

Facsimile

To: Stephen & Geoff Tully **From:** Doug Gaunt
Organisation: Building Materials (NZ) Ltd **Subject:** P21 Wall Bracing Summary
Location: Auckland **Date:** 10 December 2008
Fax No.: 09 4805086 **No. of** 2
Tel No.: 09 4805085 **Pages:**

Please call +64 7 343 5763 if transmission incomplete

Stephen & Geoff

Please find below a summary of your P21 testing to date, Table 1 summarises the standard board tests with Table 2 summarising the Brace board tests.

Table 1: Standard Board summary, Published Bracing units / metre (BU/m)

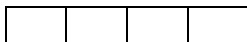
| | 2400T BP1S Nails | 1800T BP1S Nails | 1200T BP1S Nails | 2400T BP2S Nails | 1800T BP2S Nails | 1200T BP2S Nails |
|-------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Earthquake | 65 (U) | 55 (U) | 50 (U) | 75 (U) | 70 (U) | 60 (U) |
| Wind | 75 (U) | 65 (U) | 55 (U) | 90 (U) | 80 (U) | 70 (U) |

Table 2: Brace Board summary, Published Bracing units / metre (BU/m)

| | 600T BP1BP Screws | 900T BP1BP Screws | 600T BP1BS Screws | 1200T BP1BS Screws | 600T BP1B Screws | 1800T BP1B Screws | 400T BP1B Screws |
|-------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|---------------------------------|----------------------------------|---------------------------------|
| Earthquake | 150 (U) | 150 (U) | 145 (U) | 140 (U) | 115 (U) | 120 (U) | 90 (S) |
| Wind | 150 (S) | 150 (S) | 145 (S) | 150 (U) | 125 (U) | 150 (U) | 100 (U) |

All the walls were tested in the Timber laboratory of Scion in the period March – May 2008. The P21 testing was carried out in accordance with P21 test method [1] and the results evaluated as per the BRANZ Technical Recommendation No:10. [2].

1. All the walls were constructed in accordance with BPB recommendations.
2. The wall framing was Redstag 90x45 MSG8 kiln dried timber framing.
3. The BPB Standard board ratings in Table 1 used 30x2.5 galvanised clout nail sheet fastenings.
4. The BPB Brace board ratings in Table 2 used Brace screw fastenings with the standard board in Table 2 using 35mm Brace screw sheet fastenings



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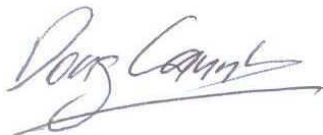
In Tables 1 and 2 the (U) or (S) denoted the controlling limit state

- Ultimate Limit State (U) – This condition is reached when the building ruptures, becomes unstable or loses equilibrium.
- Serviceability Limit State (S) – This condition is reached when the building becomes unfit for its intended use through deformation, vibratory response, degradation or other physical aspects.

References:

1. R.C Cooney, M.J Collins: A Wall Bracing Test and Evaluation Procedure, BRANZ Technical paper P21, 1979, revised 1982, 1987, 1988.
2. A.B King, K.Y.S Lim: Supplement to P21: An Evaluation Method of P21 Test Results for use with NZS3604:1990, BRANZ Technical Recommendation No:10., December 1991.

Please feel free to contact me to discuss this information.



Doug Gaunt