

2400mm 10mm standard Baier board one side, Baier board fastener pattern
3 100x3.75 nails each side as P21 restraint, Concrete floor Angle Brace
30x2.5 galv clouts 150mm centres No holddowns

Calculated to BRANZ TR No. 10. NZS 3604 1990
 Forest Research Institute, PB 3020 Rotorua. TE Lab

Summary		
Earthquake	63 (U)	BU/m
Wind	77 (U)	BU/m

Date of test:-	28-Oct-08	Ship No. 2461	Tested by <u>Doug Gaunt</u>
Date of calcn:-	30-Oct-08	Job No. TE08-017	Data Analysed by <u>Doug Gaunt</u>

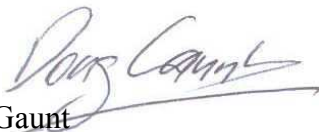
Lab Number Plus direction Minus direction	Serviceability Cycles		Ultimate Cycles		P/2 (kN)	Wall dimensions	
	Cycle to H/300 or DLQ or DLW 8.00 X mm Loads S kN	Residual Defln, C mm	Cycle to Displacement y=(mm) Maximum Load P(kN)			L(mm) 2400 d at P/2 d mm	H(mm) 2400 4th,R kN
			def @ P y (mm)				
247897 plus	7.10	3.00	8.10	20.0	4.05	2.0	6.60
minus	8.25	4.00	10.30	20.0			8.40
247902 plus	7.15	4.00	7.85	15.0	3.93	2.3	6.35
minus	8.20	2.00	10.30	15.0			8.75
247903 plus	7.25	3.00	7.65	20.0	3.83	2.0	6.25
minus	8.50	3.00	11.20	20.0			9.00
Avg	(S) 7.74	(C) 3.17	(P) 9.23	(y) 18.33	3.93	(d) 2.10	(R) 7.56
CoV %	7.54	21.70	15.22	12.86	2.34	6.73	15.56

y = average failure deflection or peak deflection of the three tests.
 d = average first cycle displacement at half peak, (the very first cycle wall reaches the load)
 R = Residual load, P = Peak Load, S = Serviceability load
 Displacement Recovery Factor (k1) k1 = 1.4 - C/X 1.00 (.8 <= K1 <= 1.0)
 Resistance (earthquake - servicabilibity limit state) F = k1xS 7.74
 Average Structural Displacement Ductility factor u = y/d 8.73
 Ductility Modification factor K4 = 1.00
 DLW = Selected deflection limit for wind forces | DLQ = Selected deflection limit for earthquake forces

P21 TR 10 Supplement Calculations			
Branz Technical Recommendation No. 10. NZS 3604 1990			
Limit States Values 2400mm 10mm standard Baier board one side, Baier board fastener pattern 3 100x3.75 nails each side as P21 restraint, Concrete floor Angle Brace 30x2.5 galv clouts 150mm centres No holddowns			
Earthquake Rating	Ultimate	Serviceability	
EQ Ultimate	20 x K4 x R = 151.17	20/0.48 x F/k4 = 322.57	
	63.0 BU/m	Limited by Ultimate limit state	
Wind Rating	Ultimate	Serviceability	
Wind Ultimate	20* P = 184.67	20 / 0.563 x F = 275.01	
	76.9 BU/m	Limited by Ultimate limit state	

Figure 4: P21 calculations for the BBS1a Baier 2400mm walls with nails on a concrete floor

Please feel free to contact me to discuss this information.



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