

Test Preface

Test Report No. N950-22-18403

Impact Resistance (Mortared)

The following preface is intended to provide (in readily understood terms) some 'background' to this particular test, its purpose, relevance to 'real world' façade performance and an accurate interpretation of the results.

The Barracuda system might potentially be subjected to impacts during its service life.

We wanted to prove that the Barracuda system could withstand the sort of impacts that it might be subjected to.

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 impact tested in its partially built 'temporary' un-mortared state (Test Report No. N950-24-18684) and after 60 year long term durability testing (Test Report No. N950-24-18683).

Although we could conduct this test on a panel dedicated to just impact testing (and many people do) we elected to carry out our impact testing on the 'wind and weather' test panel after it had already been significantly 'pushed' and 'pulled' by the safety pressure test. So, mid-span, the panel had already been forced to deflect over a total range of circa 20mm. We did it this way to 'condition' the test panel so that it was at its most vulnerable and in a potentially weakened state prior to impact testing.

To subject our Barracuda system to the toughest test possible, we didn't want to limit the number of impact locations to just a handful that were widely spaced apart (as many tend to do, through fear of failure). We decided that we'd pepper the test panel with numerous closely spaced impacts to satisfy ourselves that we had developed a truly robust product.

Please refer to Fig 1 and Tables 3 and 4 within Test Report No. N950-22-18403. Our test panel was subjected to 144 No. impacts across 108 No. different impact locations.

Very importantly, the impact 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 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. – Wienerberger Olde 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.

In order to properly understand impact performance, it’s important to ensure that the cladding system being tested is attached to a backing wall that exhibits the amount of deflection that is likely to occur in the ‘real world’, so, nothing too ‘artificially’ stiff!. This is particularly important with a brick slip system that has relatively inflexible mortar injected into the joints between the brick slips. The 500J soft body impact is a big impact, it has the ‘heft’ to temporarily deflect almost all rainscreen/brick slip wall constructions quite noticeably. If the test panel is too stiff and doesn’t deflect in a representative fashion when impacted, you don’t adequately test whether, what in most cases is a small cross section of mortar, will actually ‘stay put’. Because of this, ‘ultimate’ brick slip security isn’t adequately tested.

We made sure that we attached our Barracuda system to a lightweight metal stud backing wall construction that had been engineered to represent the sort of fully economised backing wall construction that would be found on a typical ‘actual’ large scale construction project. So, a backing wall that genuinely exhibited ‘real world’ flexibility and deflections.

Testing was carried out in accordance with CWCT Technical Notes 75 and 76.

Please read the test report thoroughly, it's always important to read beyond just the 'Summary and Classification of Results'. Some manufacturers might prefer that you didn't, 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.

No damage at all was evident to any of the brick slips or mortar joints. Not a single hairline crack regardless of impact energy or impact type!

All of the results achieve the very highest **Class 1/Negligible Risk** classification.

The results demonstrate an exceptionally high level of impact resistance and general robustness.