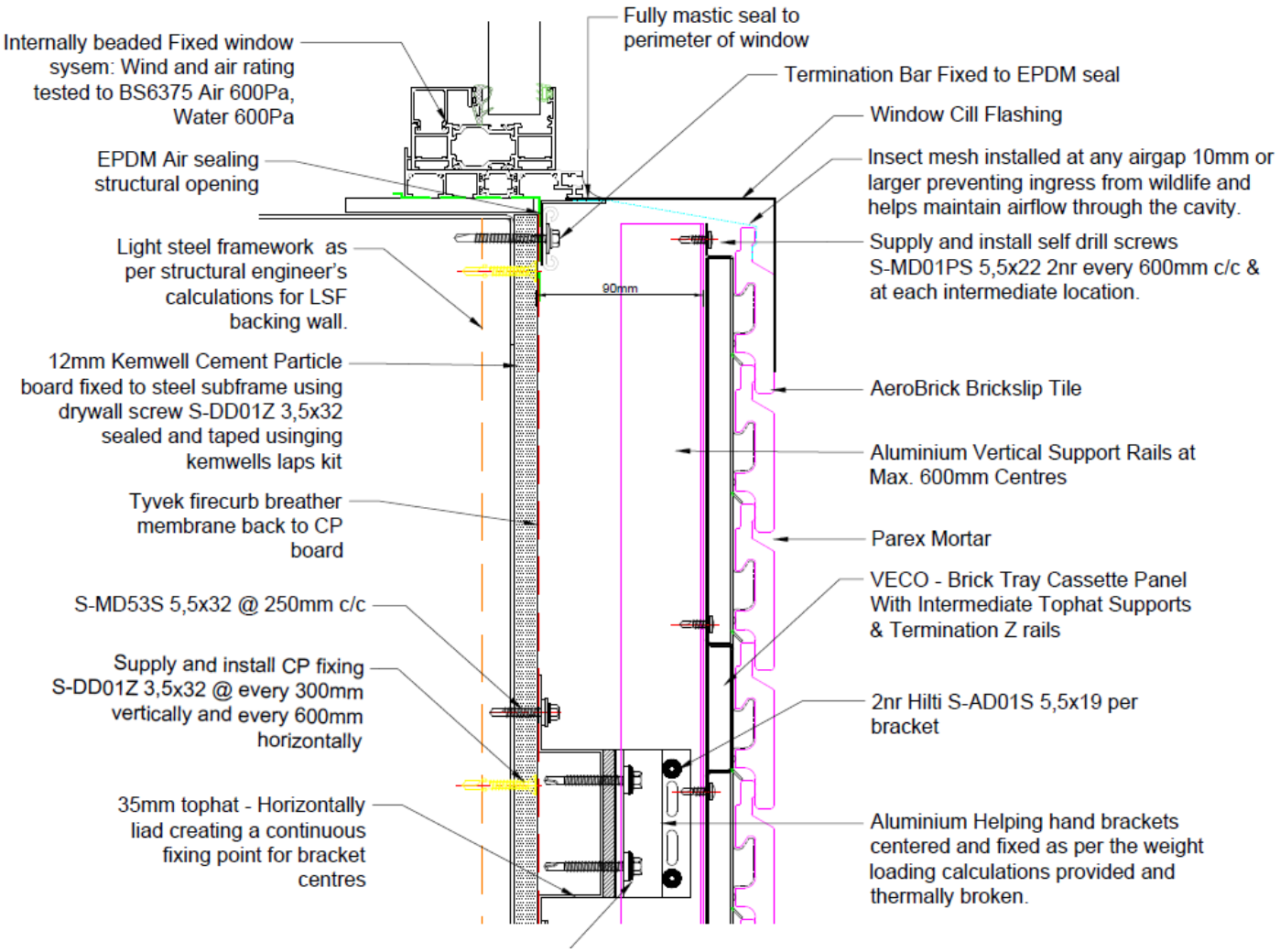


Figure 1.1 – Head Detail

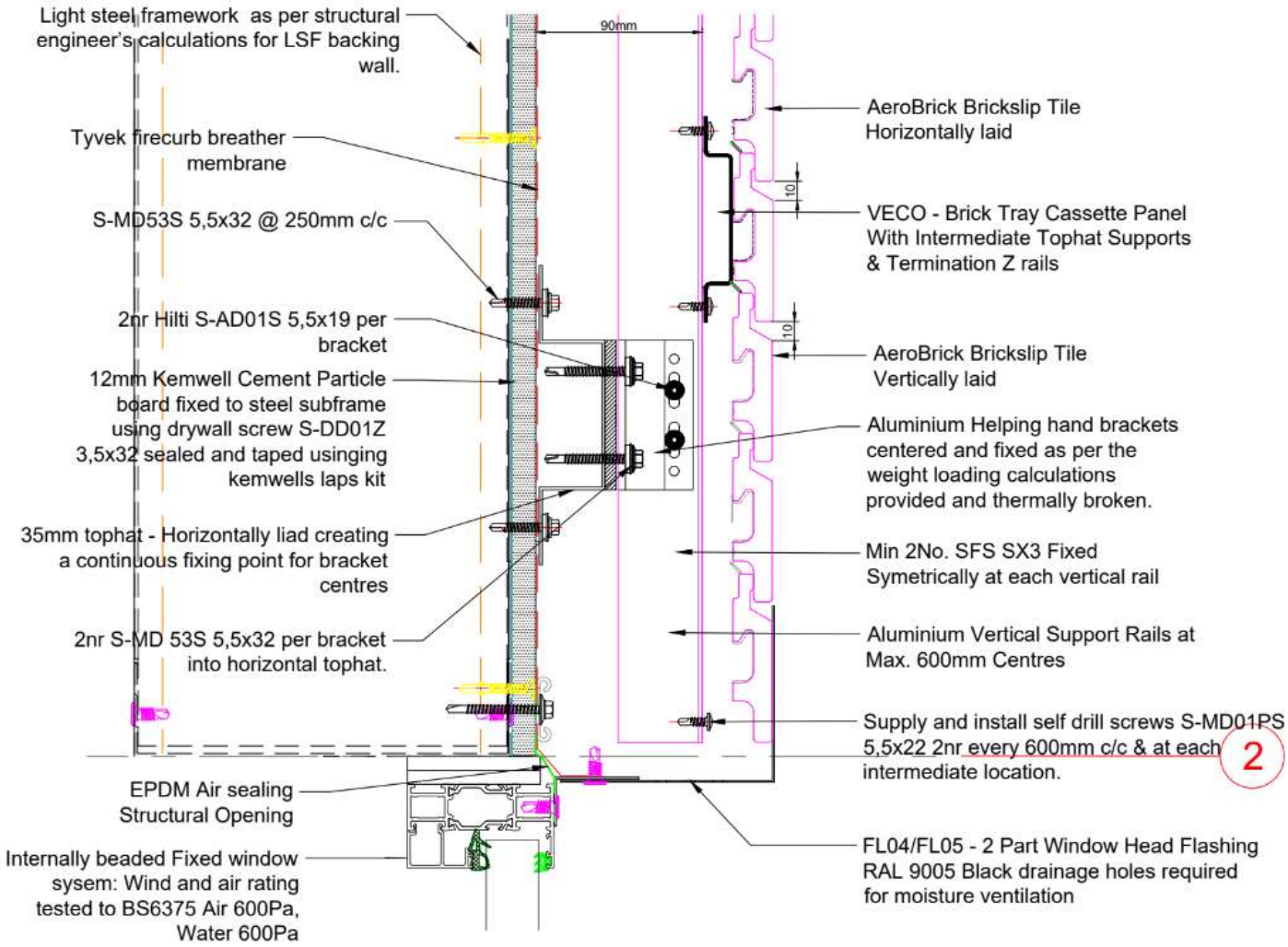
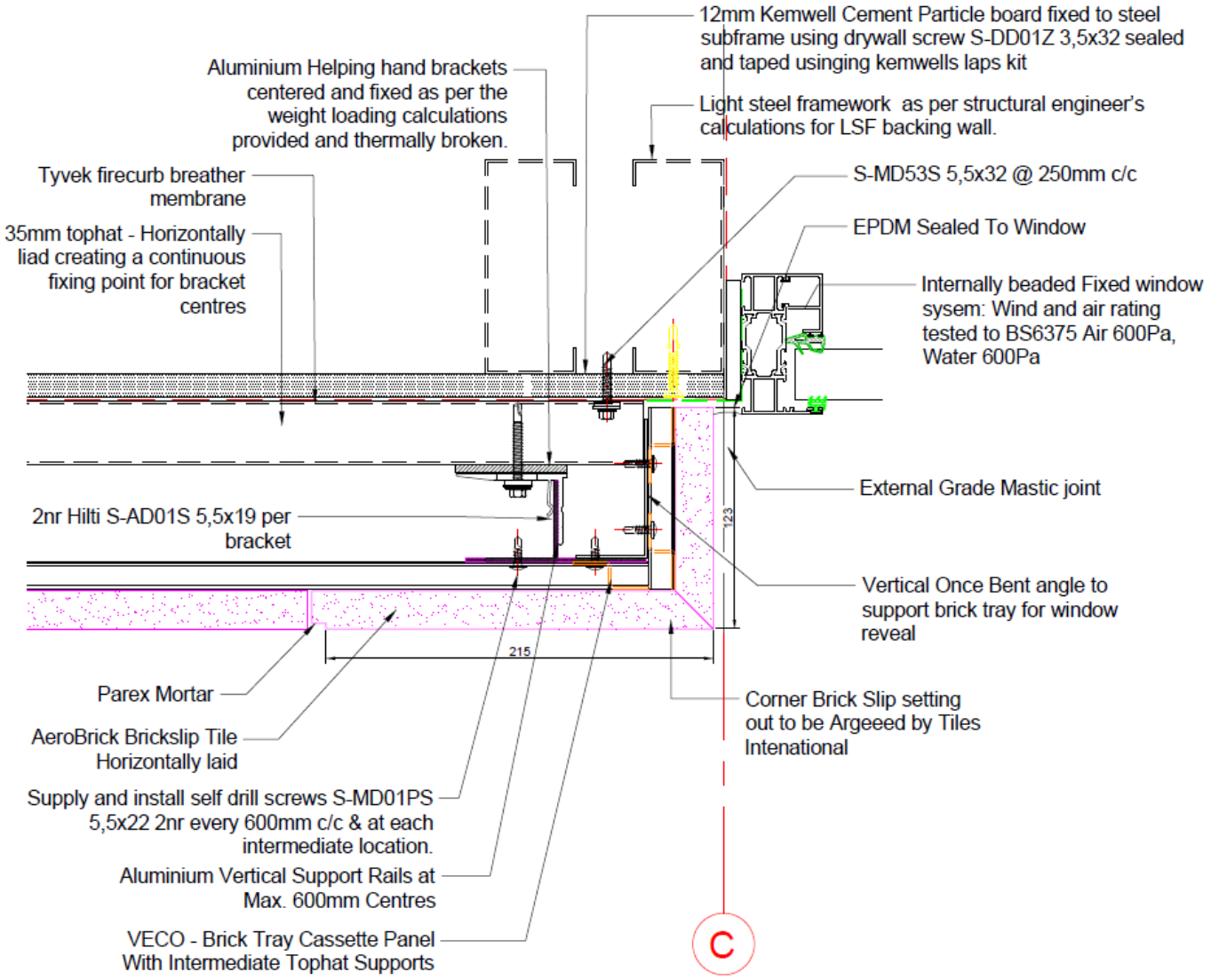


Figure 1.2 – Jamb Detail



Section 4 – Factory Production Control

T.I. Tiles International Ltd supply into the UK market, brickslip cladding systems. The company head office is situated in Glasgow. The aluminium and stainless brackets, carriers and components and Brickslips are manufactured by T.I Tiles International approved supply chain in Germany. All items are dispatched/transported directly to the end client or to the Glasgow warehouse prior to distribution to the client. The certificate incorporates the partnership between T.I. Tiles International Ltd and their approved supplier/s to produce the T.I. Aerobrik Brick Slip Cladding System.

An initial factory production control audit has been carried out at the certified products manufacturing sites 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
- Labelling of products

UL International (UK) Ltd, witnessed the production and processes at all sites 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. All of the sites are subjected to annual surveillance audits 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 requirements section 6.9 and the scheme document. At least the following requirements were evaluated in the review and were found to show evidence that complies.

3.1 Loads and movements

The Aerobrik Cladding System, including brackets and fixings, allow movement without causing damage or deformation, and calculations carried out by external structural engineers to demonstrate that loads are safely transferred to the building. Recommended fastening spaces are based on calculations in accordance to Eurocode EN 1991-1-4.

3.2 Support and Fixings

The Aerobrik Cladding System has demonstrated that it can be securely fixed with suitably durable fixings to ensure adequate in-service performance. A TN76 impact test has been carried out on this system by a UKAS accredited laboratory – see section 6 for further details. Hilti fixings have ETA approval Z-14.4-769 ETA-18/0880.

3.3 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 are used, and bimetallic corrosion has been considered Test report APERAM 147923.

3.4 Interfaces

The Aerobrik Cladding System has suitable interfaces and resists the penetration of water and wind and has designed to be weather resistant. A CWCT Section 9 hose test was successfully conducted on a window interface installed in the system. The Perfect wall document and drawings provide details on how to fit/install and ensure that the window detail doesn't compromise the system erecting or build. 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.

3.5 Insulation

Insulation is to be supplied by others; T.I. International Ltd. can supply further details on the appropriate location of insulation via drawings. Rockwool Rainscreen DUO slab is used, and the Rockwool installation guide is to be followed.

3.6 Damp proofing and vapour control

The Aerobrik Cladding System, including damp proofing materials and Kemwell Non-Combustible Seal and Tyvek® House Wrap is designed to adequately resist the passage of water into a building and allows water vapour to pass outwards. Cavity trays are fitted at the base of the system and above any openings.

3.7 Electrical continuity and earth bonding

The Aerobrik Cladding System operation and maintenance guide specifies electrical continuity and earth bonding is to be managed by separate contactors onsite during installation.

3.8 Maintenance

The design allows for appropriate access arrangements for the purposes of cleaning, inspection, maintenance and repair. The Perfect Wall guide is supplied with the Aerobrik panels provides further details. Should there be a requirement where a tile or tiles require replacing this can be carried out in an isolated area rather than stripping full elevations to replace.

3.10 Ventilation screens

Any ventilation openings are protected from the entry of birds and animals, t.i have confirmed that a suitable anti-vermin mesh will be supplied ensure compliance.

3.11 Handling and storage

An onsite assessment of the manufacturer confirmed that materials, products and systems are protected and stored in a satisfactory manner to prevent damage, distortion, uneven weathering and any degradation. The safe handling of panels is detailed further in the Perfect Wall Document

3.12 Weather resistance

The Aerobrik 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 7 tests 5 and 6 for further details. All external seals and joins are made from Parex Mortar or equal to/approved to prevent water ingress.

3.13 Thermal bridging and condensation

The Aerobrik Cladding System and the insulation used has been designed/considered so that thermal bridging is considered and managed. Please refer to the Perfect Wall Document.

3.14 Air infiltration

The cladding system has air barriers and vapour barriers drawings can be provided by T.I. International Ltd.

3.15 Opening doors and lights

Openable windows are installed so that they fit neatly and have minimal gaps to ensure effective weatherproofing of the system is maintained, detailed drawings created by T.I. International Ltd. are available on request.

3.16 ETAG

The brick slips have a DoP stating that no dangerous substances are used in their manufacture or material composition. The compressive strength of the Brickslips has been successfully assessed to /EN 772-1/ (for facing bricks only) >= 4 N/mm2. The Bend-breaking strain when flat/edgewise according to /EN 1344/ (for clay pavers only) >=80N/mm has been assessed. Test evidence and a DoP has been supplied for Freeze-thaw resistance testing according to /DIN 52252-1.

Section 6 – 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 T.I International Ltd. 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 certified.
B2(1) Internal fire spread (linings) and B4 (1) External fire spread	The two key components of the cladding system comprise a steel plate (zinc, aluminium, and Magnelis corrosion coated) and a non-flammable/ non-combustible clay brickslip. Both products have individual manufacturers Product Declarations stating A1 for fire performance. This gives confidence that this regulation is contributed towards by the product certified.
C2 (B) Resistance to moisture	The CWCT Report R20556 (details in section 6) gives confidence that this regulation is contributed towards by the product certified when designed as a fully drained and back vented rainscreen cladding system.
7. Materials and workmanship	The evidence of method statements and staff training provided gives confidence that this regulation is contributed towards by the product certified.

The Building (Scotland) Regulations 2004 (as amended)

Requirement	Comment/s
1.1 Structure	The externally sourced calculations, statements and reports provided gives confidence that this regulation is contributed towards by the product certified.
3.10 Precipitation	The CWCT Report R20556 (details in section 6) gives confidence that this regulation is contributed towards by the product certified.
3.15 Condensation	The vapour resistivity of Rockwool duo slab is 5.9 MNs. The slabs reduce the risk of condensation and allow natural drying of the structure. This gives confidence that this regulation is contributed towards by the product certified.
8(1) Fitness and durability of materials and workmanship	The evidence of method statements and staff training provided gives confidence that this regulation is contributed towards by the product certified.

Section 7 – Product installation

General

This product must be installed in accordance with the T.I. International Ltd. recommendations and the requirements of this certificate. T.I. International Ltd. have specified that product Installers can be trained and approved by them directly. All trained and approved installers will be issued with an appropriate in-house certificates/training evidence. Please see the perfect wall document provided by T.I. International Ltd for further details.

Product delivery

The product is delivered to the UK banded on wooden pallets transported by long distance haulage companies. Heavy-duty packaging is used for the products and this was demonstrated during the onsite visits of the facilities in Germany. Each delivery is labelled with details including; order number, location, product name, type, size, quantity and weight.

Site survey

T.I. International Ltd have specified that prior to installation of 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.

Section 8 - Supporting CWCT test documentation

General

Air and water testing of the Aerobrik 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 provided by T.I. International Ltd.

Test sample size and configuration

The product testing was accordance with UL International (UK) Ltd, guidance document WEL 354. The sample was 5.0 m wide by 8.0 m in height featured a corner detail and was installed on an SFS backing wall.

Testing carried out

CWCT Test Methods for Building Envelopes – Dec 2005; Sections 7, 9, 11, 12 & CWCT TN 76. The testing was conducted on the 13th November 2019 and completed on the 24th January 2020.

Test laboratory

UL International (UK) Ltd, Telford, Shropshire TF7 4QH (UKAS 2223)

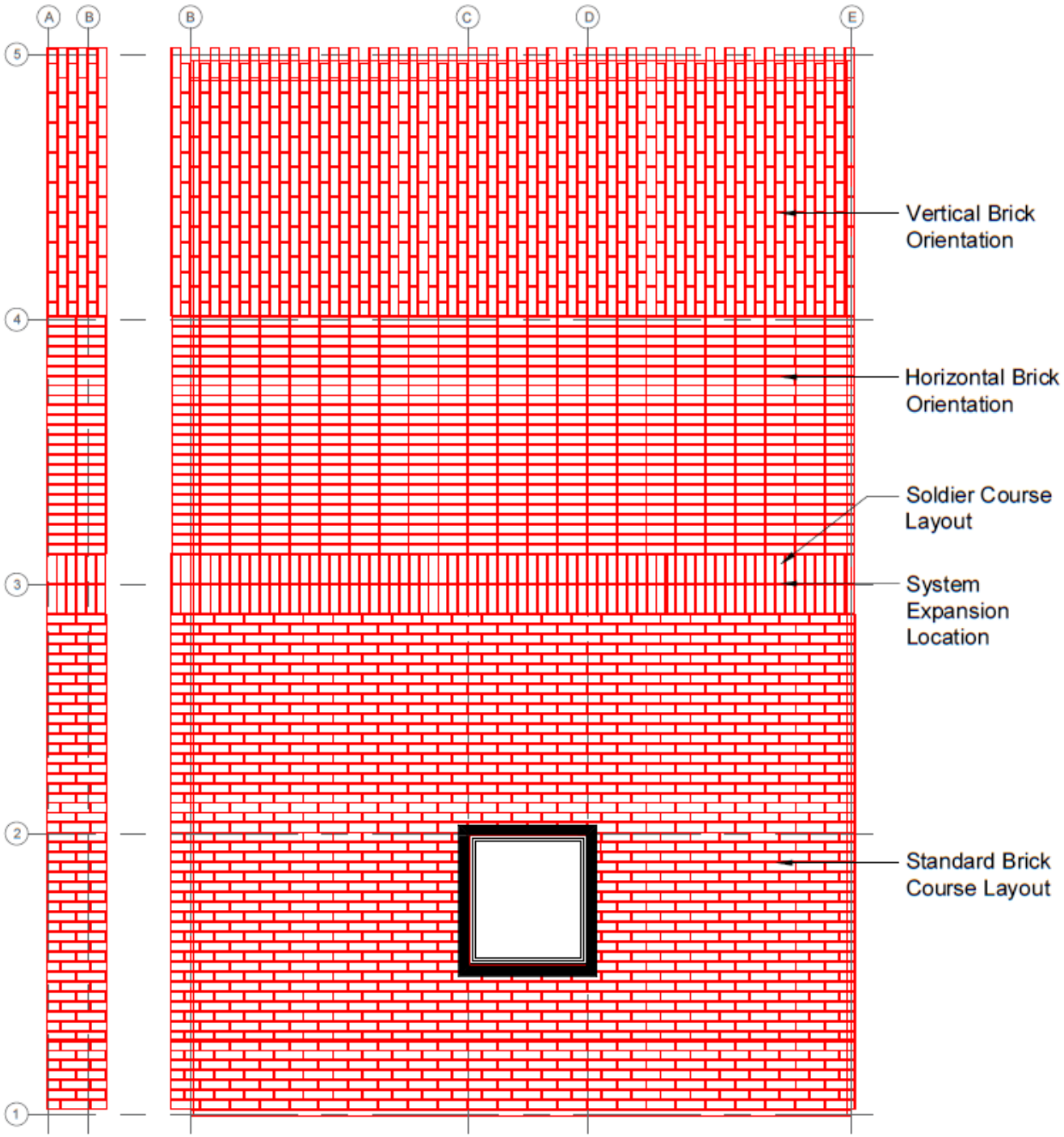
Test Results (reference report number R20556)

Test type	Peak Test Pressure	Result	Date of test	Classification
Test 1 – Air Leakage - Infiltration	600 Pa	Pass	13.11.19	-
Test 2 – Air Leakage - Exfiltration	100 Pa	n/a	13.11.19	-
Test 3 – Water Penetration - Dynamic Aero Engine	600 Pa	Pass	14.11.19	-
Test 4 – Wind Resistance (Serviceability) – Backing Wall	2400 Pa	Pass	14.11.19	-
Test 5 – Repeat Air Leakage - Infiltration	600 Pa	Pass	14.11.19	-
Test 6 – Repeat Air Leakage - Exfiltration	100 Pa	n/a	14.11.19	-
Test 7 – Repeat Water Penetration - Dynamic Aero Engine	600 Pa	Pass	14.11.19	-
Test 8 – Water Penetration - Hose	-	Pass	14.11.19	-
Test 9 – Wind Resistance – (Serviceability) - Cavity	2400Pa	Pass	20.12.19	-
Test 10 – Wind Resistance (Safety) -Backing Wall	3600 Pa	Pass	14.01.20 16.01.20	-
Test 11 – Wind Resistance (Safety) -Cavity	3600 Pa	Pass	16.01.20 23.01.20	-
Test 12 – Impact Resistance (Retention of Performance)	-	Class 4	13.12.19 24.01.20	CAT B
Test 13 – Impact Resistance (Safety to persons)	-	Moderate Risk	13.12.19 24.01.20	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 TI Tiles International Ltd. The dismantling was conducted on 28th and 29th January 2020 by representatives of TI Tiles International Ltd and was witnessed in full by UL International (UK) Ldt testing personnel. The report states that there was no water evident in the system in parts designed not to be wetted following the system dismantle. For further details, please request a copy of test report R20556.

Figure 1.3 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 'Perfect Wall Document'
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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