IAN BENNIE AND ASSOCIATES

TEST REPORT NO. 6039S3-4-6

TERRACADE TL CLADDING WIND LOAD TESTS to AS4040

for

The Austral Brick Company

August 2006

Registered Laboratory No. 2371

IAN BENNIE & ASSOCIATES PTY. LTD.

Building Performance Testing

ACN : 007 133 253

Registered Laboratory No. 2371

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Test Client **The Austral Brick Company**

Sample Identification Three identical samples of Terracade TL Cladding were supplied for testing. The samples measured 1800 mm by 1800 mm and consisted of 3 tiles in width and 6 tiles in height. The tiles were mounted on vertical suspension rails that were fixed to a timber sub-frame. For these samples, an aluminium angle was fitted along the top edge of the top tiles to prevent them from lifting during the tests. General details of the samples are given in Figure 1. All components of the samples were as detailed in The Austral Brick Company**,** Terracade TL Technical Manual – Issue A-0106.

Test Method Strength limit state testing was conducted in accordance with AS4040 Methods of testing sheet roof and wall cladding, Method 3: Resistance to wind pressures for cyclone regions. As the final static pressure stage of Method 3 is the same duration as required in Method 2: Resistance to wind pressures for non-cyclone regions, the result of the final stage is also evaluated for non-cyclone regions.

For the purpose of the tests, a thin plastic film was installed over the front of the suspension rails immediately behind the tiles. This film provided the air seal for uniformly distributed air pressure loads applied from behind the sample.

At the request of the client, 3 strain gauges were applied to one of the suspension rails of the second sample (S4) and values from these gauges were recorded during a series of 1 minute static pressure steps after the cyclic tests.

Procedure: AS4040.3 nominates a sequence of fatigue cycling based on the Ultimate Strength Limit State Pressure (P_t) as follows:

8000 cycles ..... 0 to 0.40 P_t
2000 cycles ..... 0 to 0.50 P_t
200 cycles ..... 0 to 0.65 P_t

This fatigue test is then followed by a static test at 1.3 times the Ultimate Limit State Pressure for a period of 1 minute. Where two identical samples are tested AS4040.3 nominates the static pressure is reduced to 1.2 P_t and to 1.0 P_t when 3 samples are tested.

Nominated Strength Limit State Pressure: -3.6 kPa

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TEST RESULTS

Sample S3

Test Location: IBA Test Centre
Dandenong, Melbourne.

Test Date(s): 5 June 2006.

Observations:

8000 cycles at	–1.44 kPa	No sign of failure was observed.
2000 cycles at	–1.80 kPa.	No sign of failure was observed.
200 cycles at	-2.34 kPa	No sign of failure was observed.
Static load(s)	-3.85 kPa.	Pressures were applied incrementally up to –3.85 kPa and no sign of failure was observed.
		When the pressure was increased to –3.9 kPa, the top right tile released from the clips followed by the next two tiles below. It appeared that the first tile either broke at or disengaged from the clips on the right side.

Sample S4

Test Location: IBA Test Centre
Dandenong, Melbourne.

Test Date(s): 22 June 2006.

Observations:

8000 cycles at	–1.44 kPa	No sign of failure was observed.
2000 cycles at	–1.80 kPa.	No sign of failure was observed.
200 cycles at	-2.34 kPa	No sign of failure was observed.
Static load(s)	-4.30 kPa.	Pressures were applied incrementally up to –4.30 kPa and no sign of failure was observed.

The following table indicates the strains recorded during the static loads on Sample S4. The locations of the strain gauges are indicated in Figure 1.

Load (kPa)	Strains (μstrain) – 8mm gauges		
	1	2	3
0.00	0	0	0
-2.50	-36	6	44
-2.75	-44	13	58
-3.00	-46	16	66
-3.10	-48	17	69
-3.40	-54	19	74
-3.60	-56	18	80
-3.85	-58	20	84
-3.90	-59	15	88
-4.10	-62	12	92
-4.20	-68	12	94
-4.30	-68	12	94
0.00	11	6	2

Sample S6

Test Location: IBA Test Centre
Dandenong, Melbourne.

Test Date(s): 4 July 2006.

Observations:

8000 cycles at	–1.44 kPa	No sign of failure was observed.
2000 cycles at	–1.80 kPa.	No sign of failure was observed.
200 cycles at	-2.34 kPa	No sign of failure was observed.
Static load(s)	-4.5 kPa.	Pressures were applied incrementally up to –4.5 kPa and no sign of failure was observed.

Requirement:

AS1562.1 Design and installation of sheet roof and wall cladding, specifies that the cladding system remain substantially in position, notwithstanding any permanent distortion, fracture or damage that might occur in the sheeting or fastenings.

Conclusion:

The test samples passed the test requirements of Australian Standard AS4040 Methods of testing sheet roof and wall cladding at the following strength limit state pressures:

Cyclone Regions: **-3.60 kPa**

Non-cyclone Regions: **-3.85 kPa** (based on Sample S3)

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Derek Dubout 11 August 2006
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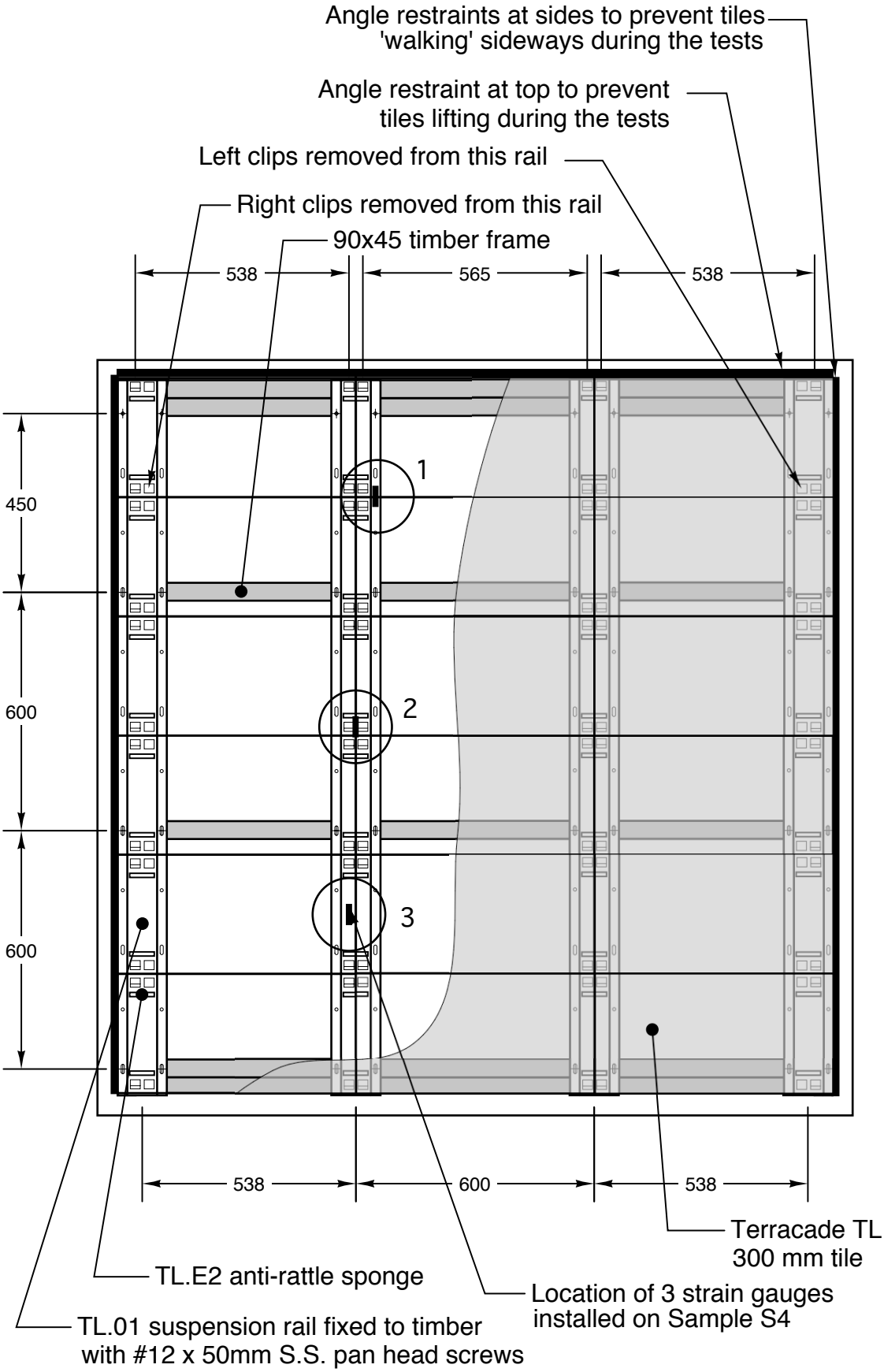

Figure 1. Front elevation of the test sample.