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## Results

To: Organisation:	Grant Meads	From: Subject:	Doug Gaunt P21:2010 1200mm x 2.4m 12mm MgO SIP with bracket and strap
Location:		Date:	20 June 2018
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Grant

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Please find below your P21 bracing results for your three 1200mm x 2.40m 12mm MgO SIP walls as tested with a bracket and a strap.

- 1. BU wind = 236 (196 BU/m) as limited by the ultimate load capacity.
- 2. BU Earthquake = 213 (178 BU/m) as limited by the ultimate load capacity.

From the P21 test method, Clause 14.5 - Maximum bracing ratings notes;

"Bracing ratings using this procedure are intended to be constructed in buildings within the scope of NZS 3604. Systems producing high ratings will require resistance to hold down reactions that may not be able to be provided by a typical timber-framed buildings. For this reason, ratings above 110 BU/m for timber floors or 150 BU/m for concrete floors should be published with caution. Refer to NZS 3604"

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

Wall Construction

- 12mm MgO Board both sides Polystyrene Foam core.
- 90x45mm H1.2 SG8 studs, 90x45mm H1.2 SG8 top & bottom plates
- 2.83 x 64mm Annual Grove Galv gun nails 4 @ 50mm then 150mm centers MgO to studs and plates
- Pryda Bracket one end & 25x0.9mm strap wrapped under plate to stud side fixed with 6 30x2.5 clouts each side stud and 3 30x2.5 clouts each side of bottom plate.
- Double studs at strap end only fixed together with 18 90x3.55 nails.
- M12mm + 50x50x3mm washer to strap end
- M12 to bracket (bracket on outside edge of wall)
- P21 supplementary restraints used

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

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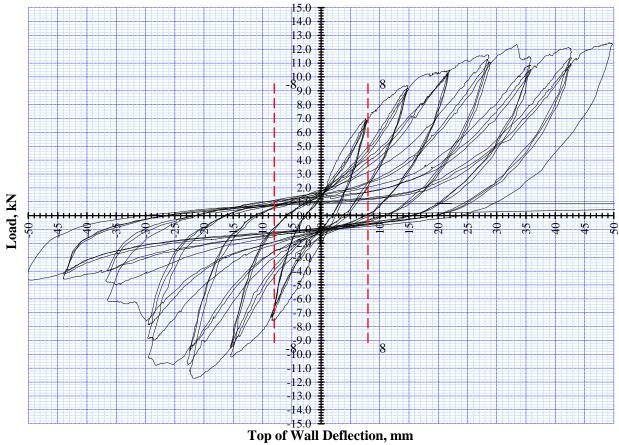


Figure 1: Wall 279238

## Observations

• Pryda Bracket screws to stud snapped, then MgO bottom plate tearing off

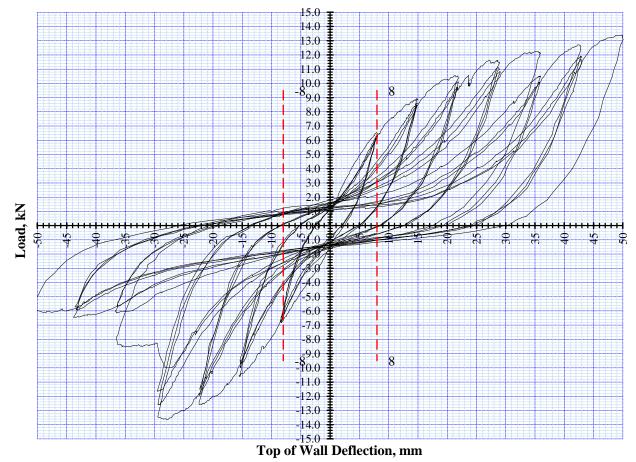


Figure 2: Wall 279239

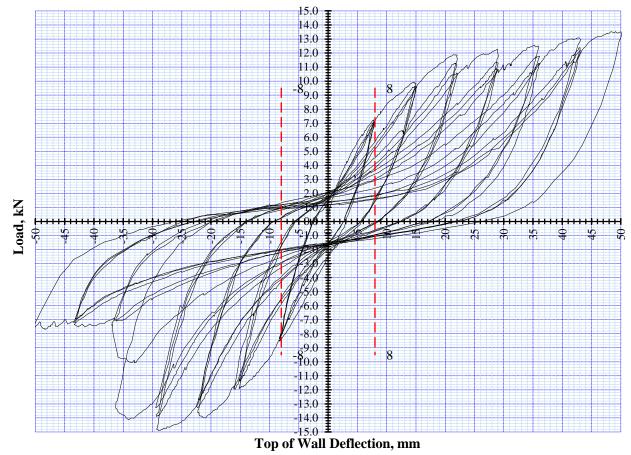


Figure 3: Wall 279240

1200mm, 12mm M	αΟΒ	oard hoth sid	les Polvetvre	ne Foam co	pre			
90x45mm H1.2 SG	•					64mm Δnnu	al Grove	Galv
gun nails 4 @ 50m						Summary		
Pryda Bracket one						Earthquake	178 (U)	BU/m
Double studs (stra							196 (U)	
M12mm + 50x50x3	-				-			20/111
P21 supplementry								
Date of test:-		18-Jun-18	Ship No.	2996		Tested by	Bruce Da	W
Date of calc's:-		19-Jun-18		TE17-035		Analysed by	-	
Calculated to BRANZ					Scion Private	Bag 3020 Rote	-	
		Serviceability		Ultimate Cyc				
		Cycle to H/300 c		Cycle to Dis			Wall dim	ensions
		8.0	Xmm	y=(mm)			L(mm)	H(mm
Lab Number	E	Loads	Residual	Maximum			1200	2400
Labrianisor	ctio	(P <sub>8</sub> )	Defln, C	Load	def @ P		d at P/2	4th,R
	Direction	kN	,	P(kN)		P/2 (kN)		kN
		KIN	mm	г <sup>.</sup> (KIN)	y (mm)	F/∠ (KIN)	d mm	KIN
279238	+	7.00	2.00	10.45	22.0	5.23	4.7	10.40
1.0100	-	7.55	2.80	11.70	22.0	0.20		9.40
279239	+	6.52	2.20	10.40	22.0	5.20	5.7	9.80
1.0100	-	6.60	2.50	12.55	22.0	0.20		11.60
279240	+	7.20	2.80	11.83	22.0	5.92	5.5	10.40
210240	-	8.40	2.70	13.80	22.0	0.02	0.0	12.40
		0.10						
		(P <sub>8</sub> )	(C)	(P)	(y)	P/2 (kN)	(d)	(Ry)
A		(F 8) 7.21			22.00	. ,	. ,	
Averages	ia m 0/		2.50 12.22	11.79		5.45	5.30	10.67
Coefficient of Variat				10.01	0.00	6.08	8.15	9.66
y = average failure c						a the lead)		
d= average first cyc	ie uis							
	D _ D	ooklood S -	- Sonicophilit					
		eak Load, S =		•	Svetor	s factor K2 -	1 2	
Displacement Reco	very F	Factor (K1), (0	.8 <= K1 <=	•	System	is factor K2 =		
Displacement Reco Average Structural [	overy F Displa	Factor (K1), (0 Icement Ducti	.8 <= K1 <=	•	System	u = y/d	4.15	
Displacement Reco Average Structural I Ductility Modificatio	overy F Displa on fact	Factor (K1), (0 acement Ducti or	.8 <= K1 <= lity factor	1.0)		u = y/d K4 =	4.15 1.00	
Displacement Reco Average Structural [	overy F Displa on fact	Factor (K1), (0 acement Ducti or	.8 <= K1 <= lity factor	1.0)	System	u = y/d K4 =	4.15 1.00	es
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Figure 4: P21:2010 calculations for the 1200mm x 2.4m, 12mm MgO SIP with bracket and strap

Please feel free to contact me to discuss this information.

Doug Gaunt

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