# Certificate of Testing

**Certificate Number:** 2018/82

**Date**: 1 May 2018

**System**: **NaturAL-X Brick slip system**

**System supplier:** Ash and Lacy Solutions Ltd
Bromford Lane
West Bromwich
West Midlands
B70 7JJ

**Tests performed:**

| | |
|---|---|
| Watertightness – dynamic | ✓ |
| Wind resistance – serviceability | ✓ |
| Wind resistance – safety | ✓ |
| Soft body impact | ✓ |
| Hard body impact | ✓ |

In accordance with 'Standard for Systemised building envelopes CWCT, 2006

Test Witness

Director

CWCT Services Ltd, The Studio, Entry Hill, Bath, BA2 5LY
Tel: 01225 330945, email: cwct@bath.ac.uk www.cwct.co.uk

Company registered in England at RSM, 25 Farringdon Street, London, EC4 4AB
number 2536548; VAT number: 600 9915 52

# Description of system tested

| | |
|---|---|
| Rainscreen system: | NaturAL-X brick slip system |
| Panel material: | Brickmaking clay. Slips available in a variety of colours: tested slips colour code D1025 |
| Panel description: | Extruded brick slips with exposed face dimensions 215mm x 65mm and 12mm thick. Slips extruded with continuous ribs on the back to engage with supporting rails giving overall dimensions of 225 x 80 x 23mm.<br><br>Corner units can be created by forming mitre joints but not included in test wall. |
| Joints: | Joints between slips filled with mortar. Joints 10 mm wide and maximum 12mm deep with rib on back of brick slip extending behind mortar joint.<br><br>Joints in test wall full depth with bucket handle finish.<br><br>Parex historic mortar which is a pre-bagged lime based material used for joints.<br><br>At joints in vertical support rails, the top brick slip of the lower rail restrained by a top bar and the lowest row of slips on the upper bar supported by a start rail. 15mm joint gap between brick slips filled with flexible sealant. |
| Support rails: | Brick slips supported by extruded aluminium horizontal rails. Rails composed of 6063T6 aluminium and designed to restrain the top of the brick slip below the rail and support the brick slip in the row above the rail.<br><br>For the test wall, the horizontal rails were supported by vertical L profiles (60 x 40 x 2.2mm). Vertical profiles composed of 6063 T6 aluminium and supported by brackets at 600mm centres. Profiles at 600mm spacing.<br><br>Brackets supporting vertical rails 80mm high with 120mm projection and provided with insulating pad between baseplate and back wall. One bracket on each section of rail fixed to carry dead load. Remaining fixings between rails and brackets in slotted holes to permit vertical movement.<br><br>Note:<br>Other methods of supporting the horizontal rails would be acceptable provided the support provided is similar. |
| Fixings: | Brick slips engage with horizontal rails and locked in position by mortar joints.<br><br>Horizontal rails fixed to vertical rails with screws, one screw at each intersection.<br><br>Rails fixed to brackets by screws, two screws per bracket.<br><br>Screws manufactured by Ash and Lacy and supplied as part of system. |
| Drainage and ventilation: | 10mm diameter drainage holes provided at bottom of test sample.<br><br>Note:<br>The CWCT Standard requires a drained and ventilated cavity in a rainscreen wall which requires openings at the top and bottom of the cavity. The cavity is required to have a minimum width of 25mm. The Standard does not specify the minimum area of drainage and ventilation openings. |
| Backing wall: | Steel studs with plywood sheathing. Back wall provided to facilitate testing but not part of the tested system. |

# Test arrangements

| | |
|---|---|
| Date of test: | 20 December 2018 |
| Testing laboratory: | Technology Centre<br>VINCI Construction UK Ltd<br>Stanbridge Road<br>Leighton Buzzard<br>Bedfordshire LU7 4QH |
| Registration No: | UKAS No 0057 |
| Independent testing authority: | Technology Centre<br>VINCI Construction UK Ltd<br>Stanbridge Road<br>Leighton Buzzard<br>Bedfordshire LU7 4QH |
| Witness: | Alan Keiller<br>CWCT<br>The Studio<br>Entry Hill<br>Bath<br>BA2 5LY |
| Fabricator: | Ash and Lacy<br>Bromford Lane<br>West Bromwich<br>West Midlands<br>B70 7JJ |
| Installer: | Ash and Lacy<br>Bromford Lane<br>West Bromwich<br>West Midlands<br>B70 7JJ |

## Summary of results

| | |
|---|---|
| Watertightness - dynamic: | PASS |
| Equivalent pressure: | 600Pa |

Note:

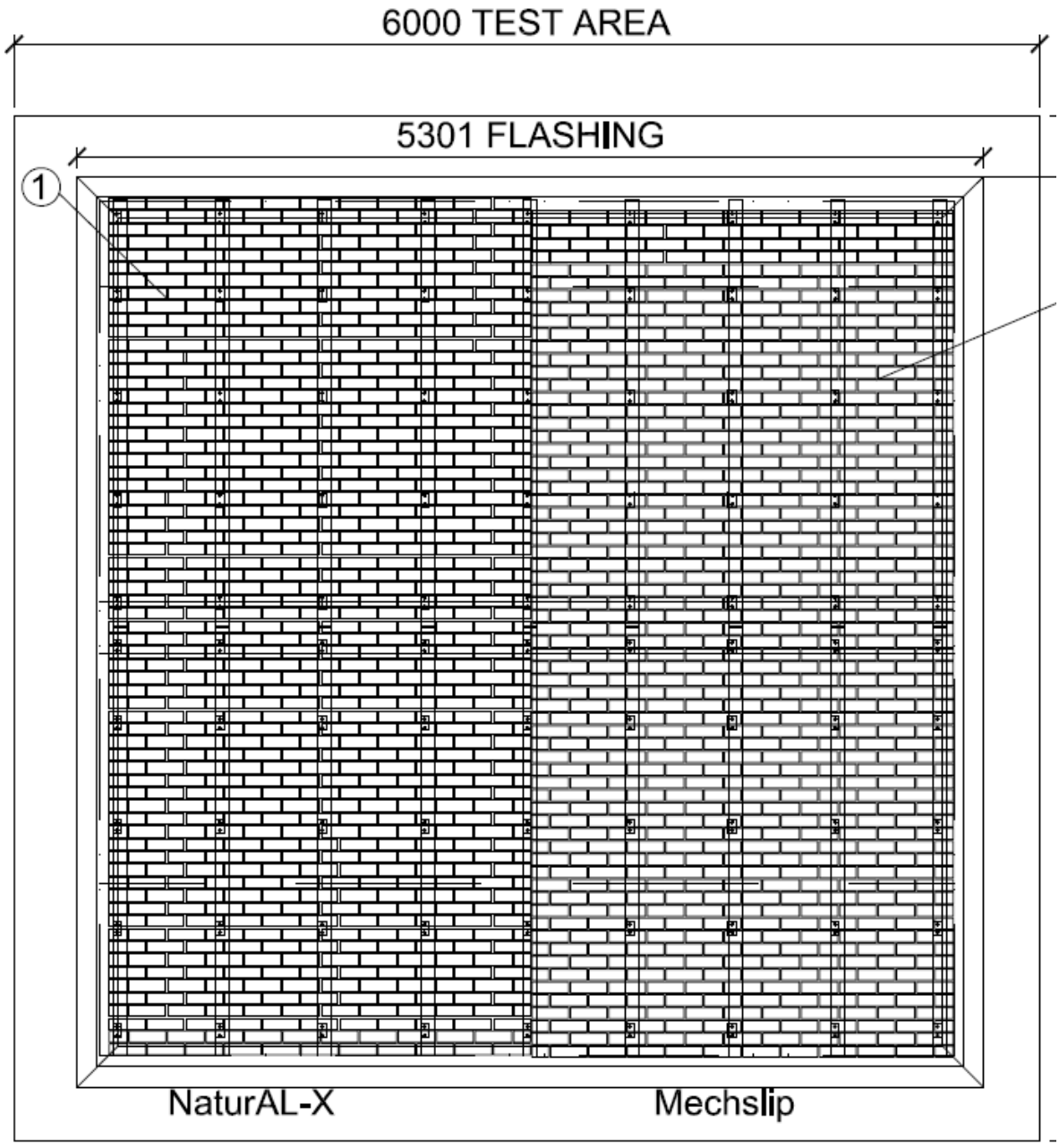
During the test some water passed through the mortar joints but this was insufficient to run down over the horizontal rails. No water reached the face of the back wall.

A drained and ventilated cavity would be required to remove any water that penetrates the brick slip system.

Flashings are required to drain water from the bottom of the cavity.

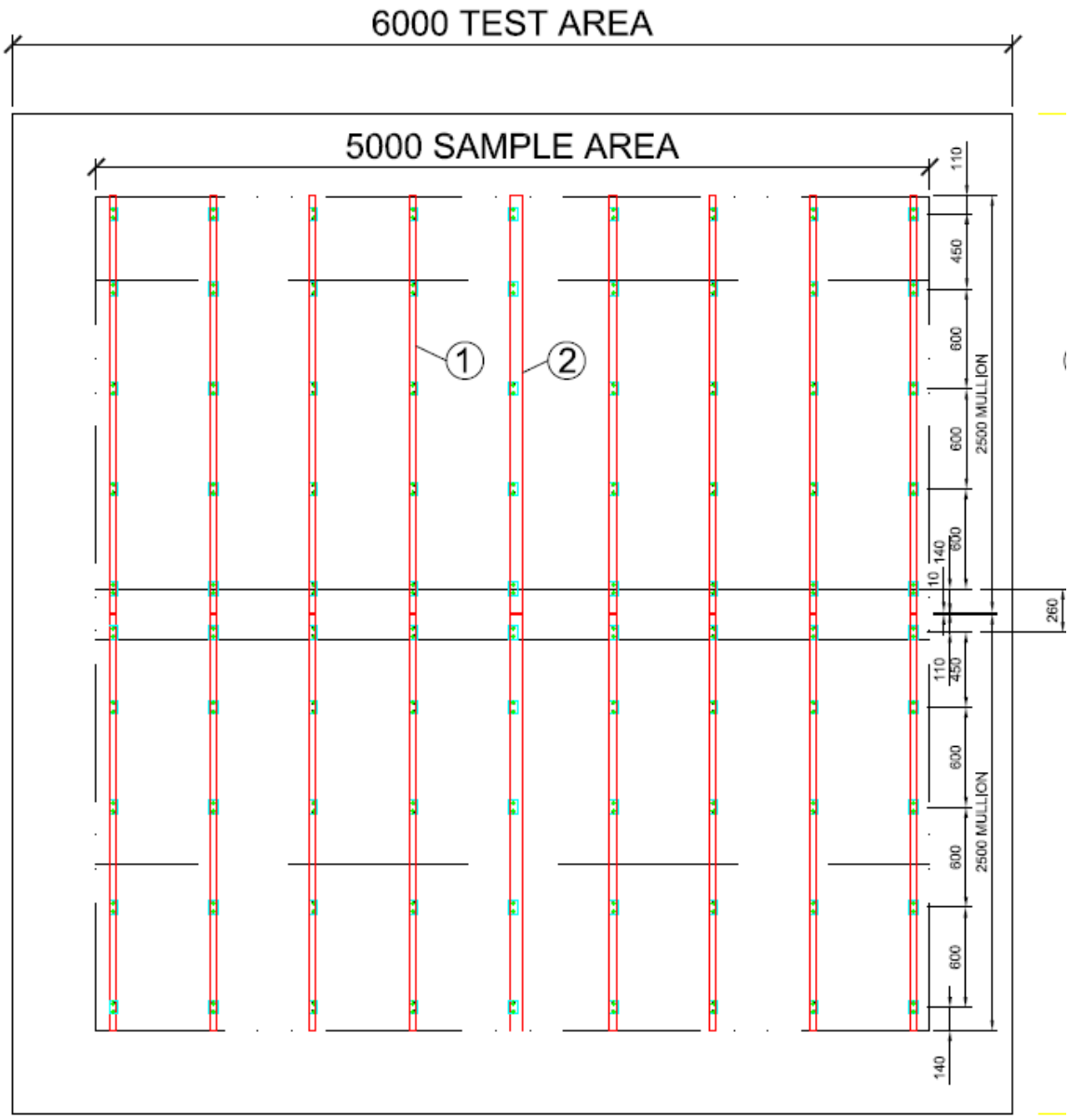
| | |
|---|---|
| Wind resistance: | PASS |
| Serviceability test pressure: | 2400Pa |
| | Maximum displacement under load 0.7mm and maximum residual displacement on unloading 0.2mm. Movement not visually discernible.<br>This is less than the permitted deflection of brittle materials in the CWCT Standard of span/360. |
| Safety test pressure: | 3600Pa |
| | During the safety wind load test some minor cracking occurred to the mortar joints. This would not require remedial action. |
| Soft body impact test to CWCT Technical Note 76: | Serviceability<br>No visible damage under a serviceability impact of 120Nm.<br>This is designated as Class 1. |
| | Safety<br>Some cracking occurred to mortar joints under a safety impact test of 500Nm. This would not require immediate remedial action but cracking may allow further deterioration of mortar if exposed to severe weather.<br>This is designated as negligible risk. |
| Hard body impact test to CWCT Technical Note 76: | Serviceability<br>No visible damage under a serviceability impact of 6Nm.<br>This is designated as Class 1. |
| | Safety<br>Vertical hairline cracks in brick slips and some cracking of mortar joints occurred under a safety impact of 10Nm. Brick slips remained secure.<br>This is designated as negligible risk. |

## Drawings




Elevation of test wall

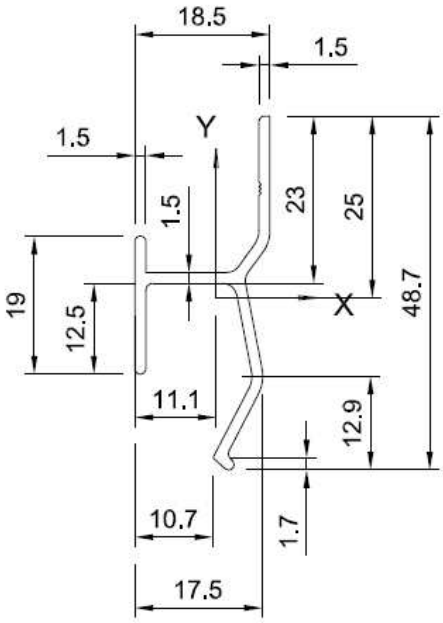
Note: Test wall included two types of brick slip.
This certificate relates to the NaturAL X system only.



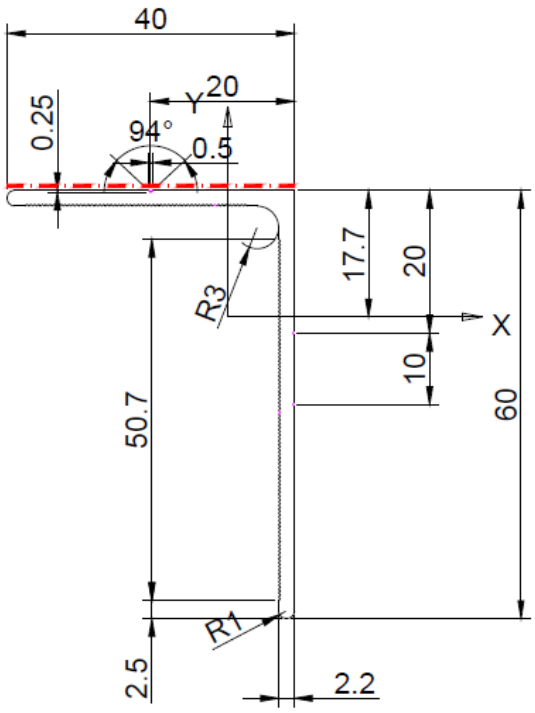

**Key**

1. 8 off M14 - L60X40X2.2 Rall, 2500 mm long
2. 2 off M15 - T60X80X2.2 Rall, 2500 mm long

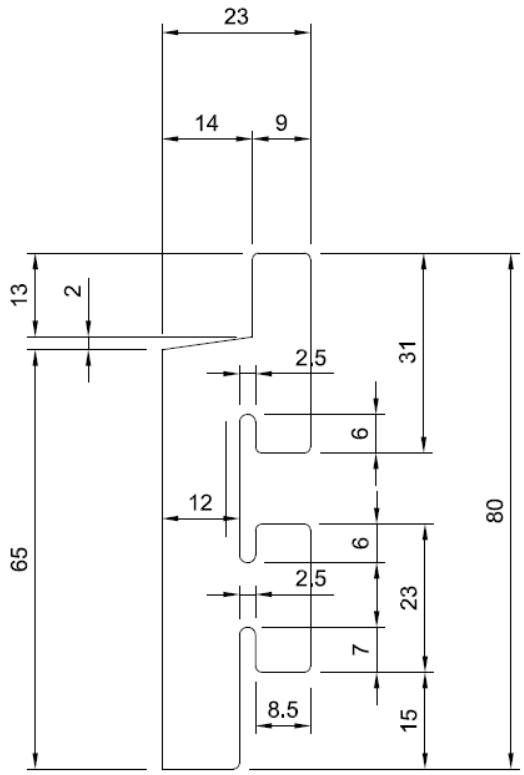
Elevation of test wall showing support rails and bracket locations




Horizontal rail

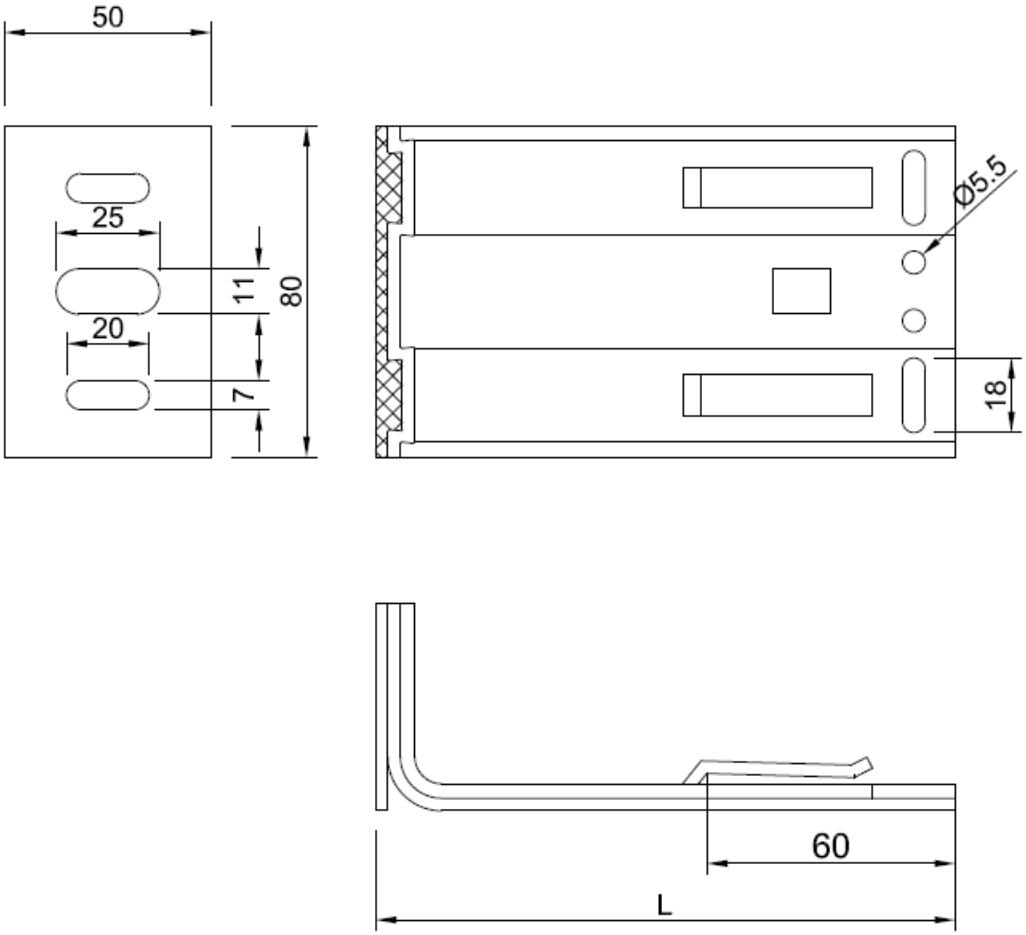



Vertical rail



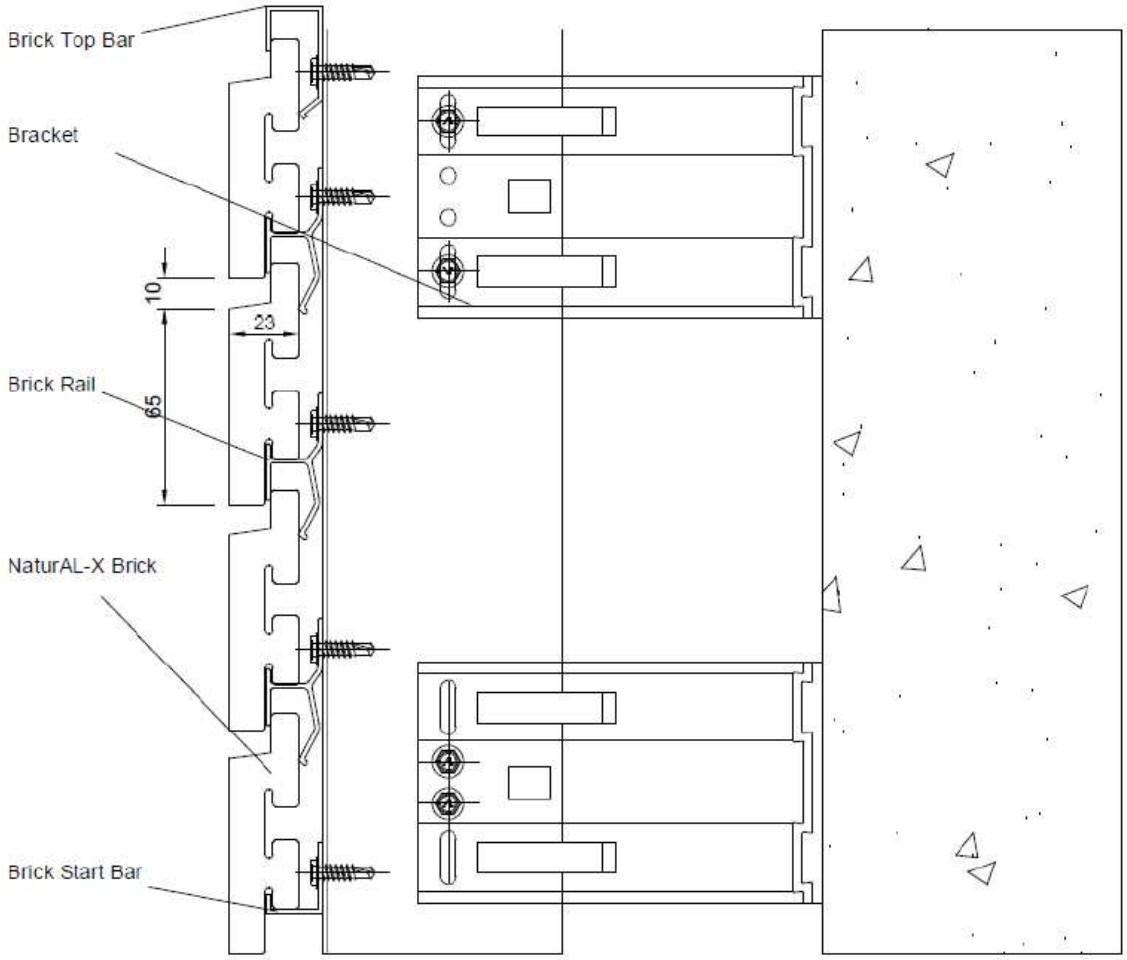

Section through brick slip

Component details




| Bracket Ref | L (mm) | Components in Assembly |
|---|---|---|
| HB090S-TP | 90 | HB90S+TP80L |
| HB120S-TP | 120 | HB120S+TP80L |
| HB150S-TP | 150 | HB150S+TP80L |
| HB180S-TP | 180 | HB180S+TP80L |
| HB210S-TP | 210 | HB210S+TP80L |
| HB240S-TP | 240 | HB240S+TP80L |
| HB270S-TP | 270 | HB270S+TP80L |
| HB300S-TP | 300 | HB300S+TP80L |

Bracket details




Section through system showing typical fixing arrangement