



Masons Evaluation Report

BrickTies

Date of Issue: October 2020

REPORT HOLDER

Masons Plastabrick Ltd
18A David McCathie Place
Silverdale, Auckland NEW ZEALAND
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1.0 TECHNICAL SCOPE

1.1 Masons Brick Ties are hot dip galvanised steel and grade 316L stainless steel ties suitable for all buildings applications including Heavy Duty Earthquake Zones and Medium Duty Zones. The Masons Brick Tie has been designed to exceed the Australian and New Zealand standard 2699.1:2000.

1.3 Masons Plastabrick Brick Ties comply with AS/NZS 2699.1:2000 and as such contribute significantly towards the NZBC performance provisions cited above when used in accordance with the requirements of NZS 4210:2001 (Masonry Construction: Materials & Workmanship) and NZS 3604:2011 (Timber Framed Buildings).

2.0 PROPERTIES EVALUATED

2.1 AS/NZS 2699.1: 2000 classifies Type B seismic-resistant veneer ties according to stiffness and characteristic strength. To be classified as Heavy Duty (EH) or Medium Duty (EM), veneer ties must meet the criteria outlined below:

2.2 Minimum criteria

See table below:

| Seismic Veneer Tie | Minimum | Minimum | Minimum |
|--------------------|--|--|--|
| Classification | Characteristic axial stiffness kN/mm axial stiffness kN/mm | Characteristic axial strength the end of 4th (10mm tension cycle) kN | Characteristic residual strength (at end of 15mm cycle) kN |
| Heavy Duty (EH) | 0.200 | 1.500 | 1.100 |
| Medium Duty (EM) | 0.175 | 0.750 | 0.550 |

4.0 EVALUATION SCOPE

4.1 Compliance with the following codes:

- AS/NZS 2699.1:2000 Built-in components for masonry construction – Wall Ties.

5.0 GENERAL DESCRIPTION

5.1 Masons Brick Ties hot dip galvanised and 316 stainless steel ties suitable for all buildings applications including Heavy Duty Earthquake Zones.

- MASONS Brick Ties are manufactured to comply with AS/NZS2699.1.2000

Rated Heavy Duty and a Medium duty version available

- Can be used to tie any masonry veneer to a structural frame
- Available in four lengths: 85mm, 90mm, 110mm and 135mm
- Available in hot dip galvanised steel and 316L stainless steel
- Using 316 stainless steel provides ultimate durability for houses in sea-spray zones
- Hot dip galvanised steel ties are provided with 270 galvanised screw fittings per box. Stainless steel ties are provided with 250 stainless steel screw fittings per box.

5.2 Lengths

85mm, 90mm, 110mm and 135mm

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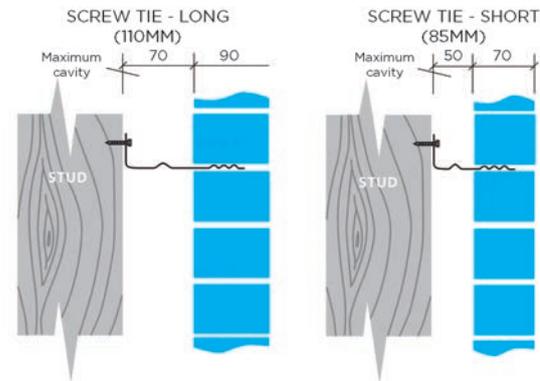
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6.0 MODELS

| Product Code | Description | Corrosion ZONE per NZS 3604 |
|-----------------|---|-----------------------------|
| TIE85HD250 | 85mm Short Hot Dipped Galvanised | B&C |
| TIE85HD250SD | 85mm Short Hot Dipped Galvanised. Self Drilling Screws for Steel Frames | B&C |
| TIE90HD250 | 90mm Hot Dipped Galvanised. | B&C |
| TIE90HD250SD | 90mm Hot Dipped Galvanised. Self Drilling Screws for Steel Frames | B&C |
| TIE85SS250 | 85mm Short Stainless Steel | D |
| TIE85SS250SD | 85mm short Stainless Steel. Self Drilling Screws for Steel Frames | D |
| TIE90SS250 | 90mm Stainless Steel | D |
| TIE90SS250SD | 90mm Stainless Steel. Self Drilling Screws for Steel Frames | D |
| TIE110HD250 | 110mm Long Hot Dipped Galvanised | B&C |
| TIE110HD250SD | 110mm Long Hot Dipped Galvanised. Self Drilling Screws for Steel Frames | B&C |
| TIE110SS250 | 110mm Long Stainless Steel | D |
| TIE110SS250SD | 110mm Long Stainless Steel. Self Drilling Screws for Steel Frames | D |
| TIE85HD500 | 85mm Short Hot Dipped Galvanised (500) | B&C |
| TIE85HD500SFS30 | 85mm Short Hot Dipped Galvanised. Self Drilling Screws for Steel Frames | B&C |
| TIE135HD250 | 135mm Hot Dipped Galvanised | B&C |
| TIE135SS250 | 135mm Stainless Steel | D |
| TIE85MG250 | 85mm Short Hot Dipped Galvanised. | B&C |
| TIE85MGSD250 | 85mm Short Hot Dipped Galvanised. Self Drilling Screws for Steel Frames | B&C |

7.0 INSTALLATION



8.0 BASIS OF THIS EVALUATION REPORT

8.1 This Evaluation Report has considered the following aspects in issuing this recognition:

- Installation procedures
- Material properties
- Relevant NZBC requirements
- The ability of the installation details to meet the requirements of AS/NZS2699.1.2000.

9.0 SPECIFICATIONS

| Classification for Seismic Veneer Tie | Minimum for Axial Stiffness (kN/MM) | Minimum Characteristic for Axial Strength (kN/MM) | Characteristic residual strength (at end of 15mm cycle) kN |
|---------------------------------------|-------------------------------------|---|--|
| Light Duty | 0.150 | 1.500 | 0.350 |
| Medium Duty | 0.175 | 0.750 | 0.550 |
| Heavy Duty | 0.200 | 1.500 | 1.100 |

10.0 TEST REPORTS FOR MASONS WALL TIES

- SGS test reports INZ70404-04A, INZ70404-06A, INZ70404-05A, INZ69445-01A, INZ70404-03A, INZ70404-06, INZ70404-01
- SGS tested to AS/NZS2699.1:2000. Appendix A

11.0 INSPECTIONS

Industry feedback from Masons Brick Ties have found the level of performance to be satisfactory.



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14.0 COPYRIGHT STATEMENT

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APPENDIX 1 - Seismic Zones

| Table 18A | | Specification of maximum tie spacings for type B (4) Veneer Ties (Paragraph 9.2.7) | | | | | |
|--------------|--|--|----------------------|--|------------------|--|----------------------|
| Seismic Zone | Masonry Veneer Less than 180 kg/m ² | | | Masonry Veneer Less than 180 - 200 kg/m ² | | Masonry Veneer More than 220 kg/m ² | |
| | Refer NZS 3604 | Tie Type (4) (5) | Maximum Spacings (1) | | Tie Type (4) (5) | | Maximum Spacings (1) |
| Horizontal | | | Vertical | EM | | 600 | 400 |
| 1 | EL | 600 | 400 | EH (3) | 600 | 400 | SED (2) |
| 2 (6) | EM | 600 | 400 | EH (3) | 600 | 400 | SED (2) |
| 3 | EH (3) | 600 | 400 | | | | |
| 4 | SED (2) | SED (2) | SED (2) | | | | |

NOTES

- (1) Maximum masonry tie spacings of 600mm horizontally and 400mm vertically
- (2) Spacing of ties to be determined by specifically engineered design
- (3) EM may be used if the horizontal spacings do not exceed 400mm and the vertical spacings do not exceed 300mm
- (4) Type B and Prefix E indicate masonry ties manufactured to AS/NZS 2699.1
- (5) L (Light) and M (Medium), H (High) indicate strength quality of the ties in AS/NZS 2699.1
- (6) Use seismic zone 2 (minimum) for Christchurch region comprising Christchurch City, Waimakariri District and Selwyn District

COMMENT

Variations in cavity width will require compensating adjustments to the length of masonry tie used.

9.2.7 Wall Ties

Masonry veneer shall be attached to wall framing by wall ties. Wall ties and their spacings and embedment shall be in accordance with the requirements of NZS 4210 and Tables 18A, 18B and 18C. Screw fixings shall be minimum 12 gauge, 35mm long hex washer face, galvanised or stainless steel to suit the ties required under Table 18C.

APPENDIX 2 - Corrosion Zones

| Corrosion Zones | Exposure Zone Descriptions |
|-----------------|--|
| Zone B: Low | Inland areas with little risk from wind blown sea-spray salt deposits |
| Zone C: Medium | Inland coastal areas with medium risk from wind blown sea-spray salt deposits. This zone covers mainly coastal areas with relatively low salinity. The extent of the affected area varies significantly with factors such as winds, topography and vegetation |
| Zone D: High | Coastal areas with high risk of wind blown sea-spray salt deposits. This is defined as within 500 metres of the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets. The coastal area also includes all offshore islands including Waiheke Island, Great Barrier Island, Stewart Island and the Chatham Island. Note: for further information, including the New Zealand North Island and South Island Corrosivity Maps, consult NZS3604:2011, Section 4 Durability |

Report validation and Compliance review

Masons contracted Les Boulton to review this document as a whole, including the annexed test reports in this document. Les Boulton confirms that the Masons Brick Ties comply to AS/NZS2699.1.2000.

Appraisal Reviewed by

L. H. Boulton

Materials and Corrosion Consultant

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