22 March 2006

Trent Mason
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Job No. 1-L0060.54
Lab Ref: 001-004/06

MASONS WALL TIES
Testing to AS/NZS 2699.1:2000 using Monier, Midland and Austral Clay bricks

1.Client

Masons Brickies and Plastering Gear Ltd
12c Te Kea Place
Po Box 300771 Albany
Auckland

2. Objective

To determine the strength of Masons Wall Ties to comply with **AS/NZS 2699.1:2000** "Built in components for Masonry Construction" type B ties, using both dry bed and wet bed laying.

3. Products used

Masons wall ties were supplied in 85mm and 115mm. The ties were fixed to the framing with 35mm x 12g type 17 hex head screw. The bricks used were supplied by Monier Brickmakers, Midland Bricks, and Austral Bricks.

4. Date and location of testing

The tests were carried out in March 2006 at the Opus Materials Testing Laboratory in Albany, Auckland NZ.

5. Construction

The specimens constructed were built as per (figure A1 in AS/NZS 2699.1:2000) to simulate normal building construction. The ties were tested 28 – 35 days after construction.

6. Results and findings

As per attached data sheets.

7. Conclusions

The ties tested concluded that Masons Wall ties comply to AS/NZS 2699.1:2000.
The ties are rated **Heavy Duty and pass all the minimum requirements for both characteristic strength and stiffness of a type B tie.**

Opus International Consultants Limited
Auckland Laboratory

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DATA SHEET
MASONS WALL TIES **STAINLESS STEEL**
85mm Ties - With Monier, Midland & Astral Bricks

Client:

Masons Brickies and Plastering Gear Ltd
Attention: Trent Mason

Test Method:

Testing was carried out following the method as described in AS/NZS 2699.1:2000 Appendix A. *"Method for determining the stiffness and strength of type B veneer ties".*

Samples:

Samples were prepared and left to cure for 28 - 35 days.
Test 1 Dry Bed. Test 2 Wet Bed

Findings: Test Reference 1-L0060.54 Tests 003-004/06

a) Stiffness

Characteristic stiffness	Wet Bed	0.266 kN/mm
Characteristic stiffness	Dry Bed	0.243 kN/mm

b) Strength

Characteristic strength	Wet Bed	1.85 kN/mm
Characteristic strength	Dry Bed	1.82 kN/mm

Specification:

Minimum Characteristic strength and Minimum Characteristic stiffness under axial loading (from AS/NZS 2699.1:2000)

Classification for seismic veneer tie	Minimum Characteristic axial stiffness (kN/mm)	Minimum Characteristic axial strength (at the end of the 4th 10mm tension cycle) (kN)	Minimum Characteristic residual strength (at the end of the 15 mm cycle((kN)
Light Duty (EL)	0.150	0.500	0.350
Medium Duty (EM)	0.175	0.750	0.550
Heavy Duty (EH)	0.200	1.500	1.100

Conclusion:

The ties tested concluded that Masons Wall ties comply to AS/NZS 2699.1:2000. The ties are rated **Heavy Duty and pass all the minimum requirements for both characteristic strength and stiffness of a type B tie.**

Tested: D Hotham
Checked: A Griffiths
Date: 02/03/06

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DATA SHEET
MASONS WALL TIES **STAINLESS STEEL**
115mm Ties - With Monier, Midland & Astral Bricks

Client:
Masons Brickies and Plastering Gear Ltd
Attention: Trent Mason

Test Method:
Testing was carried out following the method as described in AS/NZS 2699.1:2000 Appendix A. *"Method for determining the stiffness and strength of type B veneer ties".*

Samples:
Samples were prepared and left to cure for 28 - 35 days.
Test 1 Dry Bed. Test 2 Wet Bed

Findings: Test Reference 1-L0060.54 Test 001-002/06

c) Stiffness

Characteristic stiffness	Wet Bed	0.261 kN/mm
Characteristic stiffness	Dry Bed	0.230 kN/mm

d) Strength

Characteristic strength	Wet Bed	1.85 kN/mm
Characteristic strength	Dry Bed	1.56 kN/mm

Specification:
Minimum Characteristic strength and Minimum Characteristic stiffness under axial loading (from AS/NZS 2699.1:2000)

Clasification for seismic veneer tie	Minimum Characteristic axial stiffness (kN/mm)	Minimum Characteristic axial strength (at the end of the 4th 10mm tension cycle) (kN)	Minimum Characteristic residual strength (at the end of the 15 mm cycle((kN)
Light Duty (EL)	0.150	0.500	0.350
Medium Duty (EM)	0.175	0.750	0.550
Heavy Duty (EH)	0.200	1.500	1.100

Conclusion:
The ties tested concluded that Masons Wall ties comply to AS/NZS 2699.1:2000.
The ties are rated **Heavy Duty and pass all the minimum requirements for both characteristic strength and stiffness of a type B tie.**

Tested: D Hotham
Checked: A Griffiths
Date: 02/03/06

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