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Results

To: J Organisation: וֹ	Jeff Price ITI Timspec	From: Subject:	Doug Gaunt P21:2010 1200mm x 2.4m 7.0mm Plywoo with Brackets		
Location:	Manukau	Date:	18 November 2021		
Mob No.: 0	0277 880005	No. of	5		
Tel No.:		Pages:			

Jeff

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Please find below your P21 bracing results for your three 1200mm x 2.40m 7.0mm Plywood walls as tested with brackets.

- 1. BU wind = 133 (111 BU/m) as limited by the serviceability load capacity.
- 2. BU Earthquake = 146 (122 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
- 7.0mm 5-ply Plywood one side,
- Plywood fixed 50x2.8mm Galv steel nails at 150mm centres to plates and end studs, 300mm to middle stud
- GIB Handibracs hold down brackets each end.
- M12 hold down rods to bottom plate and brackets.

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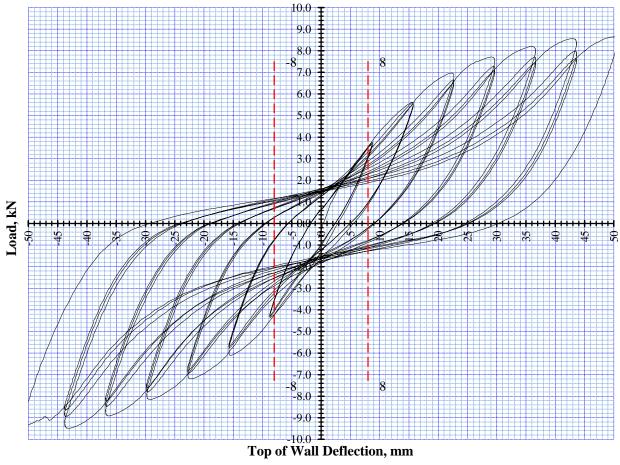


Figure 1: Wall 288265

Observations

- Nails along bottom plate moving in plywood
- No obvious damage seen to plywood
- Minor bending of brackets

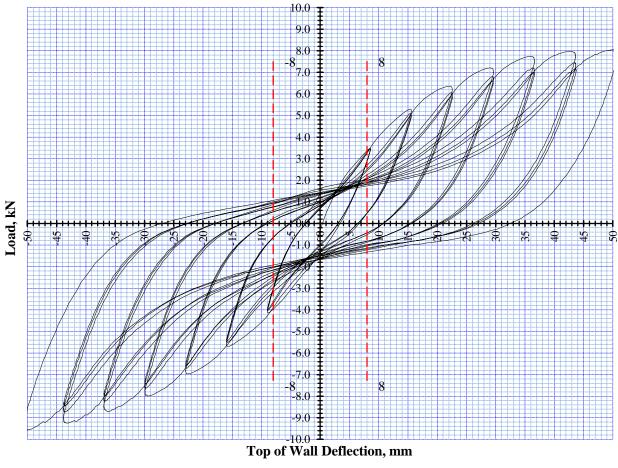


Figure 2: Wall 288266

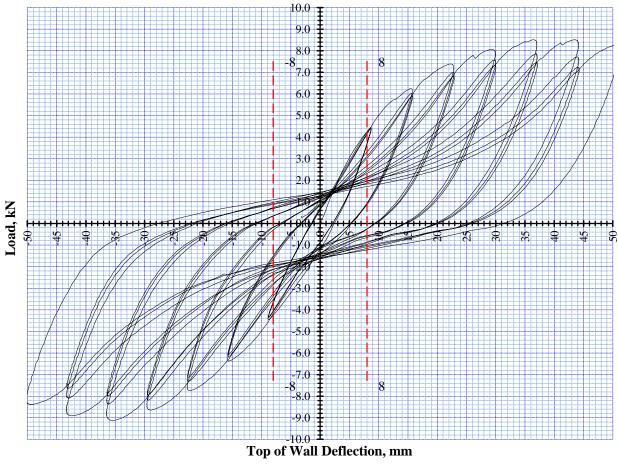


Figure 3: Wall 288267

<u>Wall Construction</u> 1200mm, 7.0mm 5		Plywood one	side					
90x45 H1.2 SG8 fra				s no noas				
Plywood fixed 50n		-		-	ntres	Summary		
to plates and exte						Earthquake	122 (U)	BU/m
7mm min edge dis					each end	Wind	111 (S)	BU/m
M12 hold down bo						Willia	(0)	B0/111
P21 Supplementa								
Date of test:-		17-Nov-21	Ship No.	3218		Tested by	Jamie Ag	inew
Date of calc's:-		17-Nov-21	•	TE21-023		Analysed by		
Calculated to BRANZ					Scion Private	Bag 3020 Rote	-	
		Serviceability		Ultimate Cyc	,	Eug COLO / IOI		
		Cycle to H/300 c					Wall dim	ensions
		8.0	Xmm	y=(mm)			L(mm)	H(mm
Lab Number	E	Loads	Residual	Maximum			1200	2410
	Direction	(P ₈)	Defln, C	Load	def @ P		d at P/2	4th, R
	Dire	kN	,	P(kN)	y (mm)	P/2 (kN)	d mm	kN
		KIN	mm	P(KIN)	y (mm)	P/2 (KIN)	u mm	KIN
288265	+	3.55	2.40	8.20	36.0	4.10	9.4	7.32
	-	4.20	1.70	8.90	36.0			8.00
288266	+	3.35	3.10	7.72	36.0	3.86	9.4	6.80
		3.95	2.40	8.70	36.0	0.00		7.75
288267	+	4.23	2.10	8.50	36.0	4.25	8.3	7.08
	_	4.30	1.40	9.10	36.0	0		7.80
		(P ₈)	(C)	(P)	(y)	P/2 (kN)	(d)	(Ry)
Averages		3.93	2.18	8.52	36.00	4.07	9.03	7.46
Coefficient of Variati	ion %		25.01	5.37	0.00	3.95	5.74	5.72
y = average failure c					0.00	0.00	0.74	0.12
d= average first cycl					cle wall reach	es the load)		
R = Residual load, I								
Displacement Reco				-	System	ns factor K2 =	1.2	
Average Structural						u = y/d		
Ductility Modification						K4 =		
DLW = Selected de			d forces	DI Q = Selec	ted deflection	limit for earth		es
	'e	K1	EQ ultimate	FO service	Wind I litimate	Wind Service		
P21:2010 BR Calc	3							
P21:2010 BR Calc Lab Number		(= 1.4 - C/X)	BU's	BU's	BU's	BU's		
	(BU)	(= 1.4 - C/X) 1.00				BU's 131.0		
Lab Number 288265			BU's	BU's	BU's			
Lab Number 288265	(BU)	1.00	BU's 149.9	BU's 169.1	BU's 171.0	131.0		
Lab Number 288265 (1 288266	(BU) BU/m)	1.00	BU's 149.9 125	BU's 169.1 141	BU's 171.0 143	131.0 109		
Lab Number 288265 (1 288266	(BU) BU/m) (BU)	1.00	BU's 149.9 125 142.4	BU's 169.1 141 159.3	BU's 171.0 143 164.2	131.0 109 123.4		
Lab Number 288265 (1 288266 (1 288267	(BU) BU/m) (BU) BU/m)	1.00 1.00 1.00	BU's 149.9 125 142.4 119 145.6 121	BU's 169.1 141 159.3 133 186.1 155	BU's 171.0 143 164.2 137 176.0 147	131.0 109 123.4 103 144.2 120		
Lab Number 288265 (1 288266 (1 288267 (1	(BU) BU/m) (BU) BU/m) (BU)	1.00 1.00 1.00 288265	BU's 149.9 125 142.4 119 145.6 121 4% Ok result	BU's 169.1 141 159.3 133 186.1 155 -2% Ok result	BU's 171.0 143 164.2 137 176.0 147 1% Ok result	131.0 109 123.4 103 144.2 120 -2% Ok result		
Lab Number 288265 (1 288266 (1 288267 (1	(BU) BU/m) (BU) BU/m) (BU)	1.00 1.00 1.00	BU's 149.9 125 142.4 119 145.6 121 4% Ok result	BU's 169.1 141 159.3 133 186.1 155 -2% Ok result	BU's 171.0 143 164.2 137 176.0 147 1% Ok result	131.0 109 123.4 103 144.2 120 -2% Ok result -12% Ok result		
Lab Number 288265 (1 288266 (1 288267 (1 <20% Result Check	(BU) BU/m) (BU) BU/m) (BU) BU/m)	1.00 1.00 1.00 288265 288266 288267	BU's 149.9 125 142.4 119 145.6 121 4% Ok result -4% Ok result 0% Ok result	BU's 169.1 141 159.3 133 186.1 155 -2% Ok result -12% Ok result 12% Ok result	BU's 171.0 143 164.2 137 176.0 147 1% Ok result 5% Ok result	131.0 109 123.4 103 144.2 120 -2% Ok result -12% Ok result 12% Ok result		
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Figure 4: P21:2010 calculations for the 1200mm x 2.4m, 7.0mm Plywood with brackets

Please feel free to contact me to discuss this information.

Doug Gaunt

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