

Results

To:	Brad Smith	From:	Doug Gaunt
Organisation:	Kronospan Trading SRL	Subject:	P21:2010 9mm Kronspan OSB 1200 Wall with Brackets
Location:	Northcote	Date:	10 th February 2020
Fax No.:	021 487007	No. of	5
Tel No.:	09 3651660	Pages:	

Please call +64 7 343 5763 if transmission incomplete

Brad

Please find below the P21 bracing results for your three 1200mm x 2.40m 9mm Kronspan OSB walls tested with GIB Handibracs.

1. BU wind = 148 (123 BU/m) as limited by the serviceability load capacity.
2. BU Earthquake = 128 (107 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

- 9mm Kronspan OSB one side
- 90x45 H1.2 SG8 framing, studs at 600mm centres, no nogs
- OSB fixing - 50x2.87mm angular groove Paslode gun nails at 150mm centres to plates and end studs, 300mm centres to central stud
- GIB Handibracs each end
- M12 hold down bolts to Handibracs and bottom plate
- P21 supplementary restraints used.

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.

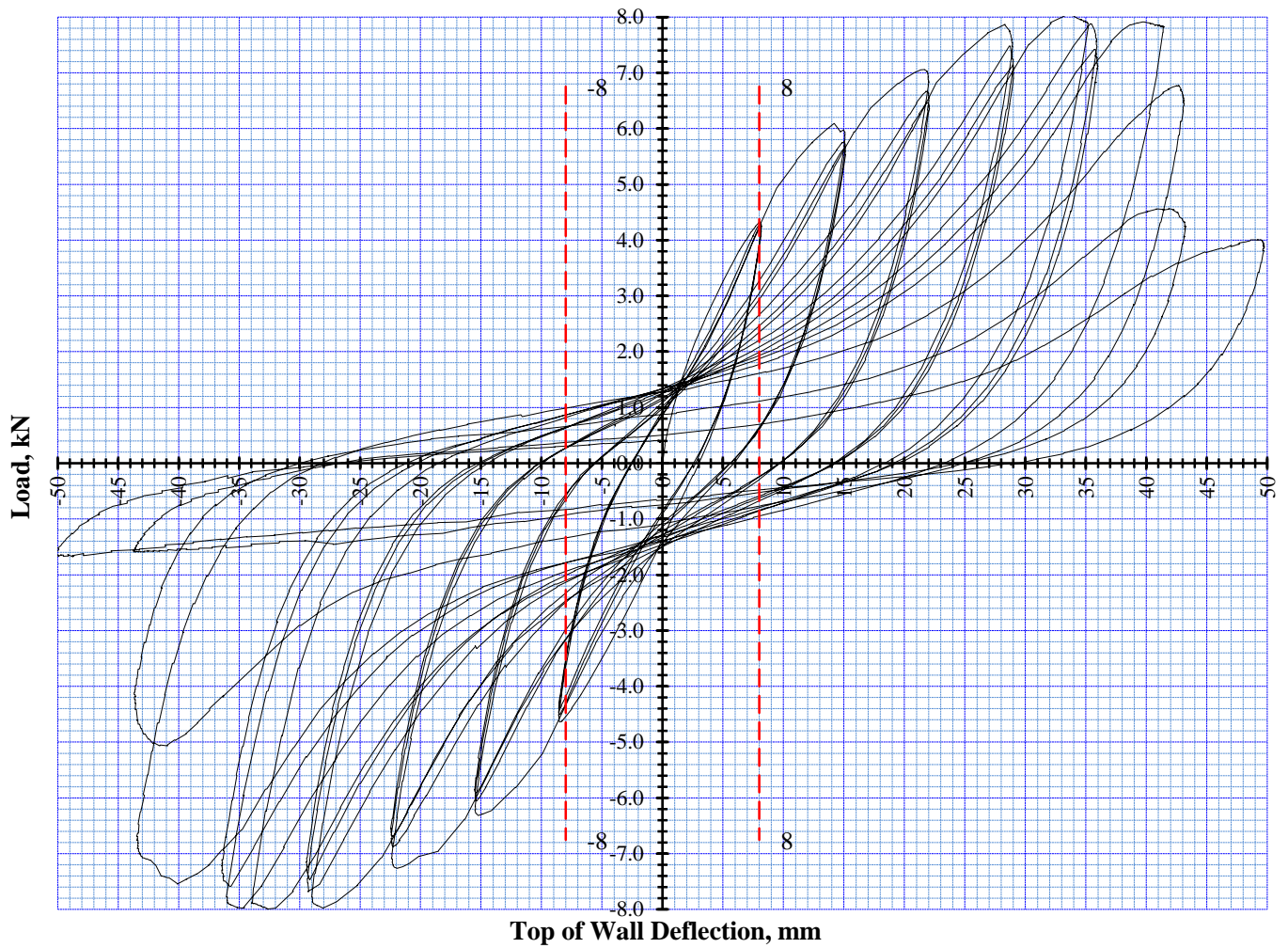
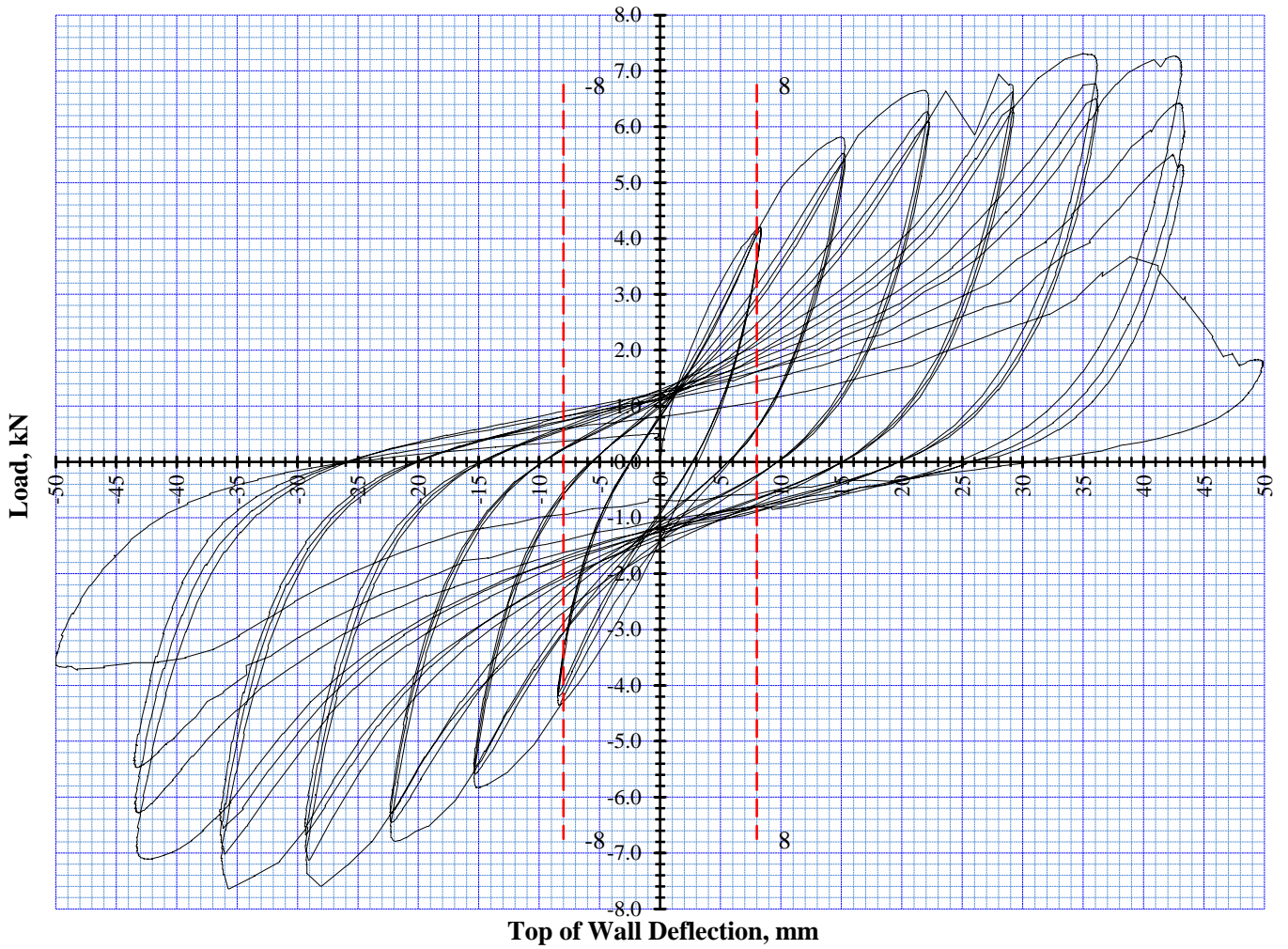


Figure 1: Wall 281520

Observations

- No obvious signs of failure to framing.
- Handbracs flexing.
- OSB pulling off cladding nails.



Top of Wall Deflection, mm

Figure 2: Wall 281521

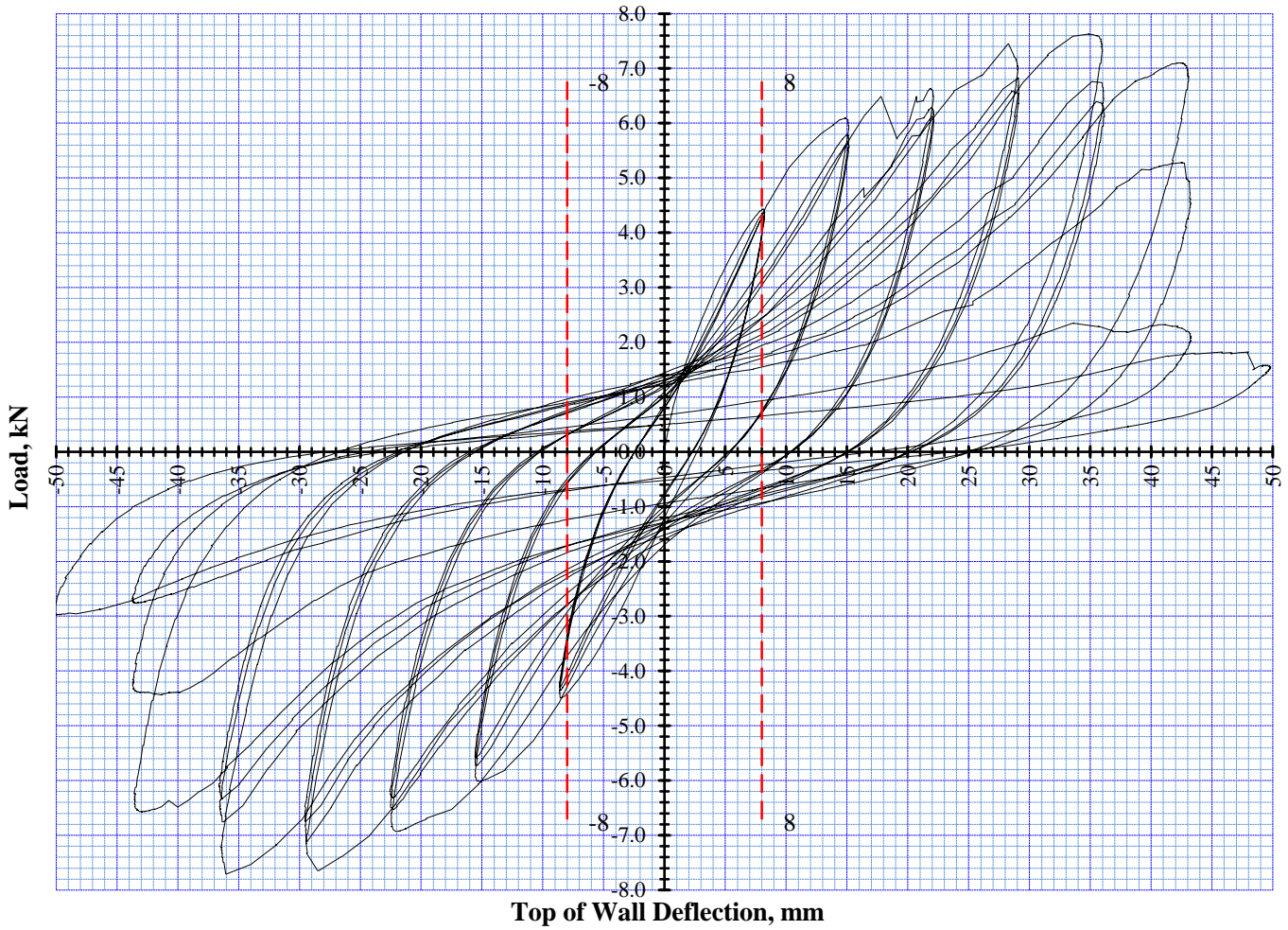


Figure 3: Wall 281522

P21:2010 BRACING RACKING TEST RESULT EVALUATION								
Wall Construction								
1200mm, 9mm Kronspan OSB one side								
90x45 H1.2 SG8 framing, studs at 600mm centres, no nogs								
OSB fixing - 50x2.87mm angular groove Paslode gun nails at 150mm centres to plates and end studs, 300mm centres to central stud						Summary		
GIB Handibracs each end						Earthquake	107 (U)	BU/m
M12 hold down bolts to Handibracs and bottom plate						Wind	123 (S)	BU/m
P21 supplementary restraints used								
Date of test:-		24-Oct-19	Ship No.	3072		Tested by Jamie Agnew		
Date of calc's:-		24-Oct-19	Job No.	TE19-028		Analysed by Doug Gaunt		
Calculated to BRANZ P21:2010, AS/NZS1170.2&5, NZS3604:2010 Scion, Private Bag 3020 Rotorua.								
Serviceability Cycles			Ultimate Cycles			Wall dimensions		
Lab Number	Direction	Cycle to H/300 or DLQ or DLW		Cycle to Displacement		L(mm)	H(mm)	
		8.0 Loads (P ₈)	X mm Residual Defln, C	y=(mm) Maximum Load	def @ P	1200	2400	
		kN	mm	P(kN)	y (mm)	P/2 (kN)	d at P/2	4th,R
281520	+	4.30	2.90	7.80	36.0	3.90	6.8	7.10
	-	4.55	2.50	7.80	36.0			6.87
281521	+	4.18	3.00	7.25	36.0	3.63	6.1	6.30
	-	4.32	2.40	7.40	36.0			6.25
281522	+	4.43	2.50	7.40	36.0	3.70	6.0	6.20
	-	4.45	2.30	7.70	36.0			5.80
		(P ₈)	(C)	(P)	(y)	P/2 (kN)	(d)	(R _y)
Averages		4.37	2.60	7.56	36.00	3.74	6.30	6.42
Coefficient of Variation %		2.74	9.93	2.87	0.00	3.10	5.65	6.79
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 5.71		
Ductility Modification factor						K4 = 1.00		
DLW = Selected deflection limit for wind forces				DLQ = Selected deflection limit for earthquake forces				
P21:2010 BR Calc's		K1	EQ ultimate	EQ service	Wind Ultimate	Wind Service		
Lab Number		(= 1.4 - C/X)	BU's	BU's	BU's	BU's		
281520	(BU)	1.00	139.7	193.1	156.0	149.6		
	(BU/m)		116	161	130	125		
281521	(BU)	1.00	125.5	185.5	146.5	143.7		
	(BU/m)		105	155	122	120		
281522	(BU)	1.00	120.0	193.7	151.0	150.1		
	(BU/m)		100	161	126	125		
<20% Result Check		281520	12% Ok result	2% Ok result	5% Ok result	2% Ok result		
		281521	-3% Ok result	-4% Ok result	-5% Ok result	-4% Ok result		
		281522	-11% Ok result	2% Ok result	0% Ok result	2% 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 R _y =	128	(P8 x K1) x (K2/0.55) =		191		
			107	Limited by		Ultimate limit state		
Average Wind BR			Ultimate			Serviceability		
Wind (BU's)		20 * P =	151	(P8 x K1) x (K2/0.71) =		148		
			123	Limited by		Serviceability limit state		

Figure 4: P21:2010 calculations for 1200mm x 2.40m, OSB wall with brackets

Please feel free to contact me to discuss this information.


Doug Gaunt