Barracuda JAMES TAYLOR

Test Preface

Test Report No. N950-22-18406

Water Penetration (Static Pressure)

The following preface is intended to provide some ‘background’ to this particular test, its purpose, relevance to ‘real world’ façade performance and an accurate interpretation of the results.

The Barracuda system will be required to resist the penetration of water (principally resulting from ‘rainfall’) during its service life.

We wanted to prove that the Barracuda system could adequately resist the penetration of water.

This is a test that many will be familiar with, it’s one of the CWCT standard ‘Sequence B’ tests and is usually conducted on a recently built test panel.

Please note that the Barracuda system has also been ‘Heat/Rain’ and Freeze/Thaw’ tested during 60 year long term durability testing (Test Report No. N950-24-18683).

The Barracuda system, like the majority of brick slip systems is a ‘rainscreen’. Thin relatively porous clay brick slips and mortar joints cannot provide a perfect ‘weather seal’ so it is important that any brick slip system effectively drains the limited amount of water that seeps through the brick slips and the joints. The system should drain any water that seeps through the brick slips and joints down the rear face of the brick slip skin so that it can exit from the cavity via a ‘flashing’ or similar.

The static pressure test is quite difficult for a ‘rainscreen’ to pass. It’s more appropriate for identifying leaks in a ‘face sealed’ system. Rainscreens tend to struggle with this test because significant volumes of water get sucked through joints or any ‘porosity’ that the rainscreen materials might exhibit. Brick slip systems that utilise thin brick slips cut from ‘real’ bricks, quite porous handmade bricks for example, often really struggle because the drainage provisions become overwhelmed by the volume of water finding its way through the brick slips and their associated, even more porous, mortar joints. We thought though that we’d try and pass this difficult test, and we did. We feel that this clearly demonstrates the effectiveness of the drainage provisions ‘designed into’ the Barracuda system.

One of the other significant benefits that results from carrying out the static pressure test, is that backing wall deflection measurements can be gathered, and that data used to ensure that those same measurements, gathered during dynamic water penetration testing, match. This confirms the accuracy of the pressure produced by the dynamic water penetration test fan.

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The water penetration test panel was configured so that it incorporated brick heights that represented the extremes of those allowed by BS EN 771-1. (58mm to 70mm).

In order to test brick slips that were 58mm and 70mm high, brick slips were carefully fabricated (cut and bonded), ensuring that their original top and bottom surfaces were retained.

In order to create a worse than ‘worst case’, brick slips 58mm high and 70mm high were incorporated into the impact test panel in greater relative theoretical quantity proportions than allowed by BS EN771-1.

Bricks, and the brick slips which are cut from them, also come in numerous shape types, bricks with large frogs, large core holes, numerous smaller core holes and of course ‘solid’ bricks etc. The bricks can be any clay material type, extruded, pressed or handmade.

In order to represent this range of brick shape types and brick manufacturing techniques, nine different brick types were selected and incorporated into the impact test panel.

These were;

Brick Type 1. – Wienerberger Sandalwood Yellow Multi
Brick Type 2. – Michelmersh Charnwood Light Victorian Red
Brick Type 3. – Ibstock Leicester Red Stock
Brick Type 4. – Ibstock Chesterton Multi Red Smooth
Brick Type 5. – Blockley Windermere Grey Solid
Brick Type 6. – WienerbergerOlde Ivory Stock
Brick Type 7. – Wienerberger Smeed Dean London Stock
Brick Type 8. – Ibstock Aldridge Anglian Red Multi Rustic
Brick Type 9. – Michelmersh Haddley Brindle Wirecut

Please see test panel drawings appended to the test report for locations/distribution of the different brick types.

Testing carried out in accordance with the CWCT Standard Test Methods for Building Envelopes: 2005

Please read the test report thoroughly, it’s always important to read beyond just the ‘Summary and Classification of Results’. We would always encourage you to, because we are entirely confident that a detailed examination of the test results and accompanying photographs reveals a depth and quality of performance that comfortably exceeds the classification and is genuinely market leading.

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Watertightness – Static Pressure ± 600 pascals = Pass

At zero pressure minor leakage was observed seeping through some of the brick slips and running down the rails.

The water leakage rate and area increased with increased pressure and was across all brick types. The water was confined to the back of the brick slips and rails and ran down to the base of the sample where it would drain out through a ventilated cavity.