

Results

To:	Paul Charteris	From:	Doug Gaunt
Organisation:	Saveboard (NZ) Ltd	Subject:	P21:2010 600 mm x 2.4m 10mm Saveboard RAB with Brackets
Location:	New Plymouth	Date:	13 September 2022
Mob No.:	021 581046	No. of	5
Tel No.:		Pages:	

Paul

Please find below your P21 bracing results for your three 600mm x 2.40m 10mm Saveboard RAB walls as tested with brackets.

1. BU wind = 52 (87 BU/m) as limited by the serviceability load capacity.
2. BU Earthquake = 59 (98 BU/m) as limited by the ultimate load capacity.

Figures 1, 2 & 3 show the load deflection plots, Figure 4 shows the P21:2010 calculations.

Wall Construction

- 90x45 H1.2 SG8 framing, Studs at 600mm centres, no nogs
- 10mm Saveboard RAB board one side,
- Saveboard Board fixed with 50x2.8mm Nails at 100mm centres to plates and studs, 50mm in from corner on plates, 75mm in from corner on stud
- GIB Handibrac brackets each end
- M12 hold down rods to bottom plate and brackets

RISK AND LIMITATION OF LIABILITY: Scion's liability to the Client arising out of all claims for any loss or damage resulting from this work will not exceed in aggregate an amount equal to two times the Service Fees actually paid by the Client to Scion. Scion will not be liable in any event for loss of profits or any indirect, consequential or special loss or damage suffered or incurred by the Client as a result of any act or omission of Scion under this Agreement.

USE OF NAME: The Client will not use Scion's name in association with the sale and/or marketing of any goods or services

CAUTION

The information contained in this facsimile is confidential and may be legally privileged. If the reader of this message is not the intended recipient, you are hereby notified that any use, dissemination, distribution or reproduction of this message is prohibited. If you have received this message in error, please notify us immediately and return the message to us by mail. Thank you.

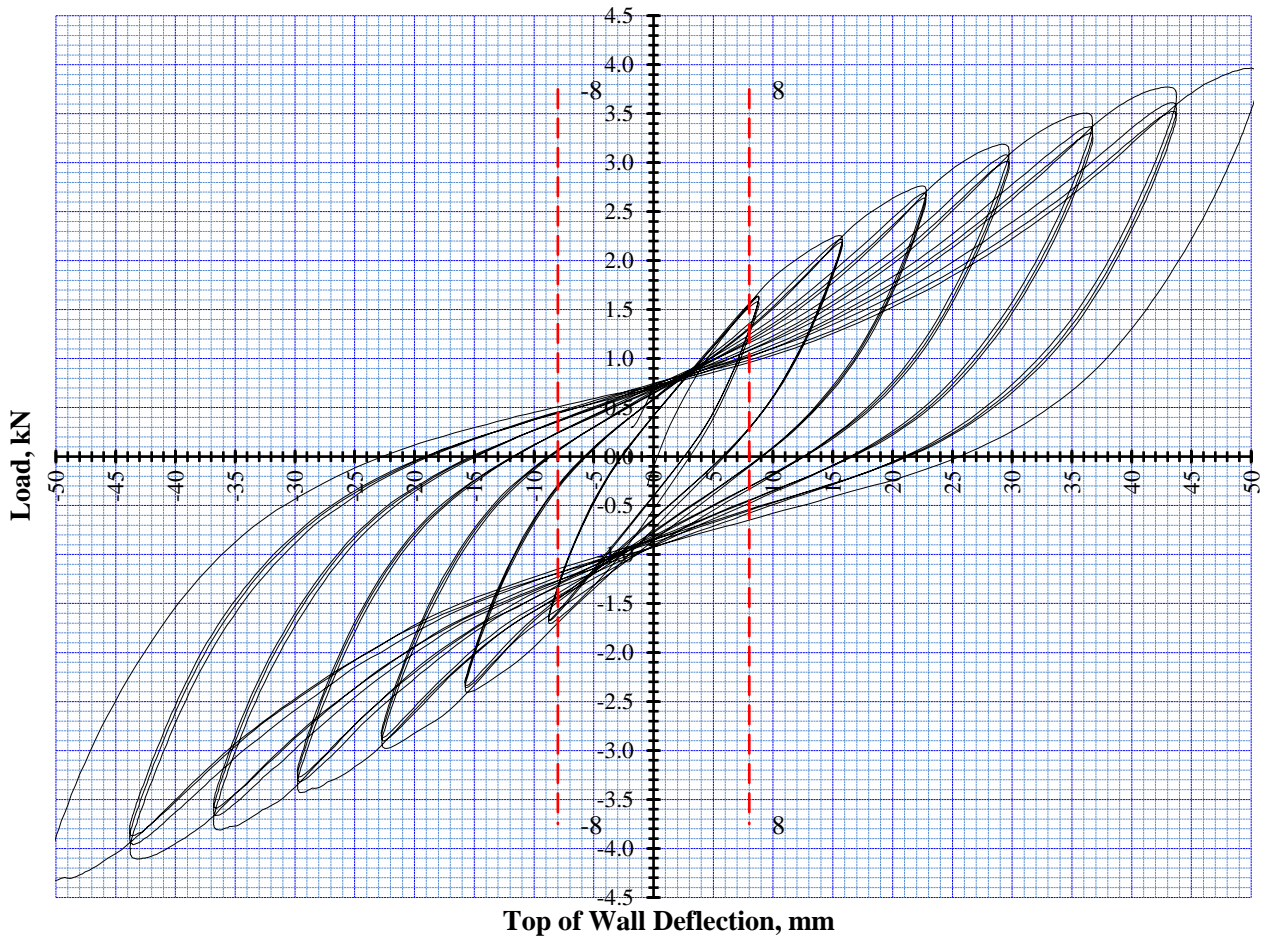


Figure 1: Wall 289668

Observations

- No obvious signs of damage

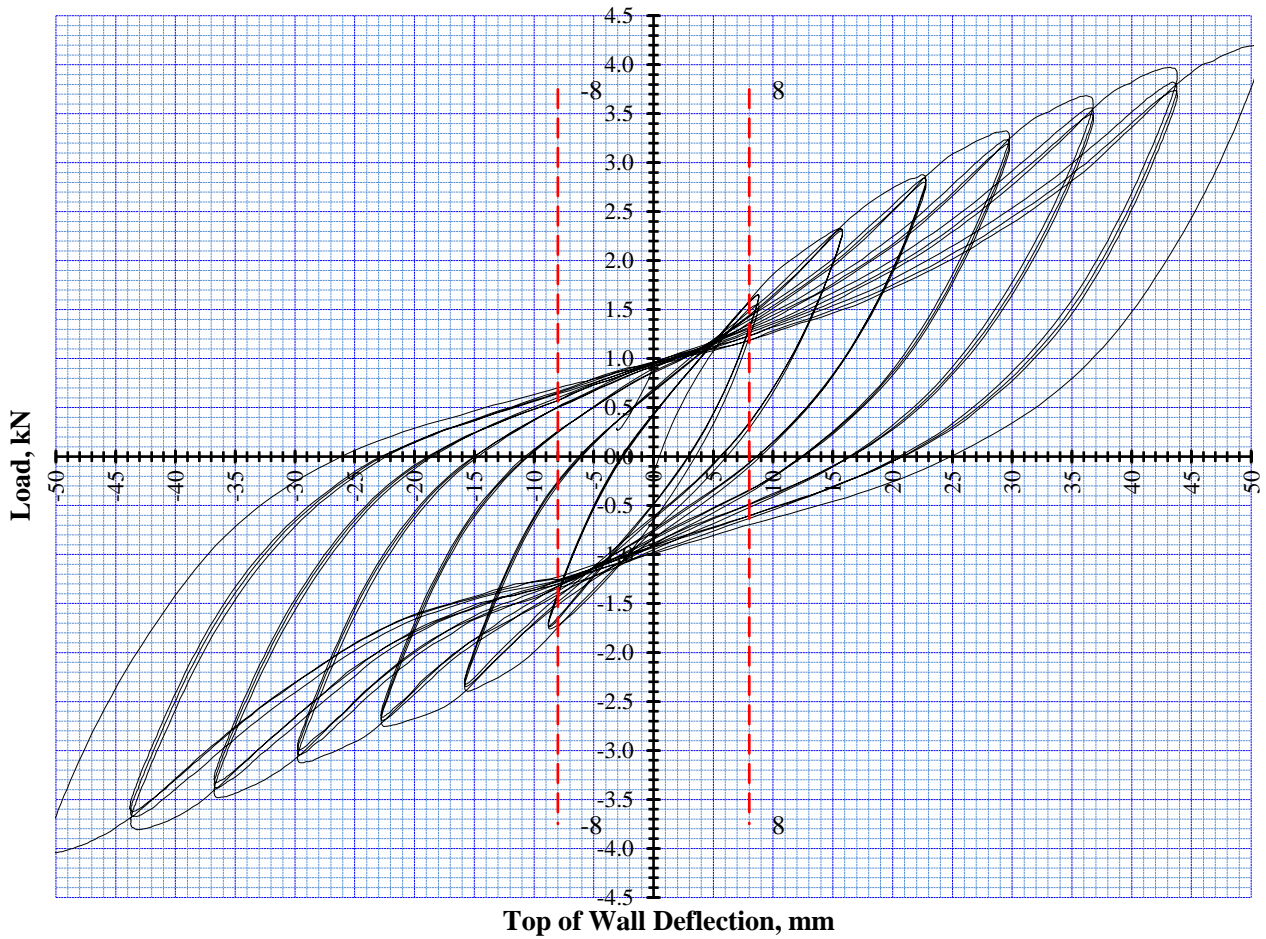


Figure 2: Wall 289669

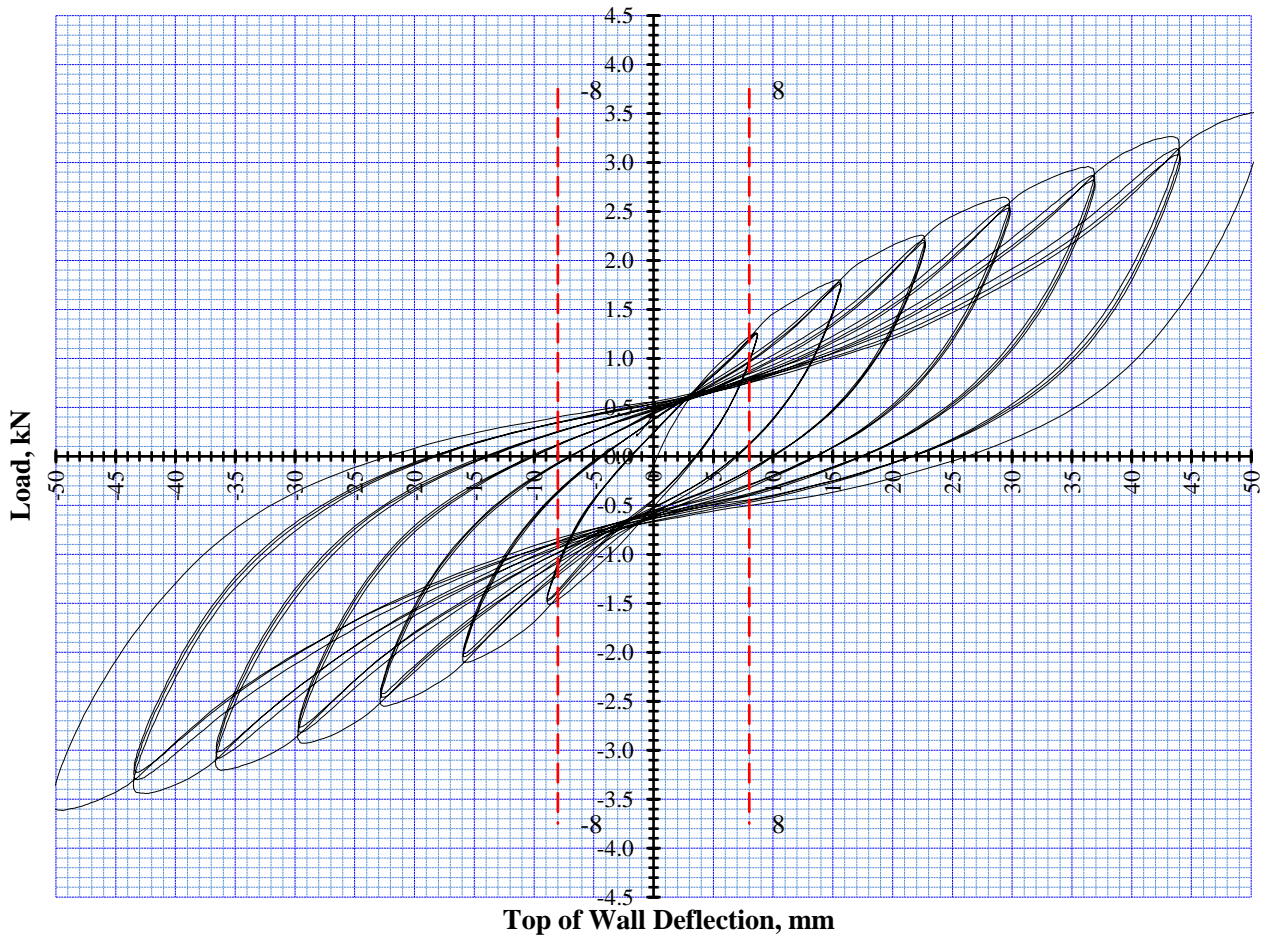


Figure 3: Wall 289670

P21:2010 BRACING RACKING TEST RESULT EVALUATION								
Wall Construction								
600mm, 10mm Saveboard RAB one side								
90x45 H1.2 SG8 framing, studs at 600mm centres, no nogs								
Board fixed with 50x2.8mm Nails at 100mm centres to plates and studs,						Summary		
50mm in from corner on plates, 75mm in from corner on stud						Earthquake	98 (U)	BU/m
GIB Handibrac brackets						Wind	87 (S)	BU/m
M12 hold down bolts to brackets and bottom plate								
P21 Supplementary restraints used								
Date of test:-		12-Sep-22	Ship No.	3269		Tested by	John Lee	
Date of calc's:-		12-Sep-22	Job No.	TE22-016		Analysed by	Doug Gaunt	
Calculated to BRANZ P21:2010, AS/NZS1170.2&5, NZS3604:2011 Scion, Private Bag 3020 Rotorua.								
		Serviceability Cycles			Ultimate Cycles			
Lab Number	Direction	Cycle to H/300 or DLQ or DLW		Cycle to Displacement		Wall dimensions		
		8.0	X mm	y=(mm)		L(mm)	H(mm)	
		Loads	Residual	Maximum		600	2410	
		(P ₈)	Defln, C	Load	def @ P	d at P/2	4th, R	
		kN	mm	P(kN)	y (mm)	P/2 (kN)	d mm	kN
289668	+	1.58	2.50	3.50	36.0	1.75	9.4	3.29
	-	1.66	2.50	3.70	36.0			3.56
289669	+	1.59	2.80	3.68	36.0	1.84	9.9	3.47
	-	1.72	2.40	3.48	36.0			3.33
289670	+	1.22	3.40	2.95	36.0	1.48	10.3	2.78
	-	1.46	1.90	3.20	36.0			3.03
		(P ₈)	(C)	(P)	(y)	P/2 (kN)	(d)	(Ry)
Averages		1.54	2.58	3.42	36.00	1.69	9.87	3.24
Coefficient of Variation %		10.60	17.51	7.79	0.00	9.20	3.73	8.17
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), (0.8 <= K1 <= 1.0)						Systems factor K2 = 1.2		
Average Structural Displacement Ductility factor						u = y/d 3.65		
Ductility Modification factor						K4 = 0.91		
DLW = Selected deflection limit for wind forces				DLQ = Selected deflection limit for earthquake forces				
P21:2010 BR Calc's								
Lab Number		K1	EQ ultimate	EQ service	Wind Ultimate	Wind Service		
		(= 1.4 - C/X)	BU's	BU's	BU's	BU's		
289668	(BU)	1.00	62.2	70.7	72.0	54.8		
	(BU/m)		104	118	120	91		
289669	(BU)	1.00	61.8	72.2	71.6	55.9		
	(BU/m)		103	120	119	93		
289670	(BU)	1.00	52.8	58.5	61.5	45.3		
	(BU/m)		88	97	103	75		
<20% Result Check		289668	8% Ok result	8% Ok result	8% Ok result	8% Ok result		
		289669	7% Ok result	11% Ok result	7% Ok result	11% Ok result		
		289670	-17% Ok result	-22% Ok result	-17% Ok result	-22% Ok result		
Note: Where the value of BR Wind or BR EQ for any specimen is more than 20% greater than either of the other two specimens, assign it a value of 1.2 times the lower value before averaging.								
Average Earthquake BR			Ultimate			Serviceability		
EQ (BU's)		20 x K4 x Ry =	59	(P8 x K1) x (K2/0.55) =		67		
		98	BU/m	Limited by		Ultimate limit state		
Average Wind BR			Ultimate			Serviceability		
Wind (BU's)		20 * P =	68	(P8 x K1) x (K2/0.71) =		52		
		87	BU/m	Limited by		Serviceability limit state		

Figure 4: P21:2010 calculations for the 600mm x 2.4m, 10mm Saveboard RAB with brackets

Please feel free to contact me to discuss this information.

Doug Gaunt

