



NatHERS Certificate

New Dwelling



6.0 Stars

Simulation Software

Software Name BERS Pro 4.2
Software Version Release 110811/A
Engine Version CHENATH V2.13

Simulation Details

Project Name Pt Vincent CP_1
Date 15/03/2016
Location PORT VINCENT PC 5581
Climate file climat16.TXT
Adjusted Star Rating 6.0 Stars
Conditioned Area 98.73 m²
Unconditioned Area 13.32 m²
Adjusted Cooling 52.7 MJ/m²
Adjusted Heating 43.1 MJ/m²
Adjusted Total 95.8 MJ/m²

Dwelling Address

DP Number
Unit Number
Lot Number
House Number
Street Name Esplanade
Development Name
Suburb Pt Vincent SA 5581

Client Details

Name Pt Vincent Foreshore Caravan Park
Phone Fax
Email
Postal Address
Street Details Esplanade , Pt Vincent SA 5581

Assessor Details

Name Gavin Keough
Phone Fax
Email info@clbdesign.com.au
Postal Address
Street Details 128 Commercial Rd Pt Adelaide SA 5015

Signed by the Assessor..........Date 11/4/2016

*Tilted roof windows with blinds cannot be modelled using this version of BERSPro.
All windows are modelled with Holland Blinds for regulatory purposes.*

1 ★★★★★ 6 ✖

2 ★

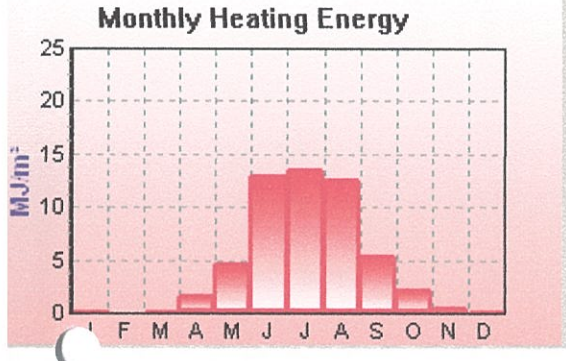
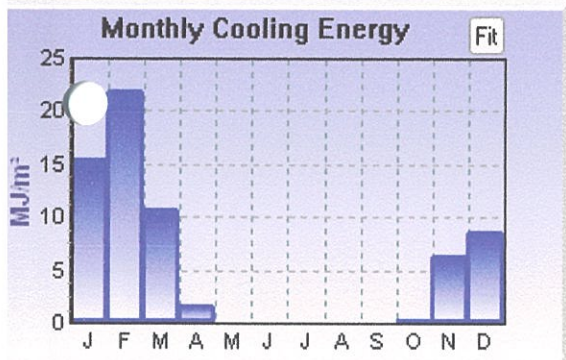
Pt Vincent CP_1
climat16.TXT

Adjusted Cooling	52.7 MJ/m ²	5203 MJ
Adjusted Heating	43.1 MJ/m ²	4258 MJ
Adjusted Total	95.8 MJ/m ²	9461 MJ

2	165	143	125	109	96	83	MJ/m ²
	3.5	4.0	4.5	5.0	5.5	6.0	6.5 Stars

Area Adjustment	0.82	Area	98.73 m ²
Actual Cooling	64.2 MJ/m ²	6338 MJ	
Actual Heating	52.5 MJ/m ²	5187 MJ	
Actual Total	116.7 MJ/m ²	11525 MJ	

House - All Zones



Building Element Details

Project Pt Vincent CP Run 1
PORT VINCENT PC 5581 Lat -34.80 Long 137.70 Climate File climat16.TXT

Summary

Conditioned Area	98.7 m ²
Unconditioned Area	13.3 m ²
Total Floor Area	112.1 m ²
Total Glazed Area	38.2 m ²
Total External Solid door Area	0.0 m ²
Glass to Floor Area	34.1 %
Gross External Wall Area	139.3 m ²
Net External Wall Area	101.1 m ²

Window

13.3 m ²	GGG-05-037a	Generics	Uval 3.74	SHGC 0.62
		Glass	Double Glazed	Low E Clear
		Frame	Aluminium	
22.9 m ²	GGG-05-013a	Generics	Uval 4.70	SHGC 0.63
		Glass	Single Glazed	Low E Clear
		Frame	Aluminium	
2.0 m ²	GGG-05-001a	Generics	Uval 6.57	SHGC 0.74
		Glass	Single Glazed	Clear
		Frame	Aluminium	

External Wall

101.1 m² Cavity Panel wider than 70mm Bulk+Foil, Reflective One Side, Anti-glare Other R 2.5

Internal Wall

69.1 m² Cavity Panel wider than 70mm Bulk Insulation R 1.5

External Floor

46.7 m ²	Suspended Timber Floor	Vinyl 3mm	Bulk Insulation in Contact with Floor	R 3.0
26.1 m ²	Suspended Timber Floor	80/20 Carpet 10mm/Ceramic	Bulk Insulation in Contact with Floor	R 3.0
30.8 m ²	Suspended Timber Floor	Carpet 10mm	Bulk Insulation in Contact with Floor	R 3.0
8.5 m ²	Suspended Timber Floor	Ceramic Tiles 8mm	Bulk Insulation in Contact with Floor	R 3.0

External Ceiling

112.1 m² Plasterboard Bulk Insulation R4.5 Unventilated roofspace

Roof (Horizontal area)

112.1 m² Corrugated Iron Foil, Gap Above, Reflective Side Down, Anti-glare Up 6° slope Skillion roof

Details

Zone 1		Liv/Kitchen 1		Living/Kitchen Area on Level 1						
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceillin fans		
	Yes	Yes	No	No	0	0	0	No		
External Floor					Area	Covering	Type			
						Insulation	Under Floor			
					41.90	Vinyl 3mm	Suspended Timber Floor			
						Bulk Insulation in Contact with Floor R3.00				
						Enclosed with Fibro sheet Floor Height 600				
Ceiling		Slope		Area		Type				
		0		41.90		Insulation				
						Above Ceiling				
						Plasterboard				
						Bulk Insulation R4.50				
						Unventilated roofspace cavity				
Roof		Slope		Shape		Type Solar Abs				
		6		Skillion		Insulation				
						Corrugated Iron 0.50				
						Foil, Gap Above, Reflective Side Down, Anti-glare Up				
Partition Wall		Length	Height	AdjZ		Area	Type			
Wall P 1	2.80	2.55	3		7.14	Cavity Panel wider than 70mm Bulk Insulation R1.50				
Wall P 2	1.10	2.55	4		2.81	Cavity Panel wider than 70mm Bulk Insulation R1.50				
Wall P 3	1.10	2.55	5		2.81	Cavity Panel wider than 70mm Bulk Insulation R1.50				
Wall P 4	3.50	2.55	5		8.92	Cavity Panel wider than 70mm Bulk Insulation R1.50				
Wall P 9	4.20	2.55	2		10.71	Cavity Panel wider than 70mm Bulk Insulation R1.50				
External Wall		Length	Height	Eaves	Orient	Area	Type Abs			
							Insulation			
Wall E 5	0.60	2.55	6.50	161	1.53	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Wall E 6	3.10	2.55	0.35	251	6.82	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening	Covering	Shading	
Window(6, 1)	1.80	0.60	0.35	251	1.08	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						30% Opening Holland Blind				
						No Shading				
Wall E 7	1.30	2.55	1.72	309	3.32	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Wall E 8	1.10	2.55	1.48	251	2.81	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Wall E 10	2.70	2.55	5.70	341	3.11	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening	Covering	Shading	
Window(10, 1)	1.80	2.10	5.70	341	3.78	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						50% Opening Holland Blind				
						No Shading				
Wall E 11	6.00	2.55	2.20	71	6.90	Cavity Panel wider than 70mm 0.50				
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50				
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening	Covering	Shading	
Window(11, 1)	1.00	2.10	2.20	71	2.10	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						20% Opening Holland Blind				
						No Shading				
Window(11, 2)	1.00	2.10	2.20	71	2.10	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						20% Opening Holland Blind				
						No Shading				
Window(11, 3)	1.00	2.10	2.20	71	2.10	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						20% Opening Holland Blind				
						No Shading				
Window(11, 4)	1.00	2.10	2.20	71	2.10	GGG-05-037a	Double Glazed Low E Clear	Aluminium		
						20% Opening Holland Blind				
						No Shading				

Zone 2		Sleeping 1		Sleeping Area on Level 1						
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans		
	Yes	Yes	No	No	0	0	0	No		
External Floor					Area	Covering	Type			
						Insulation	Under Floor			
					26.07	80/20 Carpet	10mm/Ceramic	Suspended Timber Floor		
						Bulk Insulation in Contact with Floor R3.00				
						Enclosed with Fibro sheet Floor Height 600				
Ceiling		Slope		Area		Type				
		0		26.07		Insulation				
						Above Ceiling				
						Plasterboard				
						Bulk Insulation R4.50				
						Unventilated roofspace cavity				
Roof		Slope		Shape		Type Solar Abs				
		6		Skillion		Insulation				
						Corrugated Iron 0.50				
						Foil, Gap Above, Reflective Side Down, Anti-glare Up				
Partition Wall		Length	Height	AdjZ		Type				
Wall P 1		4.20	2.55	1		10.71	Cavity Panel wider than 70mm		Bulk Insulation R1.50	
External Wall		Length	Height	Eaves	Orient	Area	Type Abs			
							Insulation			
Wall E 2		1.10	2.55	11.40	161	2.81	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Wall E 3		4.80	2.55	0.38	251	11.34	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening		Covering	
							Shading			
Window(3, 1)		1.50	0.60	0.38	251	0.90	GGG-05-013a	Single Glazed Low E Clear	Aluminium	
							50% Opening		Holland Blind	
							No Shading			
Wall E 4		1.99	2.55	0.63	323	4.00	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening		Covering	
							Shading			
Window(4, 1)		1.80	0.60	0.68	323	1.08	GGG-05-013a	Single Glazed Low E Clear	Aluminium	
							30% Opening		Holland Blind	
							No Shading			
Wall E 5		0.63	2.55	1.90	53	0.89	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening		Covering	
							Shading			
Window(5, 1)		0.40	1.80	1.98	53	0.72	GGG-05-013a	Single Glazed Low E Clear	Aluminium	
							Fixed Glass		Holland Blind	
							No Shading			
Wall E 6		3.20	2.55	0.90	341	4.17	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening		Covering	
							Shading			
Window(6, 1)		0.90	2.10	0.90	341	1.89	GGG-05-013a	Single Glazed Low E Clear	Aluminium	
							30% Opening		Holland Blind	
							No Shading			
Window(6, 2)		1.00	2.10	0.90	341	2.10	GGG-05-013a	Single Glazed Low E Clear	Aluminium	
							Fixed Glass		Holland Blind	
							No Shading			
Wall E 7		4.80	2.55	4.90	71	6.36	Cavity Panel wider than 70mm		0.50	
							Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window		Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
							Opening		Covering	
							Shading			
Window(7, 1)		1.00	2.10	4.90	71	2.10	GGG-05-013a	Single Glazed Low E Clear	Aluminium	

						Fixed Glass	Holland Blind													
						No Shading														
Window(7, 2)	1.80	2.10	4.90	71	3.78	GGG-05-013a	Single Glazed Low E Clear	Aluminium												
						50% Opening	Holland Blind													
						No Shading														
Zone 3	Sleeping 2	Sleeping Area on Level 1																		
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans												
	Yes	Yes	No	No	0	0	0	No												
External Floor					Area	Covering	Type													
						Insulation														
						Under Floor														
					18.39	Carpet 10mm	Suspended Timber Floor													
						Bulk Insulation in Contact with Floor R3.00														
						Enclosed with Fibro sheet	Floor Height 600													
Ceiling		Slope			Area	Type														
						Insulation														
						Above Ceiling														
		0			18.39	Plasterboard														
						Bulk Insulation R4.50														
						Unventilated roofspace cavity														
Roof		Slope		Shape		Type	Solar Abs													
						Insulation														
		6		Skillion		Corrugated Iron	0.50													
						Foil, Gap Above, Reflective Side Down, Anti-glare Up														
Partition Wall	Length	Height		AdjZ	Area	Type														
Wall P 3	1.30	2.55		6	3.31	Cavity Panel wider than 70mm	Bulk Insulation	R1.50												
Wall P 4	0.70	2.55		4	1.78	Cavity Panel wider than 70mm	Bulk Insulation	R1.50												
Wall P 5	2.50	2.55		4	6.38	Cavity Panel wider than 70mm	Bulk Insulation	R1.50												
Wall P 6	2.80	2.55		1	7.14	Cavity Panel wider than 70mm	Bulk Insulation	R1.50												
External Wall	Length	Height	Eaves	Orient	Area	Type	Abs													
						Insulation														
Wall E 1	3.80	2.55	0.40	71	5.49	Cavity Panel wider than 70mm	0.50													
						Bulk+Foil, Reflective One Side, Anti-glare Other	R2.50													
Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame												
						Opening	Covering													
						Shading														
Window(1, 1)	1.00	2.10	0.40	71	2.10	GGG-05-013a	Single Glazed Low E Clear	Aluminium												
						30% Opening	Holland Blind													
						No Shading														
Window(1, 2)	1.00	2.10	0.40	71	2.10	GGG-05-013a	Single Glazed Low E Clear	Aluminium												
						30% Opening	Holland Blind													
						No Shading														
Wall 2	5.30	2.55	0.50	161	13.51	Cavity Panel wider than 70mm	0.50													
						Bulk+Foil, Reflective One Side, Anti-glare Other	R2.50													
Wall E 7	1.80	2.55	11.70	341	1.44	Cavity Panel wider than 70mm	0.50													
						Bulk+Foil, Reflective One Side, Anti-glare Other	R2.50													
Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame												
						Opening	Covering													
						Shading														
Window(7, 1)	1.50	2.10	11.70	341	3.15	GGG-05-013a	Single Glazed Low E Clear	Aluminium												
						50% Opening	Holland Blind													
						No Shading														

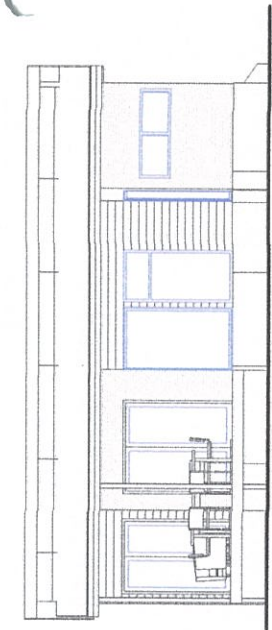
Zone 4	Corridor 1	Corridor Area on Level 1																		
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans												
	No	Yes	No	No	0	0	0	No												
External Floor					Area	Covering	Type													
						Insulation														
						Under Floor														
					4.79	Vinyl 3mm	Suspended Timber Floor													
						Bulk Insulation in Contact with Floor R3.00														
						Enclosed with Fibro sheet	Floor Height 600													
Ceiling		Slope			Area	Type														
						Insulation														
						Above Ceiling														
		0			4.79	Plasterboard														

Roof	Slope	Shape	Bulk Insulation R4.50 Unventilated roofspace cavity						
			Type	Solar	Abs				
	6	Skillion	Insulation	Corrugated Iron	0.50	Foil, Gap Above, Reflective Side Down, Anti-glare Up			
Partition Wall	Length	Height	AdjZ	Area	Type				
Wall P 1	2.50	2.55	3	6.38	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 2	0.70	2.55	3	1.78	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 3	1.00	2.55	6	2.55	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 4	0.70	2.55	6	1.78	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 5	1.20	2.55	6	3.06	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 6	0.90	2.55	7	2.29	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 7	1.80	2.55	5	4.59	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 8	0.90	2.55	5	2.29	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 9	1.10	2.55	1	2.81	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
External Wall	Length	Height	Eaves	Orient	Area	Type	Abs Insulation		
Zone 5 Wet Area 1			Wet Area on Level 1						
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans	
	Yes	Yes	No	No	0	0	0	No	
External Floor					Area	Covering	Type		
						Insulation	Under Floor		
					7.00	Ceramic Tiles 8mm	Suspended Timber Floor		
						Bulk Insulation in Contact with Floor R3.00			
						Enclosed with Fibro sheet Floor Height 600			
Ceiling	Slope				Area	Type			
	0				7.00	Plasterboard			
						Bulk Insulation R4.50			
						Unventilated roofspace cavity			
Roof	Slope	Shape		Type Solar Abs					
	6	Skillion		Insulation					
				Corrugated Iron 0.50					
				Foil, Gap Above, Reflective Side Down, Anti-glare Up					
Partition Wall	Length	Height	AdjZ	Area	Type				
Wall P 1	1.10	2.55	1	2.81	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 2	0.90	2.55	4	2.29	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 3	1.80	2.55	4	4.59	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 4	1.70	2.55	7	4.33	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
Wall P 6	3.50	2.55	1	8.92	Cavity Panel wider than 70mm	Bulk Insulation	R1.50		
External Wall	Length	Height	Eaves	Orient	Area	Type	Abs Insulation		
Wall E 5	2.00	2.55	0.93	251	3.66	Cavity Panel wider than 70mm	0.50		
						Bulk+Foil, Reflective One Side, Anti-glare Other R2.50			
Window	Width	Height	Eaves	Orient	Area	Name	Glass	Frame	
						Opening	Covering		
						Shading			
Window(5, 1)	1.20	1.20	0.93	251	1.44	GGG-05-001a	Single Glazed Clear	Aluminium	
						50% Opening Holland Blind			
						No Shading			

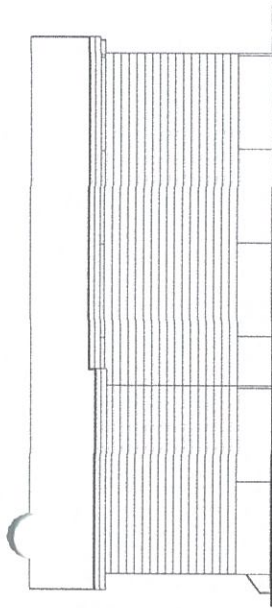
Zone 6 Sleeping 3			Sleeping Area on Level 1						
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans	Ceilin fans	
	Yes	Yes	No	No	0	0	0	No	
External Floor					Area	Covering	Type		
						Insulation	Under Floor		
					12.38	Carpet 10mm	Suspended Timber Floor		
						Bulk Insulation in Contact with Floor R3.00			
						Enclosed with Fibro sheet Floor Height 600			
Ceiling	Slope				Area	Type			
						Insulation			
						Above Ceiling			

	0				12.38	Plasterboard Bulk Insulation R4.50 Unventilated roofspace cavity Type Solar Abs Insulation Corrugated Iron 0.50 Foil, Gap Above, Reflective Side Down, Anti-glare Up	
Roof	Slope		Shape				
	6		Skillion				
Partition Wall	Length	Height		AdjZ	Area	Type	
Wall P 1	0.70	2.55		4	1.78	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 2	1.00	2.55		4	2.55	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 3	1.30	2.55		3	3.31	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 9	1.70	2.55		7	4.33	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 10	1.20	2.55		4	3.06	Cavity Panel wider than 70mm Bulk Insulation R1.50	
External Wall	Length	Height	Eaves	Orient	Area	Type Abs Insulation	
Wall E 4	1.10	2.55	0.50	161	2.81	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Wall E 5	1.20	2.55	0.50	71	0.96	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Window	Width	Height	Eaves	Orient	Area	Name Glass Frame Opening Covering Shading	
Window(5, 1)	1.00	2.10	0.50	71	2.10	GGG-05-013a Single Glazed Low E Clear Aluminium 20% Opening Holland Blind No Shading	
Wall E 6	3.40	2.55	0.40	161	8.67	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Wall E 7	3.20	2.55	0.30	251	7.26	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Window	Width	Height	Eaves	Orient	Area	Name Glass Frame Opening Covering Shading	
Window(7, 1)	1.50	0.60	0.30	251	0.90	GGG-05-013a Single Glazed Low E Clear Aluminium 50% Opening Holland Blind No Shading	
Wall E 8	0.60	2.55	13.50	341	1.53	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Zone 7	Wet Area 2	Wet Area on Level 1					
Air Movement	Screens	Seals	Chimney	Gas vent	Wall vents	Downlights	Ex Fans
	Yes	Yes	No	No	0	0	0
External Floor					Area	Covering	Type
						Insulation	
					1.53	Ceramic Tiles 8mm	Suspended Timber Floor
						Bulk Insulation in Contact with Floor R3.00	
						Enclosed with Fibro sheet	Floor Height 600
Ceiling		Slope			Area	Type	
						Insulation	
		0			1.53	Plasterboard	
						Bulk Insulation R4.50	
Roof	Slope		Shape			Unventilated roofspace cavity Type Solar Abs Insulation Corrugated Iron 0.50 Foil, Gap Above, Reflective Side Down, Anti-glare Up	
	6		Skillion				
Partition Wall	Length	Height		AdjZ	Area	Type	
Wall P 1	0.90	2.55		4	2.29	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 2	1.70	2.55		6	4.33	Cavity Panel wider than 70mm Bulk Insulation R1.50	
Wall P 4	1.70	2.55		5	4.33	Cavity Panel wider than 70mm Bulk Insulation R1.50	
External Wall	Length	Height	Eaves	Orient	Area	Type Abs Insulation	
Wall E 3	0.90	2.55	0.93	251	1.75	Cavity Panel wider than 70mm 0.50 Bulk+Foil, Reflective One Side, Anti-glare Other R2.50	
Window	Width	Height	Eaves	Orient	Area	Name Glass Frame Opening Covering	

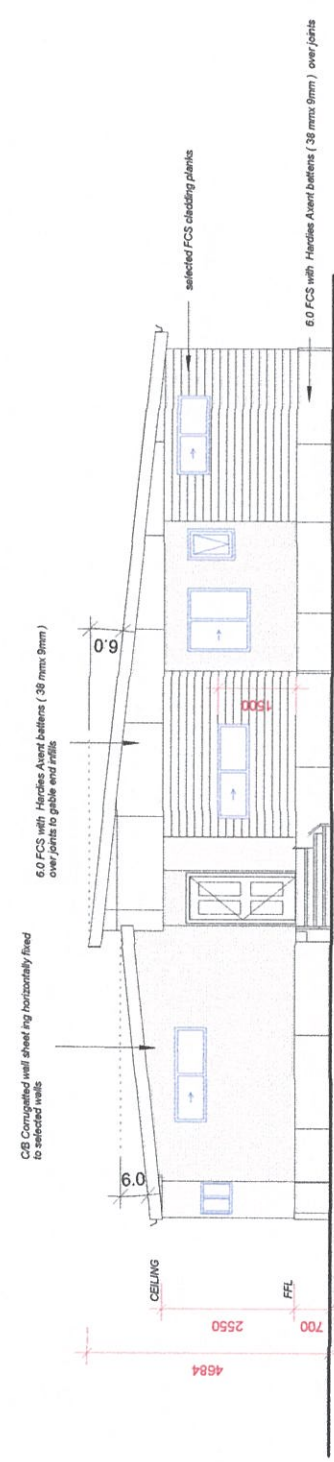
Window(3, 1) 0.60 0.90 0.93 251 0.54 Shading
GGG-05-001a Single Glazed Clear Aluminium
30% Opening Holland Blind
No Shading



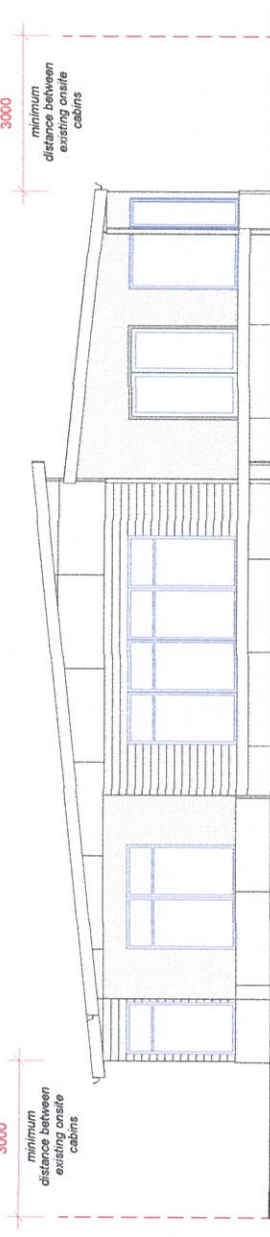
North
2
1
1 : 100



South
3
1
1 : 100



West
1
1
1 : 100



East
4
1
1 : 100

EXTERNAL COLOUR PALETTE

- EXTERNAL WALLS**
 - FCS
 - DULUX - WHITE QUARTER DUCK
 - DULUX - MANORBURN
 - GABLE END/IELLS
 - DULUX - DEEP OCEAN
 - CORRUGATED SHEET
 - SUB FLOOR INFILL
 - DULUX - MANORBURN
- ROOF SHEETS**
 - C/B DEEP OCEAN
- GUTTERS/FLASHING**
 - C/B "SURFMIST"
- WINDOWS/DOORS**
 - MANUFACTURES "WHITE"
- POST**
 - DULUX MANORBURN

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ALL TIMBER MATERIALS AND FIXINGS SHALL BE IN ACCORDANCE WITH AS 1684.2 - 2010
DO NOT SCALE DRAWINGS - USE FIGURED DIMENSIONS ONLY
C.O.S. = CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK & ORDERING MATERIALS
U.N.O = UNLESS NOTED OTHERWISE
ALL PROPRIETARY MATERIALS, FIXINGS & TIE DOWNS SHALL BE INSTALLED TO MANUFACTURES SPECIFICATIONS & INSTRUCTION MANUALS

Project - Class 1B accommodation	SCALE 1 : 100
Site - Pt Vincent Foreshore Caravan Park	Date 01/04/2016
Project Owner - Yorke Peninsula District Council	Sheet No 1
Designed by Designer	

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GLAZING NOMINAL SIZES = HEIGHT BY WIDTH
 ALL GLAZING (INCLUDING GLASS BALUSTRADES) SHALL COMPLY WITH AS 1288.1 & BCA PART 3.6... POWDER COATED ALUMINIUM WINDOWS & DOORS MANUFACTURED TO AS 2047.1 & INSTALLED TO AS 2048.1 & MEETING A3 WIND REQUIREMENTS

- = A-SW
- = A-AW
- = A-TAW
- = A-SH
- = A-DH
- = A-FW
- = A-CRW
- = A-BUW
- = A-SD
- = A-AD
- = A-BD
- = OB
- = (T) AFTER SIZE = 2100 (ULO)

OBSCURE GLAZING
 600mm BOTTOM TRANSOM WINDOW HEAD HEIGHT GENERALLY = 2100 (ULO)
 ALL EXTERNAL WINDOWS & SLIDING DOORS TO BE FITTED WITH LOCKS, KEYS & FLYSCREENS

SELF CONTAINED HARD WIRED SMOKE ALARM AND EVACUATION LIGHTING
 REQUIRED BY MODERN BUILDING REGULATIONS TO BE CONNECTED TO A BATTERY BACK UP & SHALL BE INTERCONNECTED WHERE MORE THAN ONE ALARM IS USED

SELF CONTAINED HARD WIRED SMOKE ALARM
 CONSUMER MAINS POWER WITH BATTERY BACK UP & SHALL BE INTERCONNECTED WHERE MORE THAN ONE ALARM IS USED

90mm DOWNROSE LOCATIONS & TO COMPLY WITH AS 3690.3, AS 3690.1 & BCA PART 3.5.2

GUTTER HIGH POINT

3 IN ONE LIGHT & EXHAUST FAN VENT SHALL COMPLY WITH AS 1688.2 & CLAUSE 3.5.5.0 OF THE BCA

EXHAUST FAN VENT SHALL COMPLY WITH AS 1688.2 & CLAUSE 3.5.5.0 OF THE BCA

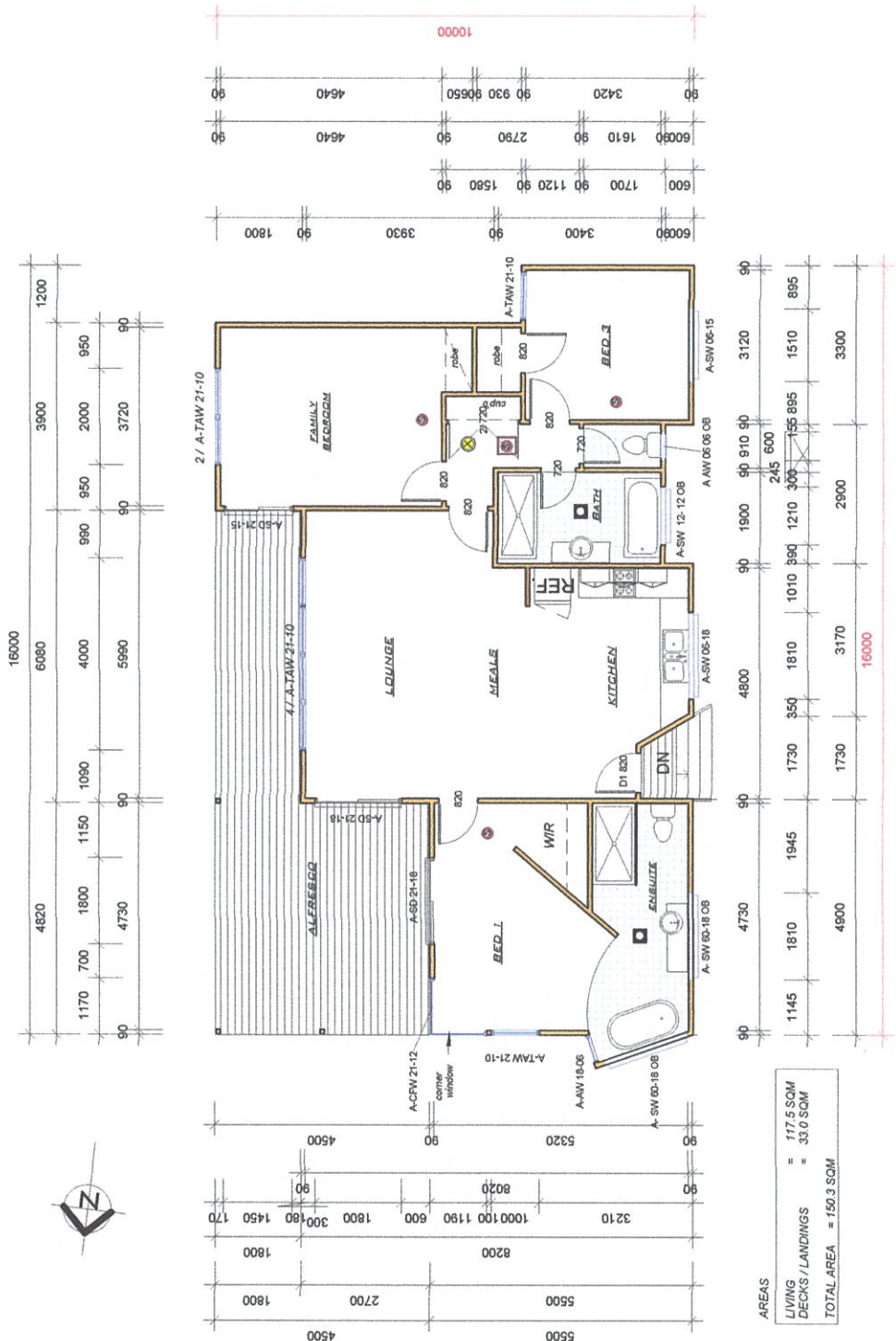
270mm DIA ILLUMINE SOLAR POWERED SMART LESS CEILING LIGHT (www.limprod.com.au)

600 X 600 PREFORMED ROOF ACCESS WITH ROOF INSULATION GLUED TO TOP OF HATCH LID (INSULATION TO BE EQUAL TO REMAINING CEILING SPACE)

WC DOORS SHALL EITHER SLIDE - SWING OUTWARDS FROM COMPARTMENT OR BE FITTED WITH LIFT OFF HINGES

ARTIFICIAL LIGHTING - BCA - VOL 2 - 3.12.5.5.
 MAXIMUM ILLUMINATION POWER LOAD SHALL NOT EXCEED
 • 5 W/m² IN A CLASS 1 BUILDING
 • 4 W/m² ON A VERANDAH / BALCONY
 • 3 W/m² IN A CLASS 10 BUILDING

Floor Plan View
 1 : 100



LIVING DECKS / LANDINGS	= 117.5 SQM
	= 33.0 SQM
TOTAL AREA	= 150.3 SQM

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 ALL TIMBER MATERIALS AND FIXINGS SHALL BE IN ACCORDANCE WITH AS 1684.2 - 2010
 DO NOT SCALE DRAWINGS - USE FIGURED DIMENSIONS ONLY
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 U.N.O = UNLESS NOTED OTHERWISE ALL PROPRIETARY MATERIALS, FIXINGS & TIE DOWNS SHALL BE INSTALLED TO MANUFACTURES SPECIFICATIONS & INSTRUCTION MANUALS

Project - Class 1B accommodation	SCALE 1 : 100
Site - Pt Vincent Foreshore Caravan Park	Date 01/04/2016
Project Owner - Yorke Peninsula District Council	Sheet No 2
	Designed by Designer

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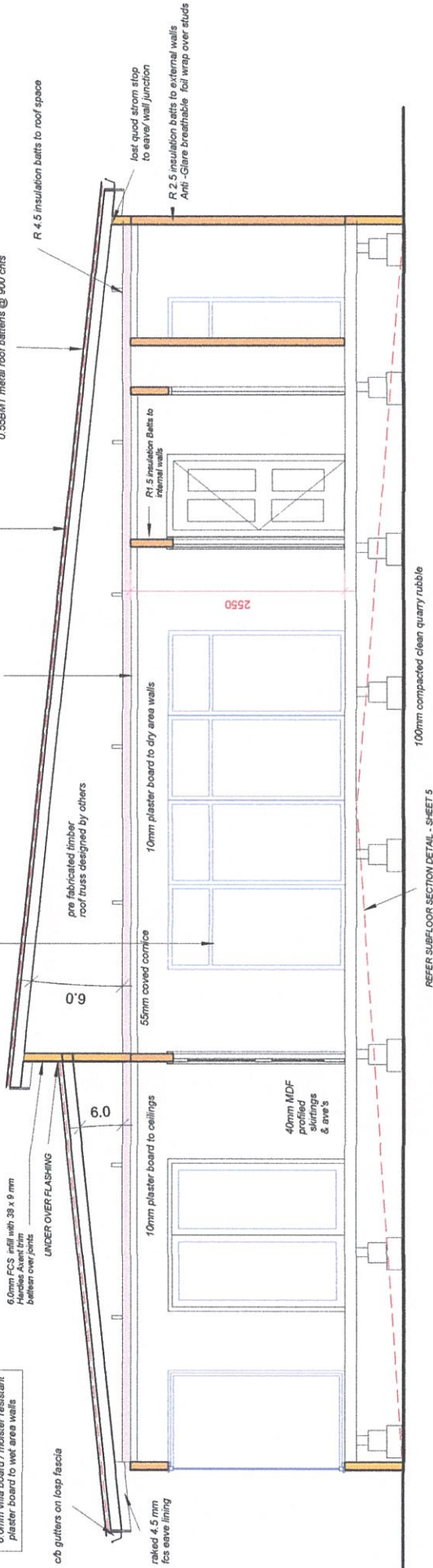
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TIMBER ROOF TRUSS INSTALLATION

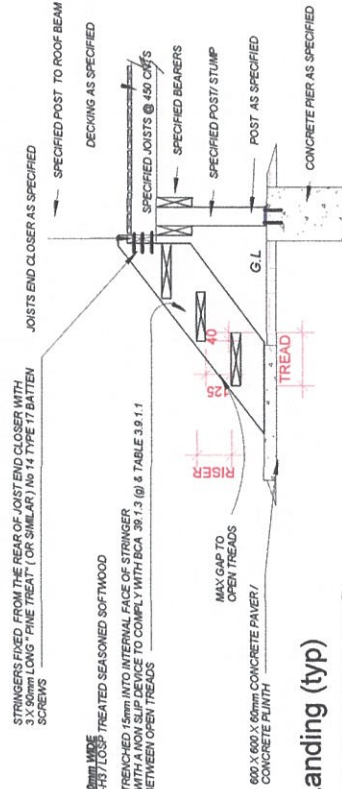
All nailable timber, roof trusses to be handled, erected, braced & tied down to the supporting structure as per "Installation Guidelines for Timber Trusses and as such should be read in conjunction with AS 4440, 2004. - Installation of nail plated Timber Trusses & Ministers Schedule 5 Roof Framing Checklist

6.0mm villa board / moisture resistant plaster board to wet area walls



Section A101

1 : 50



Step to Deck/Landing (typ)

1 : 25



STAIR TREAD SURFACES SHALL COMPLY WITH

- BCA PART 3.9.1.3 (g)
- BCA TABLE 3.9.1.1 &
- AS 4586

TREAD SURFACE MUST HAVE A SLIP RESISTANCE CLASSIFICATION NOT LESS THAN LISTED IN TABLE 3.9.1.1 WHEN TESTED IN ACCORDANCE WITH AS 4586

OR

A NOSING STRIP MUST HAVE A SLIP RESISTANCE CLASSIFICATION NOT LESS THAN LISTED IN TABLE 3.9.1.1 WHEN TESTED IN ACCORDANCE WITH AS 4586

BCA TABLE 3.9.1.1

SLIP RESISTANCE CLASSIFICATION

APPLICATION	SURFACE CONDITIONS		
	DRY	WET	
TREAD SURFACE	P3 OR R10	P4 OR R 11	
NOSING STRIP	P 3	P 4	

- ALL CONSTRUCTION WORK TO BE PERFORMED IN ACCORDANCE WITH THE SA WORK HEALTH & SAFETY ACT, REGULATIONS & CODES OF PRACTICE 2012**
1. ALL TIMBER MATERIALS AND FIXINGS SHALL BE IN ACCORDANCE WITH AS 1664.2 - 2010
 2. DO NOT SCALE DRAWINGS - USE FIGURED DIMENSIONS ONLY
 3. C.O.S = CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK & ORDERING MATERIALS
 4. U.N/O = UNLESS NOTED OTHERWISE
 5. ALL PROPRIETARY MATERIALS, FIXINGS & TIE DOWNS SHALL BE INSTALLED TO MANUFACTURERS SPECIFICATIONS & INSTRUCTION MANUALS

SCALE	AS indicated
Date	01/04/2016
Designed by	Sheet No 8
Designer	

Project - Class 1B accommodation
Site - Pt Vincent Foreshore Caravan Park
Project Owner - Yorke Peninsula District Council

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Window Schedule

Location	Frame Material	Window Style	Head Height	Height	Width	Glazing	Remarks
WC	P/Coated Aluminium	Awning	2100	900	600	Grade "A", Obscure Safety Glass	
Bed 1	P/Coated Aluminium	Corner Fixed	2100	2100	1200	Single Glazed Low "E" Clear	semi commercial grade framing with silicone butt joint
Ensuite	P/Coated Aluminium	Fixed	2100	2100	600	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Kitchen	P/Coated Aluminium	Sliding	1500	600	1810	Double Glazed Low "E" Clear	Total Window System Max Uv 3.74 & Max SHGC .62
Bathroom	P/Coated Aluminium	Sliding	2100	1200	1210	Grade "A", Obscure Safety Glass	
Ensuite	P/Coated Aluminium	Sliding	1800	600	1810	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Bed 3	P/Coated Aluminium	Sliding	2300	600	1510	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Ensuite	P/Coated Aluminium	Sliding	2300	600	1810	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Lounge	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Double Glazed Low "E" Clear	Total Window System Max Uv 3.74 & Max SHGC .62
Lounge	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Double Glazed Low "E" Clear	Total Window System Max Uv 3.74 & Max SHGC .62
Lounge	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Double Glazed Low "E" Clear	Total Window System Max Uv 3.74 & Max SHGC .62
Bed 3	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Bed 1	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63
Family Bedroom	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Single Glazed Low "E" Clear	Total Window System Max Uv 3.74 & Max SHGC .62
Family Bedroom	P/Coated Aluminium	Top Awning / Bottom Fixed	2100	2100	1000	Single Glazed Low "E" Clear	Total Window System Max Uv 4.7 & Max SHGC 0.63

Door Schedule

Location	Frame Material	Door Type	Door Action	Finish	Height	Width	Thickness	Glazing Type	Other
Lounge	P/Coated Aluminium	Sliding	Sliding	P/Coated	2100	1800		Double Glazed Low "E" Clear	Max Total Window Uv 3.74 & Max SHGC 0.62
Bed 1	P/Coated Aluminium	Sliding	Sliding	P/Coated	2100	1800		Single Glazed Low "E" Clear	Max Total Window Uv 4.7 & Max SHGC 0.63
Family Bedroom	P/Coated Aluminium	Sliding	Sliding	P/Coated	2100	1450		Single Glazed Low "E" Clear	Max Total Window Uv 4.7 & Max SHGC 0.63
Bathroom	HMR Primed MDF	Hollow Core	Swing	Gloss Paint	2040	720	35		
WC	HMR Primed MDF	Hollow Core	Swing	Gloss Paint	2040	720	35		
Bed 2	Primed MDF	Hollow Core	Swing	Gloss Paint	2040	820	35		
Passage Lounge	Primed MDF	Hollow Core	Swing	Gloss Paint	2040	35			
Passage Cupboard	Primed MDF	2 x Hollow Core	Swing	Gloss Paint	2100	1520	35		
Bed 2 Robe	Primed MDF	Hollow Core	Swing	Gloss Paint	2040	820	35		
Bed 1	Primed MDF	Hollow Core	Swing	Gloss Paint	2040	820	35		
Family Bedroom	Primed MDF	Hollow Core	Swing	Gloss Paint	2040	820	35		12 X 820
Entry	Aluminium	Hardboard/ Feature	Swing	Gloss Paint	2040	820	35		Provide PIC Security Screen Door

Grand total: 12

GLAZING NOMINAL SIZES = HEIGHT BY WIDTH
 ALL GLAZING (INCLUDING GLASS BALUSTRADES) SHALL COMPLY WITH AS 1288 & BCA PART 3.1 POWDER COATED ALUMINIUM WINDOWS & DOORS MANUFACTURED TO AS 2047 & INSTALLED TO AS 2048 & MEETING N3 WIND REQUIREMENTS

- P/COATED ALUMINIUM HORIZONTAL SLIDING WINDOWS = A-SW
- P/COATED ALUMINIUM AWNING WINDOWS = A-AW
- P/COATED ALUMINIUM WITH 40mm HIGH TOP AWNING & FIXED BELOW = A-TAW
- P/COATED ALUMINIUM SINGLE HUNG WINDOWS = A-SH
- P/COATED ALUMINIUM DOUBLE HUNG WINDOWS = A-DH
- P/COATED ALUMINIUM FIXED CORNER WINDOWS WITH SILICONE BUTT JOINT = A-FW
- P/COATED ALUMINIUM BOUTIQUE AWNING WINDOWS = A-BW
- P/COATED ALUMINIUM SLIDING DOORS = A-SD
- P/COATED ALUMINIUM STACKER DOORS = A-STD
- P/COATED ALUMINIUM BI-FLOODING DOORS = A-BD
- OBSCURE GLAZING = OB
- 60mm BOTTOM TRANSOM = (T) AFTER SIZE
- WINDOW HEAD HEIGHT GENERALLY = 2100 (U.K.O)
- ALL EXTERNAL WINDOWS & SLIDING DOORS TO BE FITTED WITH LOCKS, KEYS & FLYSCREENS

CLIMATE ZONE 5

6 STAR THERMAL ENERGY COMPLAINT - BCA PART 3.12 ENERGY EFFICIENCY REQUIREMENTS
 PROJECT ROOF SHEET ABSORPTANCE VALUE C/B 0.75
 ROOF INSULATION REDUCTION OF 0.05 WHERE ROOF SPACE IS VENTED BY GABLE VENTS OR WIND DRIVEN ROOF VENTS OR THE LIKE

- MINIMUM INSULATION R- VALUES TO BUILDING FABRIC = 4.6
- ROOF SPACE = R 2.8
- EXTERNAL WALLS = NIL
- FLOORS - SLAB ON GROUND = R 1.0
- ELEVATED FLOORS = R 1.0

PROJECT DESIGN SOLUTION

- FLOORS** WINGS PAN PERFORM FLOOR 900 BETWEEN JOIST = R 3.3 CUT WARD'S RESISTANCE
- ROOF AND CEILING** R 4.5 INSULATION BATTS TO CEILING ANTI GLARE WRAP UNDER ROOF SHEETS R 0.66
- EXTERNAL WALLS** R 2.5 HD INSULATION BATTS TO EXTERNAL WALLS ANTI GLARE BREATHABLE WRAP UNDER CLADDING = R 0.47
- OTHER** ALL HABITABLE ROOMS TO VENTILATION AREAS GREATER THAN 10% OF FLOOR AREA TO OPEN WITH CEILING FAN SELF CLOSING DAMPERS SHALL BE FITTED AT ALL DUCTS SERVICING HABITABLE SPACE OR ROOMS FIRE RESISTANT POLYMER DOWN LIGHT GUARDS TO ALL INTERNAL DOWN LIGHTS DRAUGHT PROTECTION DEVICES SHALL BE FITTED TO ALL EDGES OF EXTERNAL DOORS & INTERNAL DOORS TO GARAGES R 2.0 INSULATION BATTS TO INTERNAL GARAGE WALLS SEAL OR CRACKS AND GAPS

THERMAL INSULATION TO SERVICES

- HOT WATER SUPPLY SERVICES SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH AS 3500.5 CLAUSE & BCA PART 3.12.5 & SA VARIATIONS TO SUIT CLIMATE ZONE 5 & TABLE 3.12.5.7
- HEATING & COOLING DUCTS THERMAL INSULATION SHALL COMPLY WITH AS 4254 PARTS 1&2 FOR CLASS C SEAL & BCA PART 3.12.5.3

R 1.5 INSULATION BATTS TO INTERNAL WALLS

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- ALL TIMBER MATERIALS AND FIXINGS SHALL BE IN ACCORDANCE WITH AS 1684.2 - 2010 DO NOT SCALE DRAWINGS - USE FIGURED DIMENSIONS ONLY
- USE DIMENSIONS OF ALL COMPONENTS ON SITE PRIOR TO COMMENCING WORK & CHECK MATERIALS FOR DEFECTS
- UNLESS NOTED OTHERWISE ALL PROPRIETARY MATERIALS, FIXINGS & TIE DOWNS SHALL BE INSTALLED TO MANUFACTURERS SPECIFICATIONS & INSTRUCTION MANUALS

1.	SCALE
2.	Date
3.	01/04/2016
4.	Sheet No
5.	9
	Designed by
	Designer

Project - Class 1B accommodation
Site - Pt Vincent Foreshore Caravan Park
Project Owner - Yorke Peninsula District Council

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Producer Statement

Job Ref: YPDC

- 6 APR 2016

Truss Design Criteria

CLIENT Name:

COASTAL LIVING BY DESIGN

SITE Details:

Address : FORESHORE CARAVAN PARK PT VINCENT

City:

Post Code:

State:

Nominal Design Criteria:

- Building importance: Residential
- Roofing: Sheet steel (0.48mm) (5.6 kg/sq.m)
- Ceiling: 10mm plasterboard (7.2 kg/sq.m)
- Top chord battens: 1200 mm

- BC restraints: Direct (nail/screw restraint) at 600 mm crs
- Standard truss spacing: 1200 mm
- Standard roof pitch: 6.00 deg.
- Ult. design wind speed: 50 m/s (wind classification = N3)
- Max. eaves height: 3 m
- Max. ridge height: 8 m
- Int pressure coeff. up: 0.2
- Overhang Condition: No fascia

Note : Where relevant, a structural fascia beam is required at all hip and dutch hip corners to support the short creeper/rafter overhangs, as shown in AS4440-2004

Note: Ceiling lining must be fixed to the bottom chords of trusses with nails or screws at maximum 600 mm centres.

Note: This statement must be read in conjunction with the truss layout and detail sheets.

Compliance:

The truss designs for this job have been determined using computer software provided by Pryda Australia, using sound and widely accepted engineering principles. In particular, loadings and designs are performed in accordance with the Standards adopted by primary reference in the National Construction Code (NCC 2014), Volume One, Specification A1.3 and Volume Two, Part 1.4.

In addition, the following secondary referenced Australian Standards also apply:

AS 1649-2001 Timber - Methods of test for mechanical fasteners and connectors - Basic working loads and characteristic strengths

AS 1684.1-1999 Residential timber - framed construction, Part1, Design Criteria
The software used in the preparation of these designs complies with the requirements in the ABCB "Protocol for Structural Software" (Version 2011.1), where applicable. A copy of the Compliance Document referenced therein is held at the Pryda office in Melbourne, Australia, and is available for examination by approval authorities and other building practitioners if required.

The person signing this Statement has been trained in the use of this software (Training certificate ID: PB4R000960).

All trusses shall be manufactured in accordance with the fabrication specifications provided by Pryda, and installed, connected and braced in accordance with the recommendations given in - : AS4440:2004 "Installation of nailplated timber roof trusses" and any other supplementary details that may be provided, such as the Pryda Installation Guides.

All truss designs and their connections have been designed using Pryda design software. Additional items such as roof/ceiling plane bracing, special notes, supplementary timber, etc., which may be shown on the plan drawings are the responsibility of others.

Name: Nick Martin

Position: Detailer

Signed: [Signature]

Date: 31-03-2016

Producer Statement

Job Ref: YPDC

Note 1: All timber framing nails are machine-driven, glue coated, or annular/helical deformed shank. Use specified fixings with Pryda connectors as noted.

Tie-downs to walls/beams:

All trusses need to be fixed at each timber support with 2 / 65x2.8 dia Skew Nails

M1	1	-	1/QHS6	JD5	90	JD5	-7.59
	4	4910	1/SB083/30	JD5	90	JD5	-5.46
M2	1	0	1/SB083/30	JD5	90	JD5	-3.06
	4	3855	2/QHS6	JD5	90	JD5	-8.66
M3	1	-	1/SB083/30	JD5	90	JD5	-4.51
	4	6245	2/QHS6	JD5	90	JD5	-11.39
	7	11180	1/SB083/30	JD5	90	JD5	-3.95
M4	1	-	1/SB083/30	JD5	90	JD5	-3.38
	4	3855	2/QHS6	JD5	90	JD5	-9.11
	8	9980	1/SB083/30	JD5	90	JD5	-5.65
M5	1	-	1/SB083/30	JD5	90	JD5	-3.21
	4	5045	1/QHS6	JD5	90	JD5	-6.98
	7	9980	1/SB083/30	JD5	90	JD5	-3.46

Primary connections (truss to girder):

<i>Truss Marks</i>			<i>Fixing Details</i>		
<i>Girder</i>	<i>Supported</i>	<i>Connector</i>	<i>Girder</i>	<i>Supported</i>	
B1	M2	TB35/12	8/12g-11x35 screws		12/12g-11x35 screws

Secondary fixings (hip & gable ends, valleys):

All trusses are to be fixed at each support with the following:

Hip truss to truncated girder	3 face nails, bottom chords
Jack truss to truncated girder	3 skew nails or back face nails, bottom chords
Creeper truss to hip truss	3 face nails, top and bottom chords
Top chord extensions	2 skew nails
Valley trusses	1 skew nail
Outriggers	2 skew nails

All additional connections are as follows:

<i>Supporting Truss</i>	<i>Supported Truss</i>	<i>Top Chord</i>	<i>Bottom Chord</i>
-------------------------	------------------------	------------------	---------------------

Fixing Summary:

<i>Connector</i>	<i>Description</i>	<i>Total</i>	<i>Fixing Method (per connector)</i>	
Primary			<i>Girder</i>	<i>Supported Truss</i>
TB35/12	Truss boot	2	8/12g-11x35 screws	12/12g-11x35 screws
Tiedown			<i>Support</i>	<i>Truss</i>
QHS6	Cyclone strap	25	10/35x3.15d nails	1/35x3.15d nails
SB083/30	Strapbrace (4 nails per leg)	24	8/35x3.15d nails	1/35x3.15d nails

TRUSS DETAILS (DESIGN)

Job Ref: YPDC

Truss Reference : M3 (Single Truss)

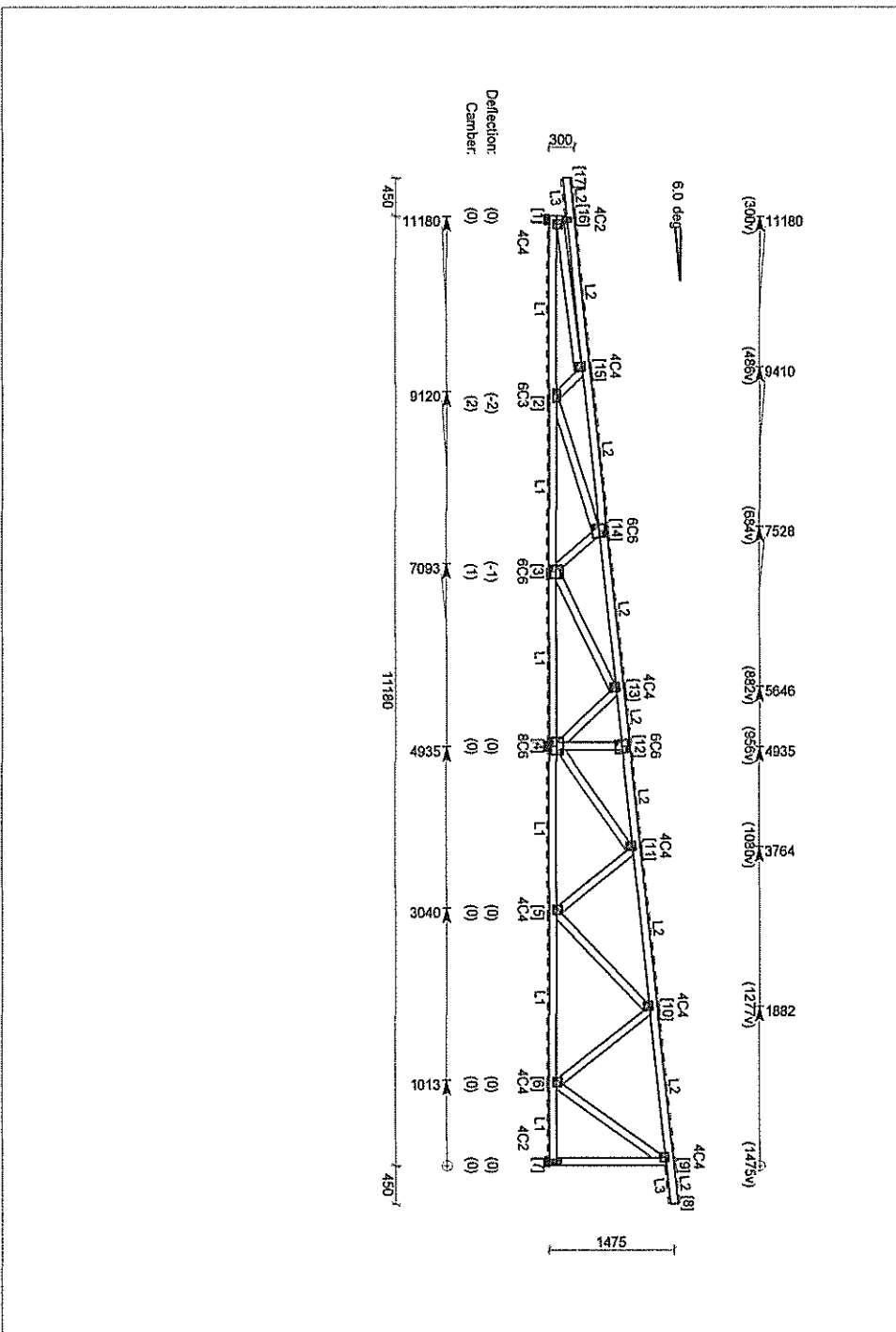
Truss type: Mono
 Building Standard : NCC-2014

No. plies : 1x35mm
 Structural Category : 1

Design spacing : 1200mm

No. of : 4

Building type: Residential



Major supports and factored reactions

Joint	Type	Width	Perm.	Max. down (LC)	Uplift	Tie-down	Connector
1	Wall Ext	90	0.9 kN	3.2 kN (Gc+Wd3)	-4.5 kN	1/5B083/30	-
7	Wall Int	90	0.6 kN	2.4 kN (Gc+Wd3)	-3.9 kN	1/5B083/30	-
4	Wall Int	90	2.5 kN	8.1 kN (Gc+Wd3)	-11.4 kN	2/QHS6	-

- Linings**
- L1: 10mm plasterboard (7.2 kg/sq.m). Direct (nailscrew restraint) @ 600mm.
 - L2: Sheet steel (0.48mm) (5.6 kg/sq.m). Battens @ 1200mm.
 - L3: Fibrecement (4.5mm) (7.7 kg/sq.m). Battens @ 600mm.

- Timber**
- Top Chords 1 / 90X35 MGP-10 uno
 - Bottom Chords 1 / 90X35 MGP-10 uno
 - Webs 1 / 90X35 MGP-10 uno

WB3 (1-15) 1 / 90X35 MGP-12

- Notes**
1. Deflection = permanent load deflection including creep if timber truss.
 2. Overhang condition: No fascia.
 3. Refer to Pyda Installation Guide for full bracing details.
 4. Refer to layout for overall truss bracing.
 5. Truss close to gable end: YES

TRUSS DETAILS (DESIGN)

Job Ref: YPDC

Truss Reference : M4 (Single Truss)

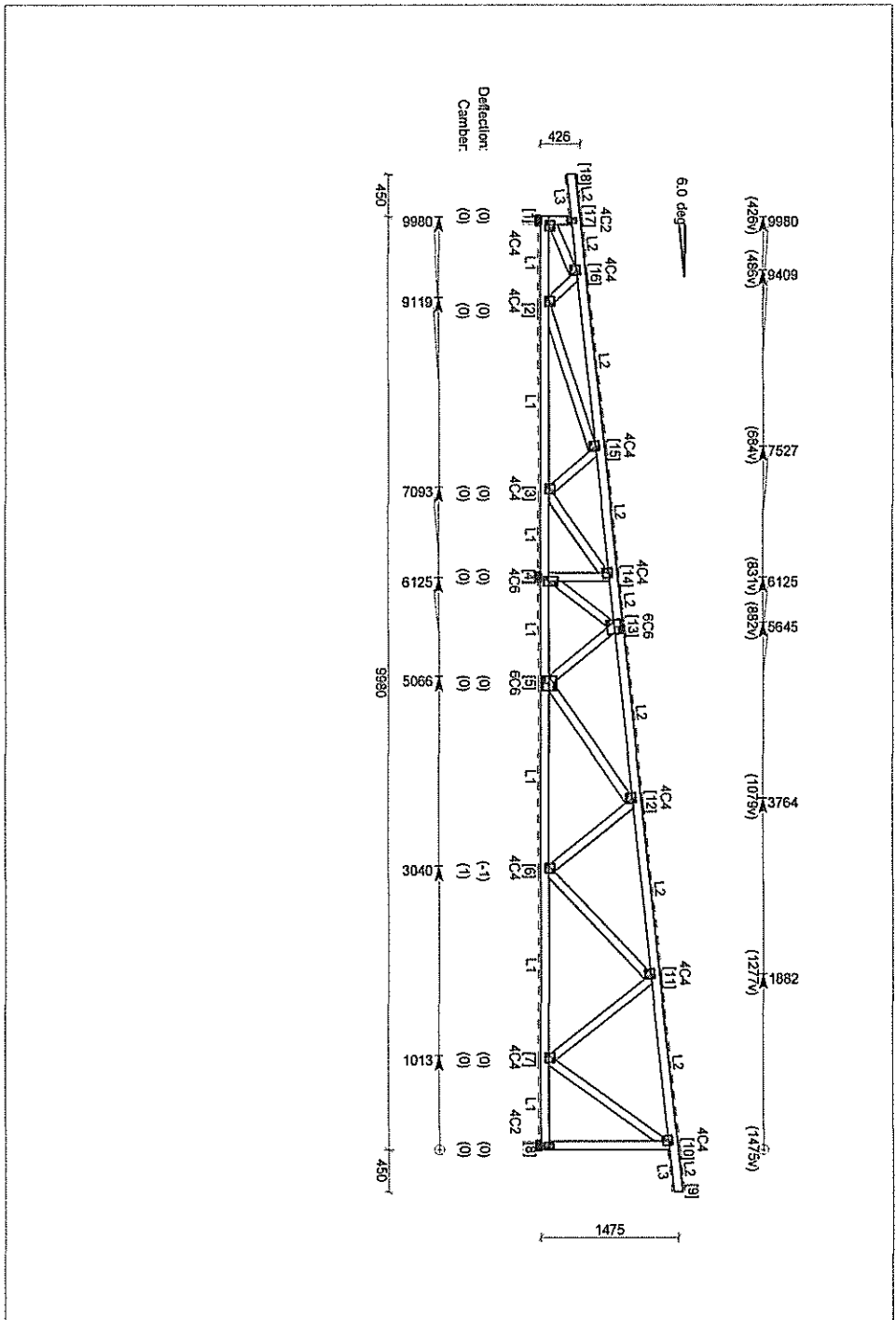
Truss type: Mono
Building Standard : NCC-2014

No. plies : 1x35mm
Structural Category : 1

Design spacing : 1200mm

No. of : 3

Building type: Residential



Major supports and factored reactions

Joint	Type	Width	Perim.	Max. down (LC)	Uplift	Tie-down	Connector
1	Wall Ext	90	0.6 kN	2.3 kN (Gc+Qp)	-3.4 kN	1/SB083/30	-
8	Wall Int	90	1.1 kN	3.8 kN (Gc+Wd3)	-5.6 kN	1/SB083/30	-
4	Wall Int	90	2.0 kN	6.4 kN (Gc+Wd3)	-9.1 kN	2/QHS6	-

- Linings**
- L1: 10mm plasterboard (7.2 kg/sq.m).
Direct (nail/screw restraint) @ 600mm.
 - L2: Sheet steel (0.48mm) (5.6 kg/sq.m).
Battens @ 1200mm.
 - L3: Fibrecement (4.5mm) (7.7 kg/sq.m).
Battens @ 600mm.

- Timber**
- Top Chords 1 / 90X35 MGP10 uno
 - Bottom Chords 1 / 90X35 MGP10 uno
 - Webbs 1 / 90X35 MGP10 uno

- Notes**
1. Deflection = permanent load deflection including creep if timber truss.
 2. Overhang condition: No fascia.
 3. Refer to Fryda Installation Guide for full bracing details.
 4. Refer to layout for overall truss bracing.
 5. Truss close to gable end: YES

TRUSS DETAILS (DESIGN)

Job Ref: YPDC

Truss Reference : M5 (Single Truss)

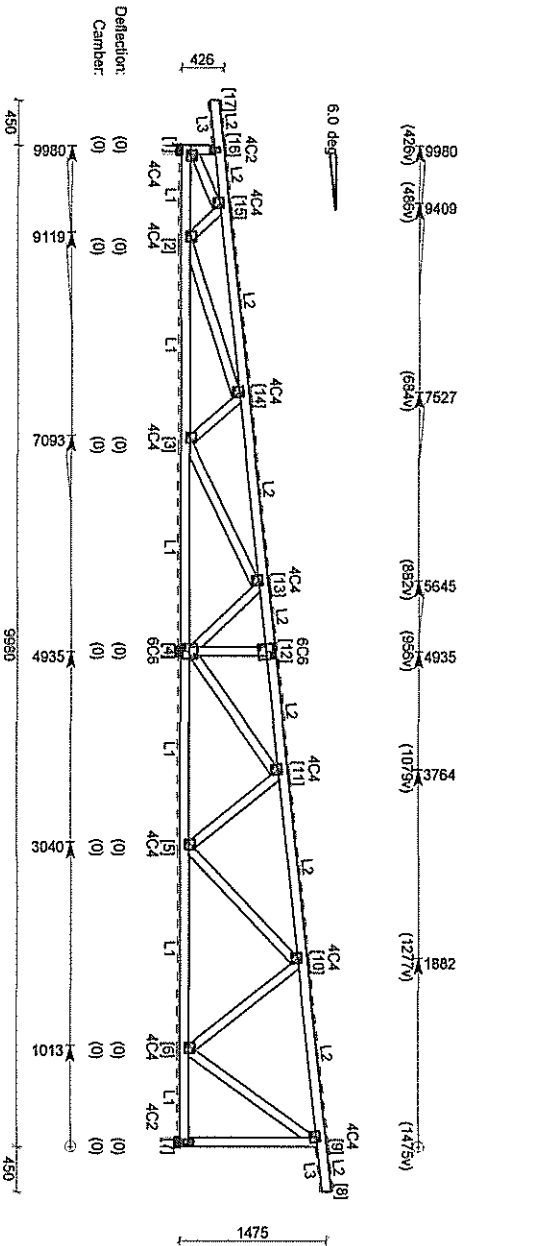
Truss type: Mono
 Building Standard : NCC-2014

No. plies : 1x35mm
 Structural Category : 1

Design spacing : 890mm

No. of : 1

Building type: Residential



Major supports and factored reactions

Joint	Type	Width	Perim.	Max. down (LC)	Uplift	Tie-down	Connector
1	Wall Ext	90	0.6 kN	2.3 kN (Gc+Qp)	-3.2 kN	1/5B083/30	-
7	Wall Int	90	0.6 kN	2.3 kN (Gc+Qp)	-3.5 kN	1/5B083/30	-
4	Wall Int	90	1.6 kN	5.0 kN (Gc+Wd3)	-7.0 kN	1/QHS6	-

- Linings**
- L1: 10mm plasterboard (7.2 kg/sq.m).
 - Direct (nail/screw restraint) @ 600mm.
 - L2: Sheet steel (0.48mm) (5.6 kg/sq.m).
 - Battens @ 1200mm.
 - L3: Fibrecement (4.5mm) (7.7 kg/sq.m).
 - Battens @ 600mm.
- Timber**
- Top Chords 1 / 90X35 MGP10 uno
 - Bottom Chords 1 / 90X35 MGP10 uno
 - Webs 1 / 90X35 MGP10 uno
- Notes**
1. Deflection = permanent load deflection including creep if timber truss.
 2. Overhang condition: No fascia.
 3. Refer to Fryda Installation Guide for full bracing details.
 4. Refer to layout for overall truss bracing.
 5. Truss close to gable end: YES

TRUSS DETAILS (DESIGN)

Job Ref: YPDC

Truss Reference : M2 (Single Truss)

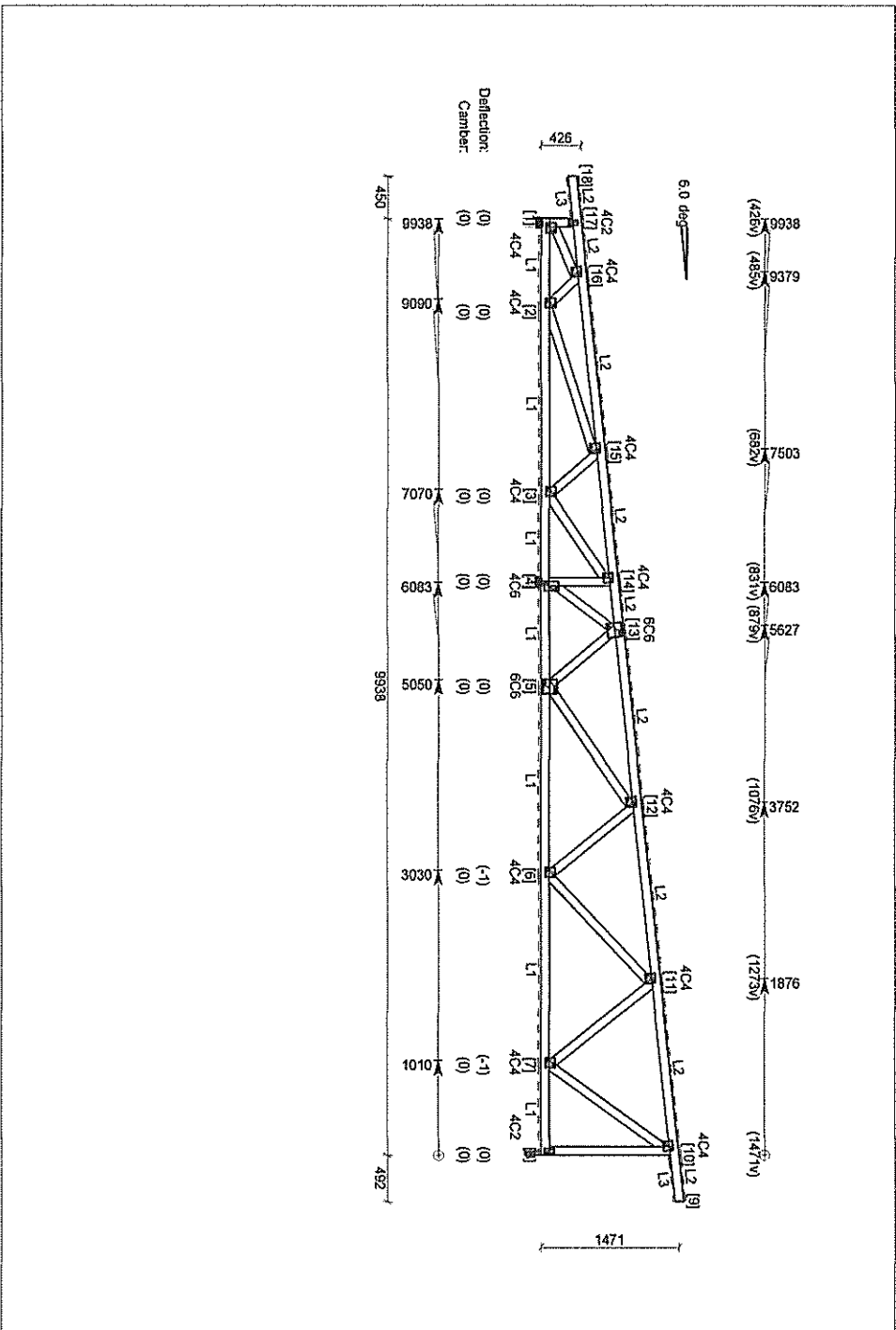
Truss type: Mono
 Building Standard : NCC-2014

No. plies : 1x35mm
 Structural Category : 1

Design spacing : 1110mm

No. of : 2

Building type: Residential



Major supports and factored reactions

Joint	Type	Width	Perm.	Max. down (LC)	Uplift	Tie-down	Connector
1	Wall Ext	90	0.5 kN	2.3 kN (Gc+Qp)	-3.1 kN	1/5B0833/30	-
8	Beam Int	42	1.0 kN	3.5 kN (Gc+Wd3)	-5.2 kN	-	-
4	Wall Ext	90	1.9 kN	6.2 kN (Gc+Wd3)	-8.7 kN	2/C6HS6	-

- Linings**
- L1: 10mm plasterboard (7.2 kg/sq.m), Direct (nailscrew restraint) @ 600mm.
 - L2: Sheet steel (0.48mm) (5.6 kg/sq.m), Battens @ 1200mm.
 - L3: Fibrecement (4.5mm) (7.7 kg/sq.m), Battens @ 600mm.

- Timber**
- Top Chords 1 / 90x35 MGP10 uno
 - Bottom Chords 1 / 90x35 MGP10 uno
 - Webs 1 / 90x35 MGP10 uno

- Notes**
1. Deflection = permanent load deflection including creep if timber truss.
 2. Overhang condition: No fascia.
 3. Refer to Pryda Installation Guide for full bracing details.
 4. Refer to layout for overall truss bracing.
 5. Truss close to gable end: YES

TRUSS DETAILS (DESIGN)

Job Ref: YPPD

Truss Reference : M1 (Single Truss)

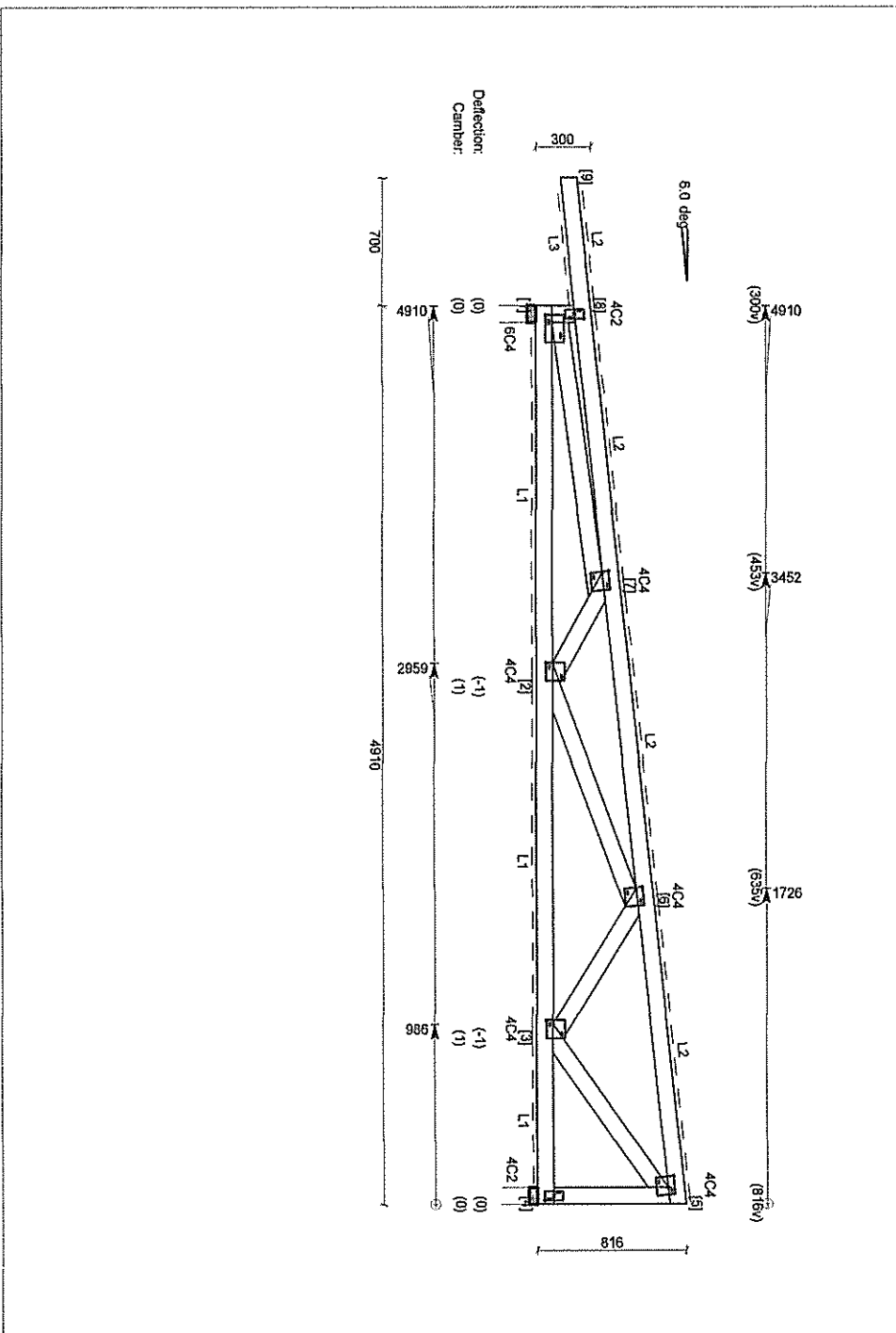
Truss type: Mono
 Building Standard : NCC-2014

No. plies : 1x35mm
 Structural Category : 1

Design spacing : 1200mm

No. of : 6

Building type: Residential



- Linings**
- L1: 10mm plasterboard (7.2 kg/sq.m), Direct (nail/screw restraint) @ 600mm.
 - L2: Sheet steel (0.48mm) (5.6 kg/sq.m), Battens @ 1200mm.
 - L3: Fibrecement (4.5mm) (7.7 kg/sq.m), Battens @ 600mm.

- Timber**
- Top Chords 1 / 90x35 MGP12 uno
 - Bottom Chords 1 / 90x35 MGP10 uno
 - Webs 1 / 90x35 MGP10 uno

- Notes**
1. Deflection = permanent load deflection including creep if timber truss.
 2. Overhang condition: No fascia.
 3. Refer to Fryda Installation Guide for full bracing details.
 4. Refer to layout for overall truss bracing.
 5. Truss close to gable end: YES

Major supports and factored reactions

Joint	Type	Width	Perm.	Max. down (LC)	Uplift	Tie-down	Connector
1	Wall Ext	90	1.0 kN	3.9 kN (Gc+Wd3)	-7.6 kN	1/QHS6	-
4	Wall Int	90	0.8 kN	2.6 kN (Gc+Wd3)	-5.5 kN	1/SB083/30	-

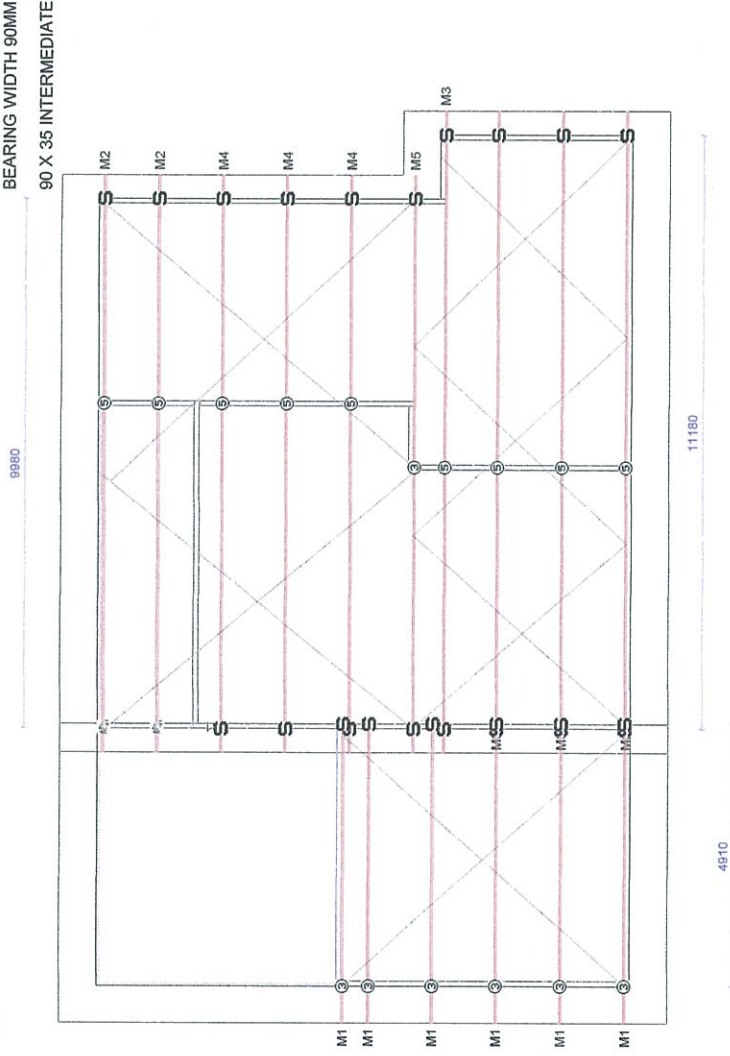
Truss Connections

* All tie-downs use 2/65x2.8 dia Skew Nails unless otherwise noted.

Bottom Chord

- S 24 x 1/58B083/30 Strapbrace (4 nails per leg) (8/35x3.15d nails, 1/35x3.15d nails)
- ⊗ 9 x 2/QHS6 Cyclone strap (10/35x3.15d nails, 1/35x3.15d nails)
- ⊗ 7 x 1/QHS6 Cyclone strap (10/35x3.15d nails, 1/35x3.15d nails)
- ⊗ 2 x 1/TB35/12 Truss boot (8/12g-11x35 screws, 12/12g-11x35 screws)

- REFER TO G1 FOR TRUSS CONNECTION DESCRIPTION
- REFER TO G2 FOR CONNECTION TO NON-LOAD BEARING WALL
- REFER TO G3 FOR FRAMING BRACKET FIXING
- REFER TO G4 FOR SPEEDBRACE SPLICE DETAIL
- REFER TO G5 FOR INTERMEDIATE CEILING JOIST & HANGER DETAILS
- TOP CHORD RESTRAINTS 90 X 45 MGP10 @1200 C.T.S REFER TO PURLIN SPLICE DETAIL G6
- BEARING WIDTH 90MM
- 90 X 35 INTERMEDIATE CEILING JOIST REFER TO G5



All nailplated timber roof trusses must be handled, erected, braced and fixed to supporting structure in accordance with "PRYDA" Installation Guidelines for Timber Roof Trusses" and AS4440.1997 "Installation of Nailplate Timber Trusses"

SPEED BRACE AS PER 4.3.1 IN PRYDA GUIDE

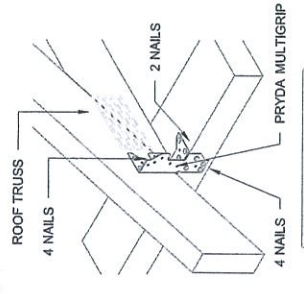
Customer : COASTAL LIVING BY DESIGN
 Site Address : FORESHORE CARAVAN PARK
 : PT VINCENT



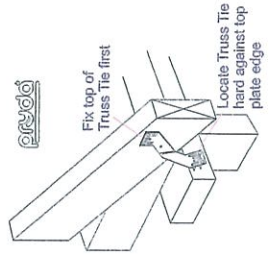
Roofing Pitch Spacing Design Wind Velocity
 : 6:00 Deg. : 1200 : 50.00 m/s (Ult.)
 : Sheet steel (0-48mm)
 : Nick Martin

Handwritten signature

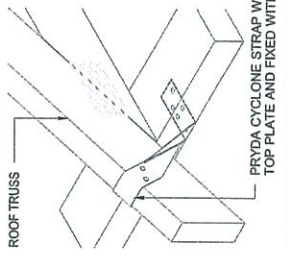
Job Ref YPDC
 Scale 1:100
 Level A3



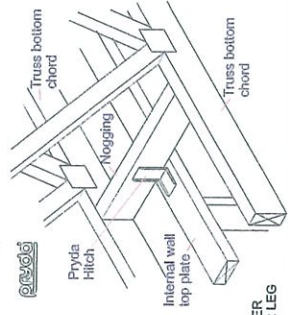
Multigrip Fixing



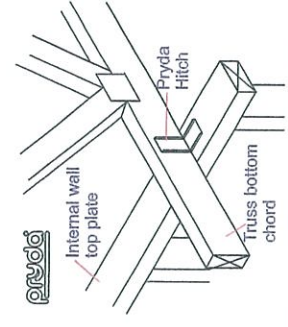
Truss Tie Fixing



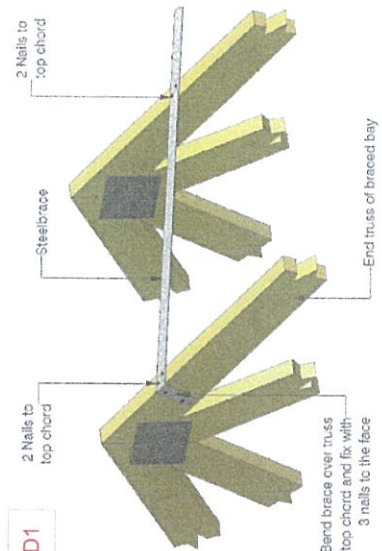
Cyclone Strap Fixing



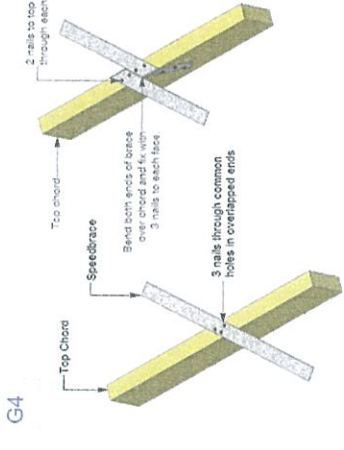
Pryda Hitch Installation - Trusses Parallel & Perpendicular



Framing Bracket Fixing

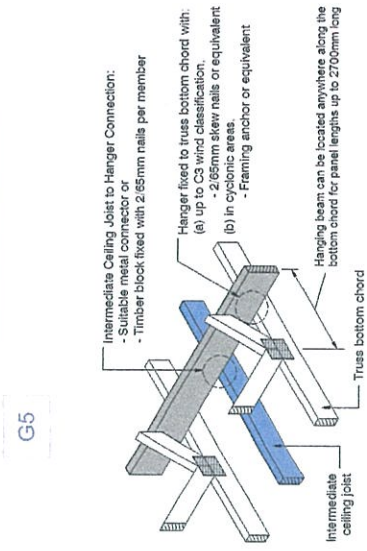


Bracing Anchorage - Apex Fixing Detail

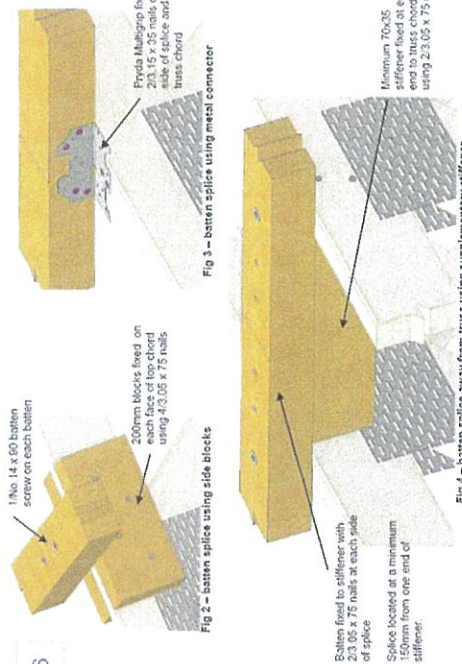


(a) Lap Splice (b) Wrap Around Splice

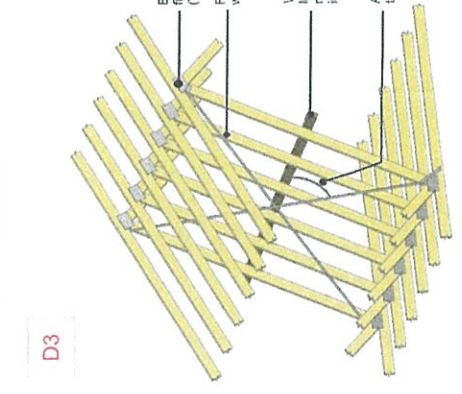
Bracing Anchorage - Splicing Details



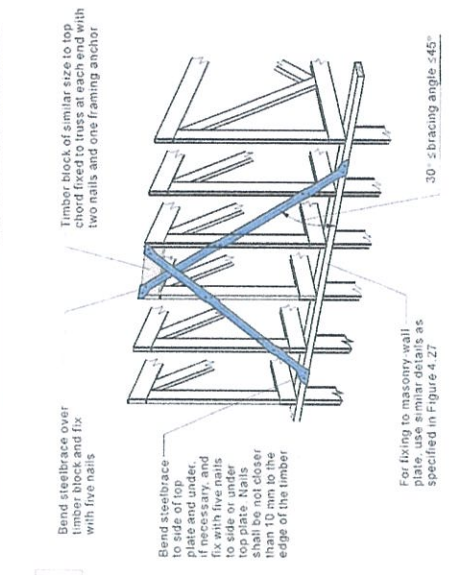
Intermediate Ceiling Joist and Hangers Detail



Timber Roof Batten Splicing Details



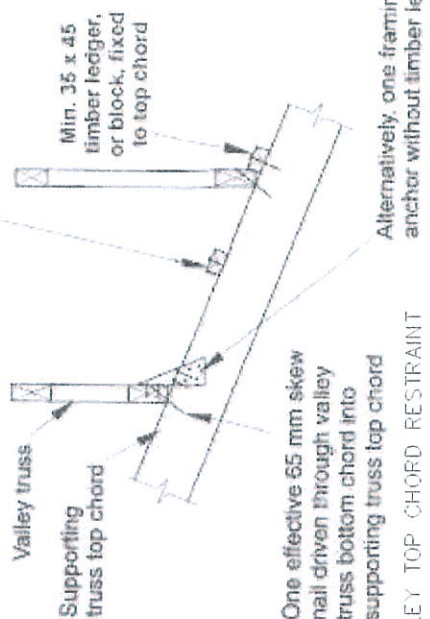
Web Tie and Bracing Detail



End Vertical Bracing Detail

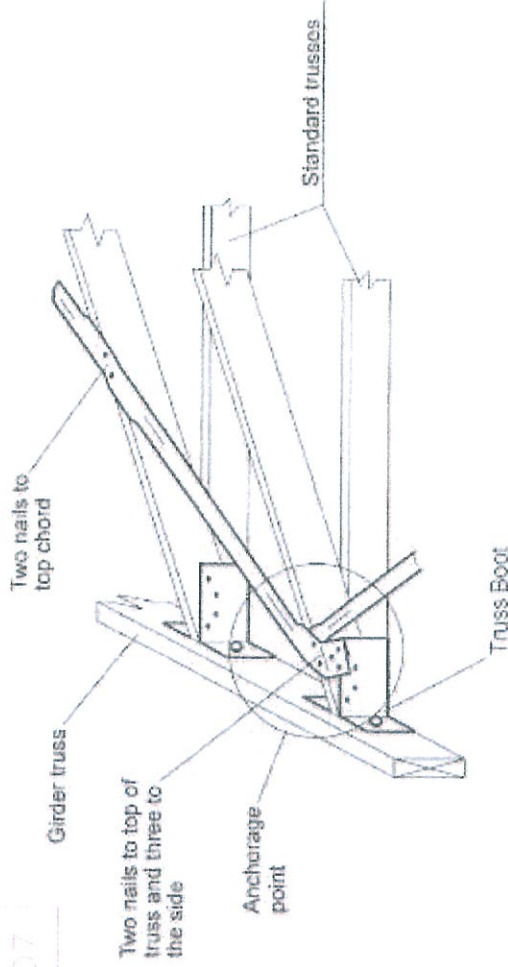
D5

Where truss spacing is greater than roof batten centres, intermediate top chord ties shall be required



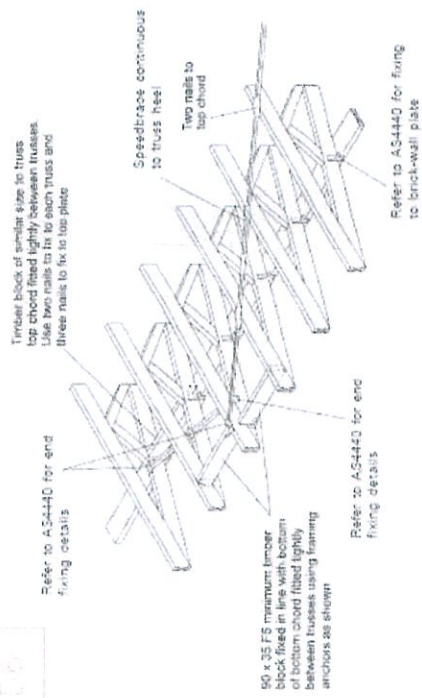
VALLEY TOP CHORD RESTRAINT

D7



END FIXING DETAILS AT HEEL TO GIRDER TRUSS

D6



FIXING DETAILS FOR CANTILEVERS

Nailing for multi-laminated trusses

When a truss is made up of two or three plies, all members (chords and webs) must be securely nailed together. Use the following techniques unless detailed otherwise.

FASTENER SPECIFICATION:

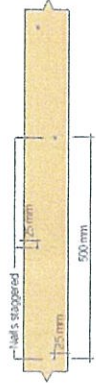
- Nail Diameter - Minimum of 2.8mm
- Shank Type⁽¹⁾ - Ring shanked or glue-coated
- Nail Length⁽²⁾ - 65mm for joining 2/35 or 2/38
- 75mm for joining 2/45 or 2/47

- Notes:
- In hardwoods prone to splitting, we recommend the use of chisel or blunt point nails in conjunction with prebored holes. Holes shall be prebored to a max. 80% of shank diameter of the fastener.
 - Nail lengths are specified to allow a minimum 75% penetration into the thickness of outer ply and to ensure nails don't protrude through outer plies in keeping with OH&S requirement

FASTENER ARRANGEMENT

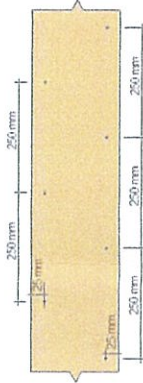
Chords or Web widths up to 100mm

2 rows at 50lets (staggered)



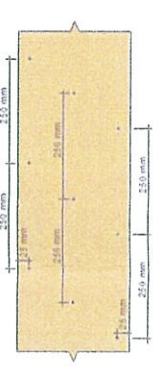
Chord or Web widths from 101 to 200mm

2 rows at 25lets (staggered)



Chord or Web widths from 201 to 300mm

3 rows at 25lets (staggered)





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BY: A.B.N. 38 073 733 874
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Phone (08) 8842 1242
Mobile 0427 792 450
Fax (08) 8842 1222

STRUCTURAL CALCULATIONS

BUILDER/AGENT: Coastal Living by Design

OWNER: Yorke Peninsula Council


SITE: Port Vincent Foreshore Caravan Park

JOB NO.: 9597

DATE: Revised 1/08/16

STRUCTURE: Footings, Connections & Tiedown Details

Trevor K. Mace MIEAust, CPEng
DIRECTOR

	Mace Engineering Services Pty Ltd	6 Lennon Street CLARE SA 5453 P.O. Box 728, CLARE SA 5453 Tel. (08) 88421242 Fax (08) 88421222 ABN 38 073 733 874 Email admin@maceeng.com.au	Job No: 9597	Page: 1.
			Project: Coastal Living - Pt Vincent Caravan Park	
			Date: 24/3/16	Design: MCV

Coastal Living by Design

Port Vincent Foreshore Caravan Park

Accommodation Building

Wind classification - N3

Ultimate wind pressure = 1.5 kPa

Serviceability wind pressure = 0.68 kPa.

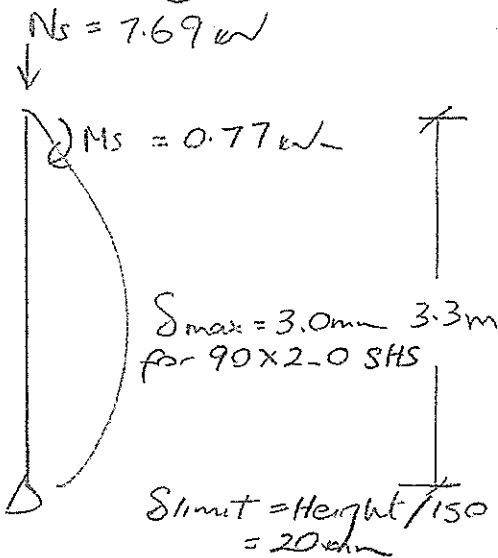
Wind pressure coefficients - uplift = -1.1

- downwards = +0.7

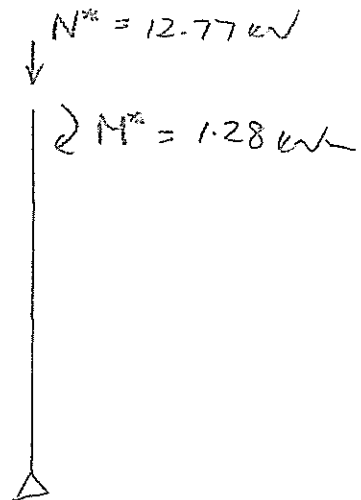
Alfresco Post #1 - Roof area = 3.0 x 2.25 = 6.75 m²
 - Deck area = 1.21 x 1.13 = 1.37 m²
 - Height = 3.3m

* See pg 2 for loads & combinations

Serviceability



Strength





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Pt Vincent P1 9597

Load Calculations


		Wind Pressures	
Floor Area	1.38	Ultimate	1.5
Roof Area	6.75	Serviceability	0.68

Load (kPa)		Area (m ^2)	Resultant (kN)
Dead Loads			
Roof	0.40	6.75	2.70
Deck	0.65	1.38	0.90
Self	0.33	0	0.33
		Sum DL	3.93
Live Load			
0.39	0.39	6.75	2.61
Deck	2.00	1.38	2.76
			5.37
Wind Loading			
Ultimate Wind			
Up	1.65	6.75	11.14
Down	1.05	6.75	7.09
Serv Wind			
Up	0.75	6.75	5.05
Down	0.48	6.75	3.21
Additional Loads	Box Gutter		0

Load Combinations

Serviceability	
DL + 0.7LL	7.69
DL + Ws Down	7.14
0.9DL - Ws Up	-2.62

Strength	
1.2DL + 1.5LL	12.77
1.2DL + Wu Down	11.80
0.9DL - Wu Up	-8.71

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		Project: Coastal Living - Pt Vincent Caravan Pk	
		Date: 29/3/16	Design: LCV

Steel 41 - For 90x90x2.0 Duragal SHS

Input	Results	Load factors
$M^* = 1.28$	$\phi M_{sx} = 6.521$	Section = 3.820
$N^* = 12.77$	$\phi M_{bx} = 6.521$	Member = 3.230
$V^* = 15$	$\phi V_{wy} = 82.56$	Shear = 5.504
$\alpha_m = 1.75$	$\phi N_s = 195.6$	
$B_m = -1$	$\phi N_{ex} = 112.9$	
$L_e = 3.3m$	$\phi N_{ey} = 112.9$	

→ Adopt 90x90x2.0 Duragal SHS for alfresco column P1 ←

Footings for P1

$N_s \downarrow = 7.69 \text{ kN}$

$N^* \uparrow = 8.71 \text{ kN}$

Allowable bearing pressure = 100 kPa.

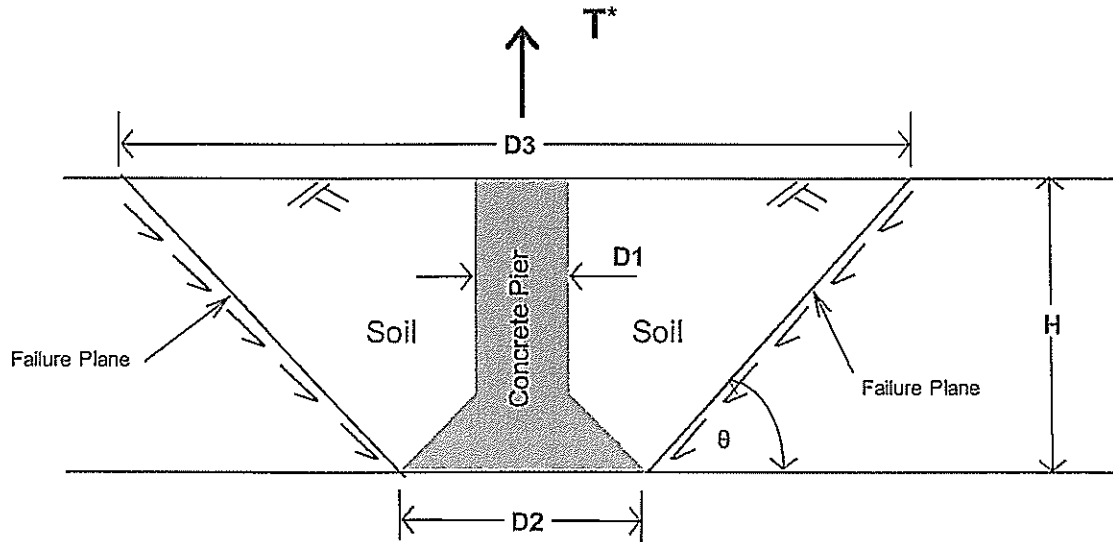
$P = \frac{F}{A} \therefore A_{req} = \frac{7.69}{100} = 0.077 \text{ m}^2$

For 450 ϕ bored pier $A = 0.159 \text{ m}^2$ - OK

* See pg 4 for uplift resistance

→ Adopt 450mm ϕ x 700mm deep bored pier for verandah footings P1 ←

UNDER-REAMED PIER --- UPLIFT RESISTANCE



MODEL GEOMETRY


INPUT DATA

Ultimate uplift load	T^*	8.71	kN
Concrete unit weight	γ_c	24.0	kN/m^3
Soil unit weight	γ_s	18.0	kN/m^3
Soil failure plane angle	θ	45	degrees
Shaft diameter	D_1	450	mm
Under-ream diameter	D_2	450	mm
Soil failure diameter	D_3	1850	mm
Depth of pier	H	700	mm

RESULTS

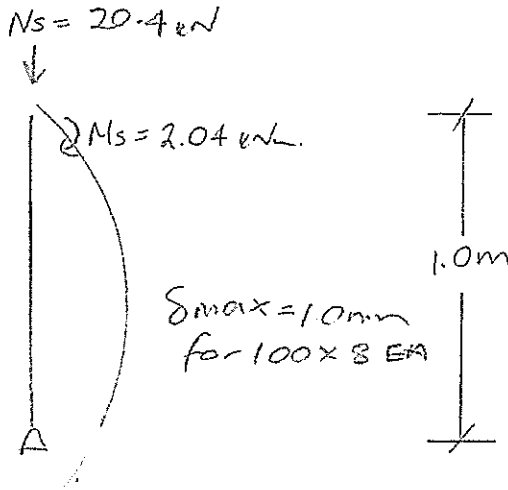
Weight of concrete	W_c	2.67	kN
Weight of soil	W_s	13.00	kN
Total weight	W_T	15.67	kN
Uplift resistance	ϕW_T	12.53	kN
Factor of safety	F_s	1.44	O.K.

**ADOPT : 450 DIAMETER x 700 DEEP CONCRETE PIER
UNDER-REAM 450 mm AT BASE**

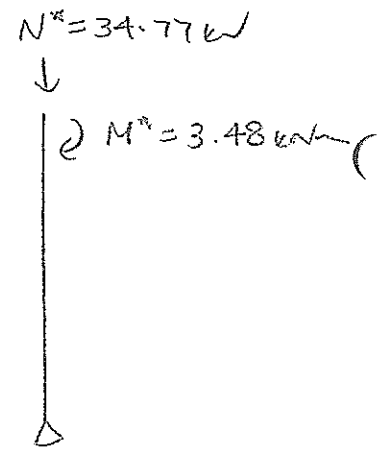
 Mace Engineering Services Pty Ltd	6 Lennon Street CLARE SA 5453 P.O. Box 728, CLARE SA 5453	Job No: 9597	Page: 5
	Tel. (08) 88421242 Fax (08) 88421222 ABN 38 073 733 874 Email admin@maceeng.com.au	Project: Coastal Living - Pt Vincent Caravan Park	
		Date: 29/3/16	Design: MCV

Tiedown Piers TP - Roof area = $(2.46 + 5.59) \times 2.67$
 $= 21.50 \text{m}^2$
 Floor area = 2.25m^2
 * See pg 6 for loads & combinations

Serviceability



Strength



Steel 41 - For 100x100x8 EA

Input	Results	Load factors
$M^* = 3.48$	$\phi M_{sx} = 12.59$	Section = 2.80
$N^* = 34.77$	$\phi M_{bx} = 12.59$	Member = 2.617
$V^* = 15$	$\phi V_{vy} = 145.6$	Shear = 9.708
$d_{m1} = 1.75$	$\phi N_s = 432.0$	
$\beta_m = -1$	$\phi N_{ex} = 398.0$	
$l_e = 1.0$	$\phi N_{ey} = 329.4$	

→ Adopt 100x100x8 EA for tiedown pier anchor ←



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Pt Vincent TP 9597

Load Calculations

		Wind Pressures	
Floor Area	2.25	Ultimate	1.5
Roof Area	21.50	Serviceability	0.68

Load (kPa)		Area (m ^2)	Resultant (kN)
-------------------	--	--------------------	-----------------------

Dead Loads

Roof	0.40	21.50	8.60
Deck	0.65	2.25	1.46
Self	0.1	0	0.10
		Sum DL	10.16

Live Load

0.20	0.25	21.50	5.38
Deck	2.00	2.25	4.50
			9.88

Wind Loading

Ultimate Wind			
Up	1.65	21.50	35.48
Down	1.05	21.50	22.58

Serv Wind

Up	0.75	21.50	16.08
Down	0.48	21.50	10.23

Additional Loads	Box Gutter		0
-------------------------	-------------------	--	----------


Load Combinations

Serviceability

DL + 0.7LL	17.08
DL + Ws Down	20.40
0.9DL - Ws Up	-8.34

Strength

1.2DL + 1.5LL	27.01
1.2DL + Wu Down	34.77
0.9DL - Wu Up	-27.74

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		Project: Coastal Living - Pt Vincent Caravan Park	
		Date: 29/3/16	Design: MCV

Tiedown Pier Footings TP

$$N_s \downarrow = 5.22 \text{ kN}$$

$$N^* \uparrow = 27.74 \text{ kN}$$

Allowable bearing pressure = 100 kPa

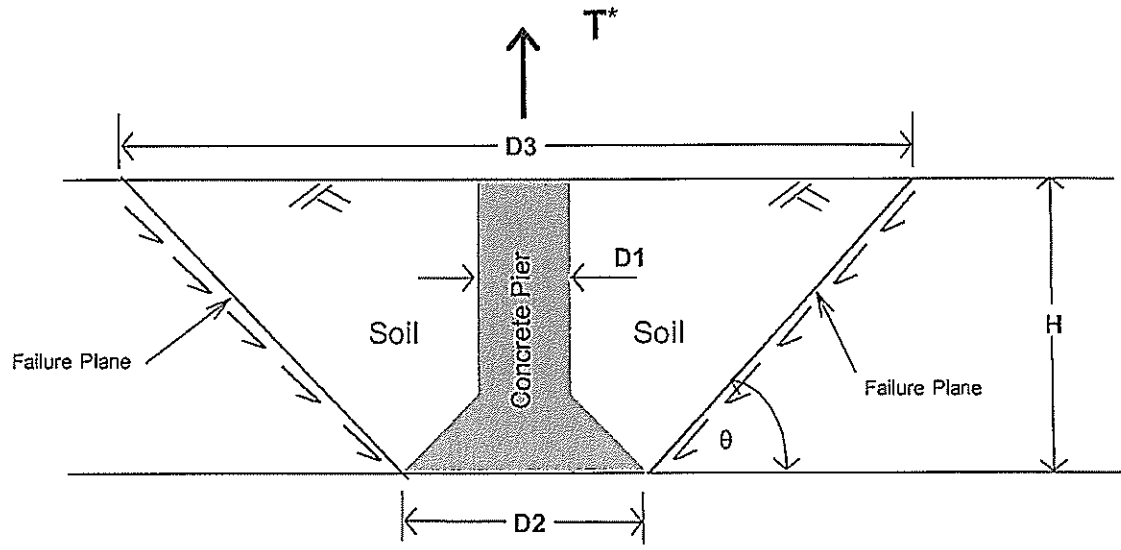
$$p = \frac{F}{A} \therefore A_{req} = \frac{5.22}{100} = 0.0522 \text{ m}^2$$

For 450 ϕ bored pier $A = 0.159 \text{ m}^2$ - OK.

* See pg 8 for uplift resistance

→ Adopt 450mm ϕ x 1100mm deep for tiedown piers TP ←

UNDER-REAMED PIER --- UPLIFT RESISTANCE



MODEL GEOMETRY


INPUT DATA

Ultimate uplift load	T^*	27.74	kN
Concrete unit weight	γ_c	24.0	kN/m ³
Soil unit weight	γ_s	18.0	kN/m ³
Soil failure plane angle	θ	45	degrees
Shaft diameter	D1	450	mm
Under-ream diameter	D2	450	mm
Soil failure diameter	D3	2650	mm
Depth of pier	H	1100	mm

RESULTS

Weight of concrete	W_c	4.20	kN
Weight of soil	W_s	40.02	kN
Total weight	W_T	44.22	kN
Uplift resistance	ϕW_T	35.37	kN
Factor of safety	F_s	1.28	O.K.

**ADOPT : 450 DIAMETER x 1100 DEEP CONCRETE PIER
 UNDER-REAM 450 mm AT BASE**

	Mace Engineering Services Pty Ltd	6 Lennon Street CLARE SA 5453 P.O. Box 728, CLARE SA 5453 Tel. (08) 88421242 Fax (08) 88421222 ABN 38 073 733 874 Email admin@maceeng.com.au	Job No: 9597	Page: 9
	Project: Coastal Living - Pt Vincent Caravan			
	Date: 29/7/16	Design: MCV	Checked: Jim	

Stamp Sizes

Internal stamps supporting floor load only

$$\text{Floor area} = 2.41 \times 2.55 \\ = 6.14 \text{ m}^2$$

Load (kPa)	Area (m ²)	Resultant (kN)
DL-floor = 0.65	6.14	3.99
CL = 1.5	6.14	9.21

Load combination

$$\text{Serviceability} = \text{DL} + 0.5\text{UL} \\ = 8.60 \text{ kN}$$

Allowable bearing pressure = 100 kPa

$$P = \frac{F}{A} \therefore A_{\text{req}} = \frac{8.60}{100} = 0.086 \text{ m}^2$$

For 300 x 300 concrete block bearing pad $A = 0.09 \text{ m}^2$ - OK

External Stumps - Supporting roof + floor

Family Bed / Bed 3
 - RLW = 5.59
 - FLW = 0.86 m
 - Spacing = 2.63 m

* See pg 10 for loads & combinations

$$N_s \downarrow = 11.79$$

Allowable bearing pressure = 100 kPa

$$P = \frac{F}{A} \therefore A_{\text{req}} = \frac{11.79}{100} = 0.12 \text{ m}^2$$

For 300 x 300 pad, $A = 0.09 \text{ m}^2$ - Not sufficient

For 400 x 400 pad $A = 0.16 \text{ m}^2$ - OK



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Services Pty Ltd

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JM

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External Bearing Pads

Family Best / Bed 3

Load Calculations

		Wind Pressures		N3 Class
Floor Area	2.26	Ultimate		1.5
Roof Area	14.70	Serviceability		0.61
Load (kPa)		Area (m ^2)		Resultant (kN)
Dead Loads				
Roof	0.40	14.70		5.88
Floor	0.65	2.26		1.47
Walls	0.4	2.26		0.90
		Sum DL		8.25
Live Load				
Roof	0.25	14.70		3.68
Floor	1.50	2.26		3.39
		Sum LL		7.07
Wind Loading				
Ultimate Wind				
Up	1.50	14.70		22.05
Down	0.95	14.70		13.89
Serv Wind				
Up	0.61	14.70		8.97
Down	0.38	14.70		5.65


Load Combinations

Serviceability	kN
DL + 0.5LL	11.79
DL + Ws Down	13.90
0.9DL - Ws Up	-1.54

← Gravity load for bearing calculation

Strength

1.2DL + 1.5LL	20.50
1.2DL + Wu Down	23.80
0.9DL - Wu Up	-14.62

 Mace Engineering Services Pty Ltd	6 Lennon Street CLARE SA 5453 P.O. Box 728, CLARE SA 5453	Job No: 9597	Page: 11
	Tel. (08) 88421242 Fax (08) 88421222 ABN 38 073 733 874 Email admin@maceeng.com.au	Project: Coastal Living - Pt Vincent Caravan	
		Date: 29/7/16	Design: MCV

Stumps under internal load bearing wall - RLW = 8.05 m
- FLW = 2.36
- max spacing = 1.93 m

* See pg 12 for loads & combinations

$$N_s \downarrow (\text{gravity loads}) = 15.35 \text{ kN}$$

$$p = \frac{F}{A} \therefore A_{req} = \frac{15.35}{100} = 0.153 \text{ m}^2$$

For 400 x 400 bearing pad $A = 0.16 \text{ m}^2$ - OK

Stumps under Bed 1 External wall - RLW = 2.91 m
- FLW = 1.83 m
- Spacing = 2.55

* See pg 13 for loads & combinations

$$p = \frac{F}{A} \therefore A_{req} = \frac{9.74}{100} = 0.097 \text{ m}^2$$

For 400 x 400 bearing pad $A = 0.16 \text{ m}^2$ - OK



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Jan

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Internal Load Bearing Wall Bearing Pads

Load Calculations

		Wind Pressures		N3 Class
Floor Area	4.55	Ultimate		1.5
Roof Area	20.53	Serviceability		0.61
Load (kPa)		Area (m ^2)		Resultant (kN)
Dead Loads				
Roof	0.40	20.53		8.21
Floor	0.65	4.55		2.96
Walls	0.4	1.93		0.77
			Sum DL	11.94
Live Load				
Floor	1.50	4.55		6.83
			Sum LL	6.83
Wind Loading				
Ultimate Wind				
Up	1.50	20.53		30.80
Down	0.95	20.53		19.40
Serv Wind				
Up	0.61	20.53		12.52
Down	0.38	20.53		7.89

Load Combinations

Serviceability	kN
DL + 0.5LL	15.35
DL + Ws Down	19.83
0.9DL - Ws Up	-1.78

← Gravity load for bearing calculation

Strength	
1.2DL + 1.5LL	24.57
1.2DL + Wu Down	33.73
0.9DL - Wu Up	-20.05



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Bed 1 External Wall Bearing pads

Load Calculations

		Wind Pressures		N3 Class
Floor Area	4.67	Ultimate		1.5
Roof Area	5.46	Serviceability		0.61
Load (kPa)		Area (m ^2)	Resultant (kN)	
Dead Loads				
Roof	0.40	5.46	2.18	
Floor	0.65	4.67	3.04	
Walls	0.4	2.55	1.02	
			Sum DL	6.24
Live Load				
Floor	1.50	4.67	7.01	
			Sum LL	7.01
Wind Loading				
Ultimate Wind				
Up	1.50	5.46	8.19	
Down	0.95	5.46	5.16	
Serv Wind				
Up	0.61	5.46	3.33	
Down	0.38	5.46	2.10	

Load Combinations

Serviceability	kN	
DL + 0.5LL	9.74	<i>Gravity load for bearing calculation</i>
DL + Ws Down	8.34	
0.9DL - Ws Up	2.28	
Strength		
1.2DL + 1.5LL	17.99	
1.2DL + Wu Down	12.65	
0.9DL - Wu Up	-2.57	



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GENERAL NOTES FOR STRUCTURAL CALCULATIONS

1. These Structural Calculations are to be read in conjunction with associated Architect's Drawings, Footing Construction Report and Engineer's Detail Drawings.
2. Refer to the Architect's Drawings for all setting out dimensions.
All dimensions shall be verified on site prior to fabrication commencing.
All figures and dimensions shown on drawings take precedence over scaling.
3. The attached calculations have been undertaken in accordance with the Building Code of Australia and relevant Australian Standards for the structural components as discussed with you/ and your Architect/ Builder. Any additional design work required will be charged at our normal hourly rate.
4. Any discrepancies between drawings, specifications and/or site conditions shall be reported to the Engineer for resolution before work proceeds.
5. Variations, additions or deletions to the design shall only be made upon a written design amendment being issued by the Engineer.
6. During the Council approval process, Councils/ and or/ Council's Private Certifier may require additional design details. If this additional work is on components previously designed there will be no further charge, however for new design work this will be charged at our normal hourly rate.
7. Any changes to building layout including span, spacing, locations of supports to be reported to Mace Engineering as re-design may be required.
8. Strict adherence to all design details, especially member sizes, connections and reinforcement are mandatory.
9. Temporary erection bracing, propping, formwork and/or falsework shall be provided to ensure stability during construction and to prevent overstressing of members and connections. This shall be the Builder's responsibility unless otherwise contracted.
10. Contact M.E.S if any questions or difficulties arise during construction.
11. It is recommended that an Engineer from this office inspect all steelwork after erection, and all concrete reinforcing steel prior to the placement of concrete. An additional fee will be charged for all inspections at the standard rate applicable at the time of inspection. Twenty four hours notice is required for all inspections.

12. All work shall be completed in a workmanlike manner and shall comply with current best practice, the Building Code of Australia and relevant Australian Standards and Codes of Practice. Including but not limited to:-

AS 1170.0 – 2002, AS1170.1-2002, AS1170.2-2011, AS1170.4-2007
Structural Design Actions Series.

AS 4100 – 1998 – Steel Structures Code.

AS 1554 – 2011 – Structural Steel Welding.

AS 1720 – 2010 – Timber Structures Code.

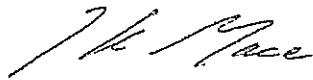
AS 1684 – 2010 – Residential Timber Framed Construction.

AS 4600 – 2005 – Cold Formed Steel Structures Code.

AS 3600 – 2009 – Concrete Structures Code.

AS 3700 – 2011 – Masonry Code.

(and other associated Codes and Standards nominated therein)



T. K. Mace MIEAust, CPEng
DIRECTOR



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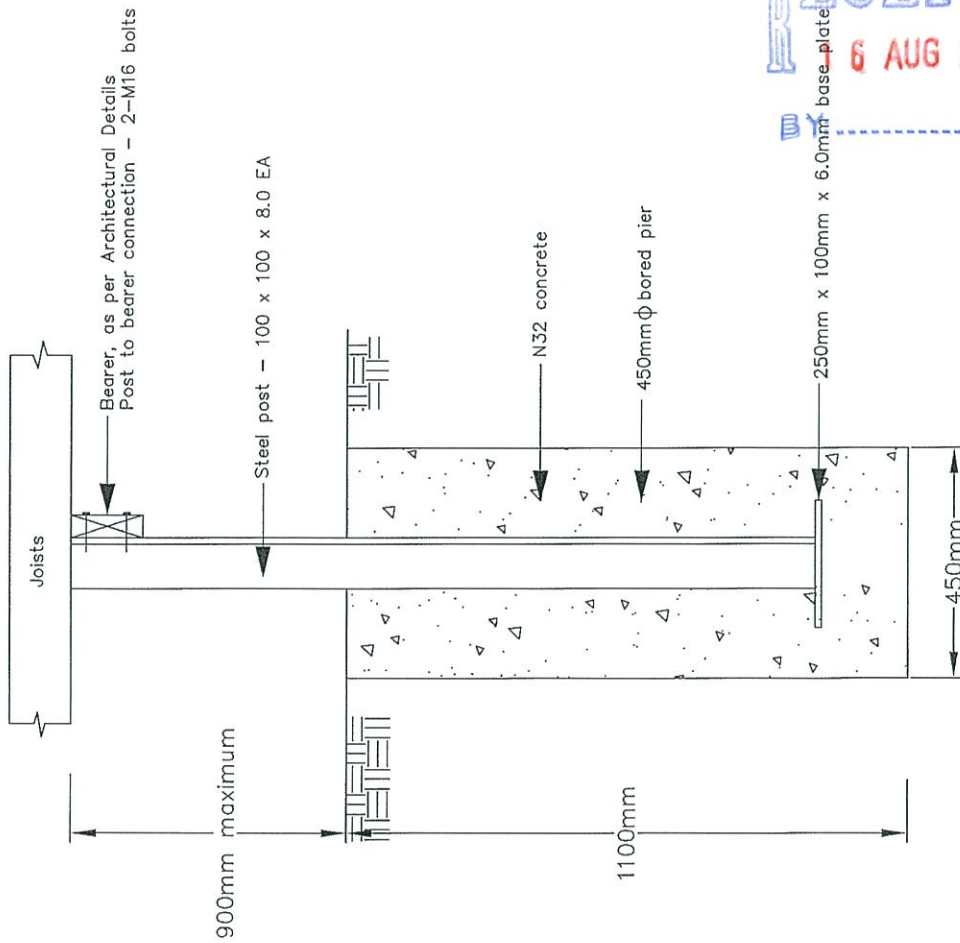
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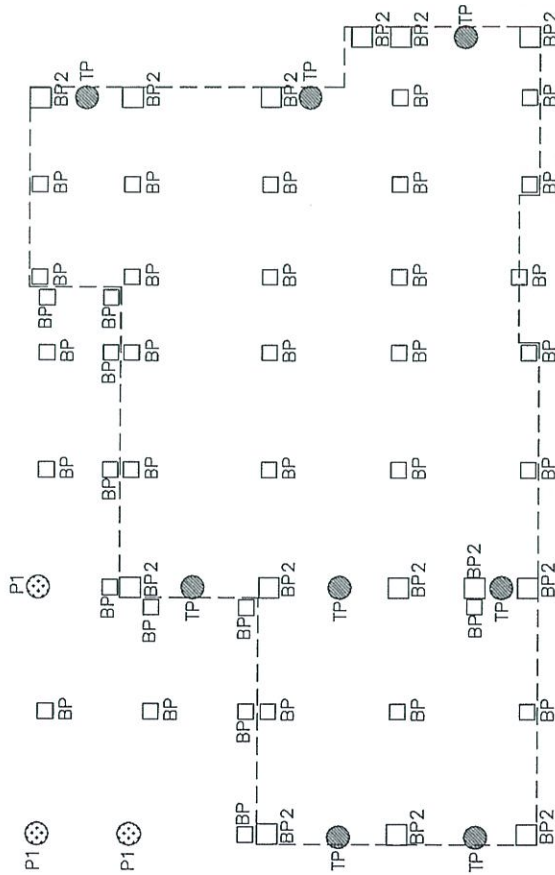
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PROTECTIVE COATINGS FOR STEELWORK

LOCATION	SURFACE PREPARATION	MINIMUM PROTECTIVE COATING
INTERNAL Dry, no fumes.	Hand or power tool clean to a Class 1 surface to AS 1627	35 µm zinc phosphate primer
	Hot dip galvanise 100 g/m ²	None
EXTERNAL More than 1 km from coast	Hand or power tool clean to a Class 1 surface	2 coats alkyl primer at 35 to 50 µm each coat. 2 coats alkyl gloss at 35 to 50 µm each coat.
	Hot dip galvanise 300 g/m ² (min)	None
	Hot dip galvanise 100 g/m ² (min)	1 coat solvent based vinyl primer at 35 to 50 µm. 1 coat vinyl or alkyl gloss at 40 to 50 µm.
EXTERNAL Within 1 km from coast.	Abrasive blast to a Class 2.5 surface to AS1627.	75 µm inorganic zinc primer. 140 to 175 µm of finishing coats to manufacturers' instructions.
	Hot dip galvanise 300 g/m ² (min)	75 to 100 µm of finishing coats to manufacturers' instructions.
	Hot dip galvanise 100 g/m ² (min)	125 to 200 µm of finishing coats to manufacturers' instructions.
<ol style="list-style-type: none"> For pre-primed hollow sections, degrease, wash and dry only, and then apply recommended minimum protective coating. Internal surfaces of hollow sections which are not hermetically sealed must also be protected. (Bolts in holes and slip on cap plates do not hermetically seal hollow sections). The protective coatings specified in the table assume normal exposure conditions. Where more aggressive conditions apply further protective treatments will be required. Refer to paint manufacturer. All zinc coatings (including inorganic zinc) require a barrier coat to stop conventional domestic enamels from peeling. Refer to the paint manufacturer where decorative finishes are required on top of the minimum coating specified in the table for protection of the steel against corrosion. 		



TIEDOWN PIER DETAIL
Scale 1:10



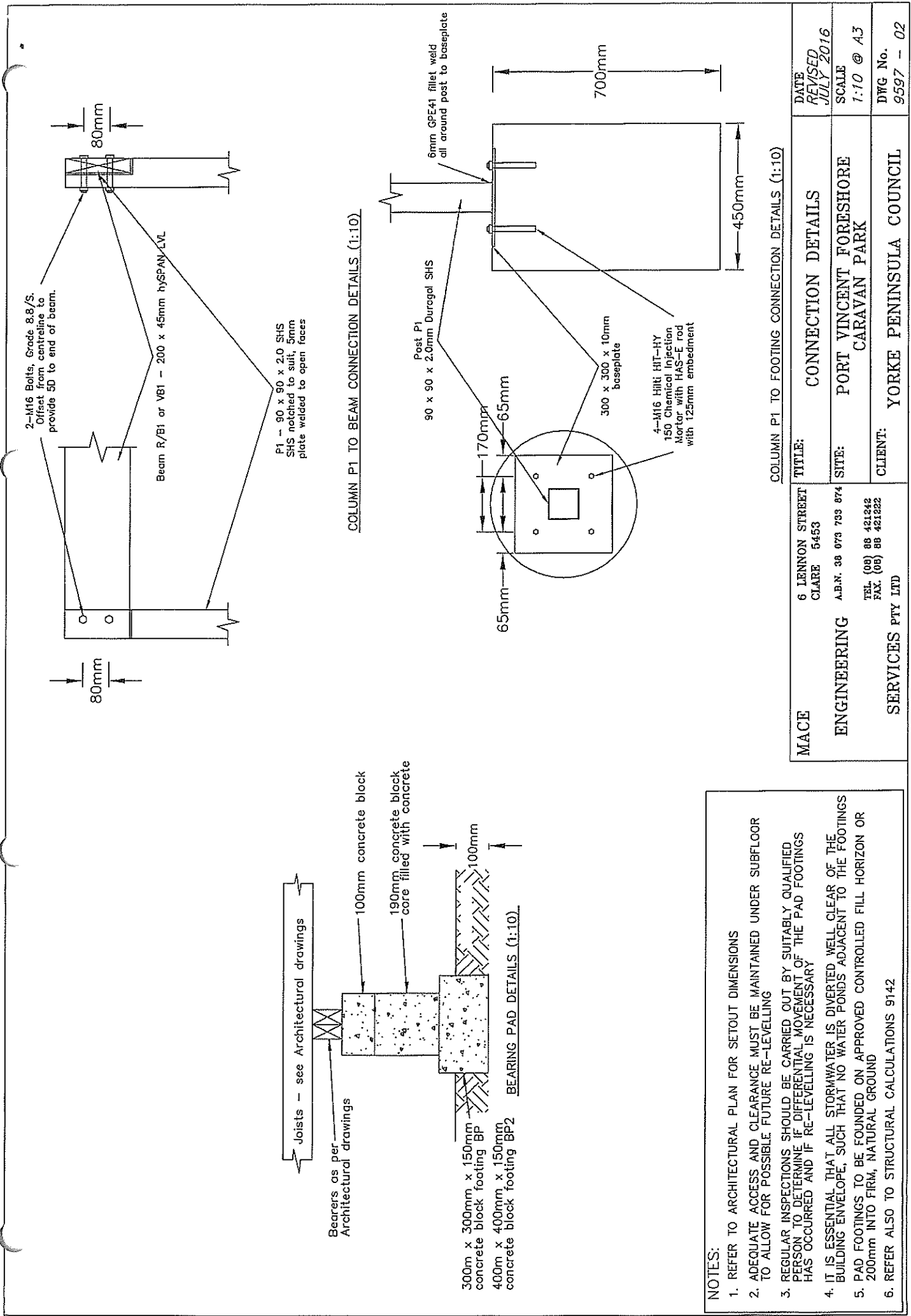
FOOTING LAYOUT
Scale 1:100

- P1 - Denotes 450mm diameter x 700mm deep bored pier
- TP - Denotes 450mm diameter x 1100mm deep tiedown pier
- BP - Denotes 300 x 300 x 150mm concrete block bearing pad
- BP2 - Denotes 400 x 400 x 150mm concrete block bearing pad

NOTES:

1. REFER TO ARCHITECTURAL PLAN FOR SETOUT DIMENSIONS
2. ADEQUATE ACCESS AND CLEARANCE MUST BE MAINTAINED UNDER SUBFLOOR TO ALLOW FOR POSSIBLE FUTURE RE-LEVELLING
3. REGULAR INSPECTIONS SHOULD BE CARRIED OUT BY SUITABLY QUALIFIED PERSON TO DETERMINE IF DIFFERENTIAL MOVEMENT OF THE PAD FOOTINGS HAS OCCURRED AND IF RE-LEVELLING IS NECESSARY
4. IT IS ESSENTIAL THAT ALL STORMWATER IS DIVERTED WELL CLEAR OF THE BUILDING ENVELOPE, SUCH THAT NO WATER PONDS ADJACENT TO THE FOOTINGS
5. PAD FOOTINGS TO BE FOUNDED ON APPROVED CONTROLLED FILL HORIZON OR 200mm INTO FIRM, NATURAL GROUND
6. REFER ALSO TO STRUCTURAL CALCULATIONS 9597

MACE	6 LENNON STREET CLARE 5453	ENGINEERING	FOOTING LAYOUT PLAN	DATE REVISED JULY 2016
	A.B.N. 38 073 733 874	PORT VINCENT FORESHORE CARAVAN PARK		SCALE @ A3 1:100, 1:10
	TEL. (08) 88 421242 FAX. (08) 88 421222	CLIENT:	YORKE PENINSULA COUNCIL	DWG No. 9597 - 01
SERVICES PTY LTD				



2-M16 Bolts, Grade 8.8/S.
Offset from centreline to
provide 5D to end of beam.

Beam R/B1 or VB1 - 200 x 45mm hySPAN-LVL

P1 - 90 x 90 x 2.0 SHS
SHS notched to suit, 5mm
plate welded to open faces

COLUMN P1 TO BEAM CONNECTION DETAILS (1:10)

Post P1
90 x 90 x 2.0mm Duragal SHS

6mm GPE41 fillet weld
all around post to baseplate

300 x 300 x 10mm
baseplate

4-M16 Hilti HIT-HY
150 Chemical Injection
Mortar with HAS-E rod
with 125mm embedment

Joists - see Architectural drawings

Bearers as per
Architectural drawings

100mm concrete block

190mm concrete block
core filled with concrete

300mm x 300mm x 150mm
concrete block footing BP

400mm x 400mm x 150mm
concrete block footing BP2

BEARING PAD DETAILS (1:10)

NOTES:

1. REFER TO ARCHITECTURAL PLAN FOR SETOUT DIMENSIONS
2. ADEQUATE ACCESS AND CLEARANCE MUST BE MAINTAINED UNDER SUBFLOOR TO ALLOW FOR POSSIBLE FUTURE RE-LEVELLING
3. REGULAR INSPECTIONS SHOULD BE CARRIED OUT BY SUITABLY QUALIFIED PERSON TO DETERMINE IF DIFFERENTIAL MOVEMENT OF THE PAD FOOTINGS HAS OCCURRED AND IF RE-LEVELLING IS NECESSARY
4. IT IS ESSENTIAL THAT ALL STORMWATER IS DIVERTED WELL CLEAR OF THE BUILDING ENVELOPE, SUCH THAT NO WATER PONDS ADJACENT TO THE FOOTINGS
5. PAD FOOTINGS TO BE FOUNDED ON APPROVED CONTROLLED FILL HORIZON OR 200mm INTO FIRM, NATURAL GROUND
6. REFER ALSO TO STRUCTURAL CALCULATIONS 9142

COLUMN P1 TO FOOTING CONNECTION DETAILS (1:10)

MACE	6 LENNON STREET CLARE 5453	CONNECTION DETAILS	DATE REVISED JULY 2016
ENGINEERING	A.B.N. 38 073 733 974	PORT VINCENT FORESHORE CARAVAN PARK	SCALE 1:10 @ A3
SERVICES PTY LTD	TEL: (08) 88 421242 FAX: (08) 88 421222	CLIENT: YORKE PENINSULA COUNCIL	DWG No. 9597 - 02

DESIGN CERTIFICATE

designIT for houses Australia has been developed by experienced timber engineers to assist designers in selecting appropriate sizes of structural laminated veneer lumber products manufactured by Carter Holt Harvey (including hySPAN, hySPAN+, hyJOIST and hyCHORD) and other generic stress grades of timber, to be used as structural elements for the construction of buildings that fall within the scope of the AS1684 series.

The member specifications given by designIT are certified by Carter Holt Harvey as valid for the member type and design inputs specified and for installation in accordance with the specific requirements referenced in the Member Design Details, information published by Carter Holt Harvey and framing requirements specified in AS 1684.2 or AS 1684.3, as appropriate. The accuracy of the member specifications produced by designIT in relation to third party products depends on the accuracy, completeness and currency of the information provided to Carter Holt Harvey in relation to the third party products. CHH does not independently verify the accuracy, completeness and currency of the information about third party products. The user must verify the accuracy, completeness and currency of information in relation to third party products, if the user decides to specify third party products following use of designIT.

designIT relies on the accurate input of span and loading information by the user. CHH is not liable for any failure of the software to give accurate product specifications and sizing where the user does not have sufficient understanding of these standards or common building practice and / or where the user fails to correctly input all of the relevant information required by the software to produce such results.

Carter Holt Harvey further certifies that the structural design methodology used in designIT complies with the requirements of the following design standards.

1. AS/NZS 1170.0 - 2002 Structural design actions, Part 0: General principles.
2. AS/NZS 1170.1 - 2002 Structural design actions, Part 1: Permanent, imposed and other actions.
3. AS/NZS 1170.2 - 2011 Structural design actions, Part 2: Wind actions.
4. AS/NZS 1170.3 - 2003 Structural design actions, Part 3: Snow and ice actions.
5. AS 1720.1-2010 Timber Structures, Part 1: Design methods.

References for design

1. AS 1684.1-1999 Residential timber-framed construction, Part 1: Design criteria.
2. AS 4055-2006 Wind loads for housing.

Other references

1. AS 1684.2-2010 Residential timber-framed construction, Part 2: Non-cyclonic areas.
2. AS 1684.3-2010 Residential timber-framed construction, Part 3: Cyclonic areas.

This Design Certificate, and any associated warranty/certification, is void where there has been substitution of alternate products not detailed within the Member Specification.

Version date: 20 June 2016

For further information or advice contact: Carter Holt Harvey Woodproducts Australia
22 Prospect St, Box Hill, Victoria, 3128.
Free call 1800 808 131
Facsimile (03) 9258 7613
Email: designitaust@chhwoodproducts.com.au

Specifier details:

Specifier:	Gavin Keough	
Business name:	Coastal Living By Design	
Address:	128 Commercial Rd. Pt Adelaide SA 5015	
Email:	projects@clbdesign.com.au	
Phone:	Mobile: 0409757252	Facsimile:

Project & Site details:

Project:	New Class 1B Building	Ref. no.:
At (address):	Pt Vincent Foreshore Caravan Park	
For (owner/s):	Y.P District Council	
Wind classification:	N3	

MEMBER DESIGN DETAILS

Member 1

- | | |
|--------------------------------|---|
| 1) Member code and description | B1 - Bearer - Supporting single or upper storey external load bearing walls |
| 2) Date prepared | 14/03/2016 |
| 3) Serviceability criteria | AS 1720.1-2010 and AS 1684.1-1999 |
| 4) Design inputs | |

Span	2.6 m - continuous
Floor load width 'FLW'	2.5 m
Roof load width 'RLW'	8.5 m
Roof type and mass	Sheet roof & ceiling - 40 kg/m ²
Floor dead load	40 kg/m ²
Floor live load	1.5 kPa/1.8 kN
Wall mass and height	To AS1684

5) Member specification

Size, stress grade/product	Use 2/150 x 63 hySPAN
Material type	Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	8.7 mm	6.7 mm (long term)	1.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-8.3	-27.7
1.2G + 1.5Q	0.80	-11.4	-38.1
1.2G + 1.5Q	0.94	-8.6	-22.5
1.2G + $W_U + \psi_C Q$	1.00	-14.4	-47.9
0.9G + W_U	1.00	8.1	27.1

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Provide at least 30 mm bearing at end supports
Provide at least 45 mm bearing at internal supports
Nail lamination in accordance with Detail H1.

Member 2

1) Member code and description

B2 - Bearer - Supporting single or upper storey external load bearing walls

2) Date prepared

14/03/2016

3) Serviceability criteria

AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	2.7 m - continuous
Floor load width 'FLW'	1.0 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Sheet roof & ceiling - 40 kg/m ²
Floor dead load	40 kg/m ²
Floor live load	1.5 kPa/1.8 kN
Wall mass and height	To AS1684

5) Member specification

Size, stress grade/product	Use 2/150 x 45 hySPAN
Material type	Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	9.0 mm	6.5 mm (long term)	1.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-5.2	-17.4
1.2G + 1.5Q	0.80	-6.3	-21.0
1.2G + 1.5Q	0.94	-6.7	-16.1
1.2G + $W_U + \psi_C Q$	1.00	-9.7	-32.4
0.9G + W_U	1.00	6.6	21.8

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Provide at least 30 mm bearing at end supports
Provide at least 45 mm bearing at internal supports
Nail lamination in accordance with Detail H1.

Member 3

1) Member code and description B3 - Bearer - Supporting single or upper storey external load bearing walls

2) Date prepared 14/03/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span 2.6 m - continuous
Floor load width 'FLW' 1.3 m
Roof load width 'RLW' 3.0 m
Roof type and mass Sheet roof & ceiling - 40 kg/m²
Floor dead load 40 kg/m²
Floor live load 1.5 kPa/1.8 kN
Wall mass and height To AS1684

5) Member specification

Size, stress grade/product Use 150 x 63 hySPAN
Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	8.7 mm	6.1 mm (long term)	1.4

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN

1.35G	0.57	-3.8	-12.6
1.2G + 1.5Q	0.80	-5.5	-18.2
1.2G + 1.5Q	0.94	-5.3	-11.4
1.2G + W _U + Ψ _C Q	1.00	-5.8	-19.4
0.9G + W _U	1.00	2.3	7.7

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements Provide at least 30 mm bearing at end supports
Provide at least 45 mm bearing at internal supports

Member 4

- 1) Member code and description B4 - Bearer - Supporting floor loads only
- 2) Date prepared 14/03/2016
- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999
- 4) Design inputs
- | | |
|------------------------|----------------------|
| Span | 2.7 m - continuous |
| Floor load width 'FLW' | 2.5 m |
| Floor dead load | 40 kg/m ² |
| Floor live load | 1.5 kPa/1.8 kN |

5) Member specification

- | | |
|----------------------------|---|
| Size, stress grade/product | Use 150 x 63 hySPAN |
| Material type | Structural Laminated Veneer Lumber to AS/NZS 4357 |

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G+Ψ _L Q	9.0 mm	6.1 mm (long term)	1.5
Live load - Ψ _S Q *	7.5 mm	6.1 mm	1.2

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k ₁ ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-3.4	-11.2
1.2G + 1.5Q	0.80	-7.2	-23.9
1.2G + 1.5Q	0.94	-4.2	-7.6

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements Provide at least 30 mm bearing at end supports
Provide at least 45 mm bearing at internal supports

Member 5

- 1) Member code and description B5 - Bearer - Supporting single or upper storey external load bearing walls
- 2) Date prepared 9/09/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span 2.6 m - continuous
 Floor load width 'FLW' 2.0 m
 Roof load width 'RLW' 6.0 m
 Roof type and mass Sheet roof & ceiling - 40 kg/m²
 Floor dead load 40 kg/m²
 Floor live load 1.5 kPa/1.8 kN
 Wall mass and height To AS1684

5) Member specification

Size, stress grade/product Use 150 x 75 hySPAN
 Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	8.7 mm	8.5 mm (long term)	1.0

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-6.3	-20.9
1.2G + 1.5Q	0.80	-8.8	-29.3
1.2G + 1.5Q	0.94	-7.1	-17.4
1.2G + $W_U + \psi_C Q$	1.00	-10.5	-35.0
0.9G + W_U	1.00	5.5	18.2

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Provide at least 30 mm bearing at end supports
 Provide at least 45 mm bearing at internal supports

Member 6

1) Member code and description B6 - Bearer - Supporting floor loads only

2) Date prepared 4/08/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span 1.6 m - single
 Floor load width 'FLW' 2.0 m
 Floor dead load 40 kg/m²
 Floor live load 1.5 kPa/1.8 kN

5) Member specification

Size, stress grade/product Use 2/120 x 35 F7
 Material type Seasoned softwood to AS 2858
 Strength Group SD6 (verify for species)
 Assumed design density < 550 kg/m³

refer AS 1720
 refer AS 1720

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	5.3 mm	4.2 mm (long term)	1.3
*Critical serviceability load case			
See 'Notes for interpretation of serviceability data' at the end of this report			

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴	Internal/intermediate
1.35G	0.57	-2.1	
1.2G + 1.5Q	0.80	-4.5	
1.2G + 1.5Q	0.94	-3.6	

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Provide at least 30 mm bearing at end supports
Nail lamination required - refer AS 1684

Member 7

1) Member code and description

DB 1 - Bearer - Supporting floor loads only

2) Date prepared

15/03/2016

3) Serviceability criteria

AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	2.3 m - continuous
Floor load width 'FLW'	2.5 m
Floor dead load	40 kg/m ²
Floor live load	1.5 kPa/1.8 kN

5) Member specification

Size, stress grade/product	Use 2/190 x 35 F7	
Material type	Seasoned softwood to AS 2858	
Strength Group	SD6 (verify for species)	refer AS 1720
Assumed design density	< 550 kg/m ³	refer AS 1720

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$	7.7 mm	2.4 mm (long term)	3.2
Live load - $\psi_S Q$ *	6.4 mm	2.4 mm	2.7
*Critical serviceability load case			
See 'Notes for interpretation of serviceability data' at the end of this report			

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴	Internal/intermediate
		kN	kN

1.35G	0.57	-2.9	-9.6
1.2G + 1.5Q	0.80	-6.1	-20.4
1.2G + 1.5Q	0.94	-4.0	-6.9

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Provide at least 30 mm bearing at end supports
 - Provide at least 45 mm bearing at internal supports
 - Nail lamination required - refer AS 1684

Member 8

1) Member code and description FJ1 - Floor joist - Supporting floor loads only

2) Date prepared 14/03/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	2.5 m - continuous
Joist spacing	450 mm
Floor dead load	40 kg/m ²
Floor live load	1.5 kPa/1.8 kN

5) Member specification

Size, stress grade/product	Use 130 x 35 hySPAN
Material type	Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G+ψ _L Q	8.3 mm	2.2 mm (long term)	3.9
Floor flexibility *	2.0 mm per 1 kN	1.5 mm	1.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k ₁ ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-0.5	-1.8
1.2G + 1.5Q	0.80	-1.2	-3.9
1.2G + 1.5Q	0.94	-2.9	-3.5

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Provide at least 30 mm bearing at end supports
 - Provide at least 45 mm bearing at internal supports
 - Bearing requirements for joists supporting load bearing walls may be greater - refer published literature/ Floor joist calculator for guidance

Member 9

1) Member code and description FJ2 - Floor joist - Supporting floor loads only

2) Date prepared 15/03/2016
3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span 2.2 m - continuous
Joist spacing 450 mm
Floor dead load 40 kg/m²
Floor live load 1.5 kPa/1.8 kN

5) Member specification

Size, stress grade/product Use 120 x 45 F7
Material type Seasoned softwood to AS 2858
Strength Group SD6 (verify for species) refer AS 1720
Assumed design density < 550 kg/m³ refer AS 1720

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \Psi_L Q$	7.3 mm	2.2 mm (long term)	3.4
Floor flexibility *	2.0 mm per 1 kN	1.7 mm	1.2

*Critical serviceability load case
See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k ₁ ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-0.5	-1.6
1.2G + 1.5Q	0.80	-1.0	-3.5
1.2G + 1.5Q	0.94	-2.9	-3.4

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements Provide at least 30 mm bearing at end supports
Provide at least 45 mm bearing at internal supports

Member 10

1) Member code and description FJ3 - Floor joist - Supporting floor loads only

2) Date prepared 17/06/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span 1.9 m - continuous
Joist spacing 450 mm
Floor dead load 100 kg/m²
Floor live load 1.5 kPa/1.8 kN

5) Member specification

Size, stress grade/product Use 90 x 45 hySPAN
Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$	6.3 mm	3.4 mm (long term)	1.9
Floor flexibility *	2.0 mm per 1 kN	1.6 mm	1.2

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Internal/intermediate kN
1.35G	0.57	-0.7	-2.2
1.2G + 1.5Q	0.80	-1.1	-3.8
1.2G + 1.5Q	0.94	-3.1	-4.1

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Provide at least 30 mm bearing at end supports

Provide at least 45 mm bearing at internal supports

Bearing requirements for joists supporting load bearing walls may be greater - refer published literature/ Floor joist calculator for guidance

Member 11

1) Member code and description

FJ4 - Floor joist - Supporting floor loads only

2) Date prepared

18/06/2016

3) Serviceability criteria

AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	2.5 m - continuous
Joist spacing	360 mm
Floor dead load	40 kg/m ²
Floor live load	2.0 kPa/1.8 kN

5) Member specification

Size, stress grade/product	Use 120 x 35 F7	
Material type	Seasoned softwood to AS 2858	
Strength Group	SD6 (verify for species)	refer AS 1720
Assumed design density	< 550 kg/m ³	refer AS 1720

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$	8.3 mm	4.8 mm (long term)	1.7
Floor flexibility *	2.0 mm per 1 kN	1.9 mm	1.0

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

	Limit states design reaction ^{2,3}		Internal/

Load case	k_1^1	End ⁴ kN	intermediate kN
1.35G	0.57	-0.6	-1.9
1.2G + 1.5Q	0.80	-1.2	-4.0
1.2G + 1.5Q	0.94	-2.9	-3.3

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Provide at least 30 mm bearing at end supports
 - Provide at least 45 mm bearing at internal supports

Member 12

- 1) Member code and description S1 - Studs - In single or upper storey load bearing walls

- 2) Date prepared 14/03/2016

- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Stud height	2550 mm
Stud spacing	600 mm
Roof type and mass	Sheet roof & ceiling - 40 kg/m ²
Roof load width 'RLW'	8.5 m
Rafter or truss spacing	1200 mm

5) Member specification

Size, stress grade/product	Use 90 x 35 MGP10 Laserframe
Material type	Seasoned softwood to AS 1748

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Wind load - W_s^*	17.0 mm	3.6 mm	4.7

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1^1	Limit states design reaction ^{2,3}	
		End ⁴ kN	Horizontal kN
1.35G	0.57	-5.5	
1.2G + 1.5Q	0.80	-8.7	
1.2G + W_U + $\Psi_C Q$	1.00	-13.5	1.1
0.9G + W_U	1.00	9.8	0.9

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Wall studs to be noggged at maximum 1350 mm
 - Notching of wall studs is not permitted.

Member 13

- 1) Member code and description XX35, Jamb studs - In single or upper storey load bearing walls

- 2) Date prepared 14/03/2016
- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Opening width	1900 mm
Stud height	2550 mm
Roof type	Sheet roof and ceiling - 40 kg/m ²
Roof load width 'RLW'	8.5 m

5) Member specification

2/90 x 35 MGP10 Laserframe

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Wind load - W_S^*	17.0 mm	7.4 mm	2.3

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}	
		End ⁴ kN	Horizontal kN
1.35G	0.57	-5.7	
1.2G + 1.5Q	0.80	-9.1	
1.2G + W_U + $\Psi_C Q$	1.00	-14.0	1.8
0.9G + W_U	1.00	10.2	1.4

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Jamb studs to be noggled at maximum 1350 mm
 - Notching of the jamb studs not permitted
 - Multiple sections to be nail laminated as per AS 1684
 - Provide 1 full length stud plus 1 secondary Jamb Stud to Detail H19

Member 14

- 1) Member code and description XX45, Jamb studs - In single or upper storey load bearing walls

- 2) Date prepared 14/03/2016

- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Opening width	3400 mm
Stud height	2550 mm
Roof type	Sheet roof and ceiling - 40 kg/m ²
Roof load width 'RLW'	3.0 m

5) Member specification

2/90 x 45 MGP10 Laserframe

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Wind load - W_S^*	17.0 mm	8.9 mm	1.9
*Critical serviceability load case			
See 'Notes for interpretation of serviceability data' at the end of this report			

7) Reactions

Load case	k_1^1	Limit states design reaction ^{2,3}	
		End ⁴ kN	Horizontal kN
1.35G	0.57	-3.2	
1.2G + 1.5Q	0.80	-5.1	
1.2G + $W_U + \Psi_C Q$	1.00	-7.9	2.7
0.9G + W_U	1.00	5.8	2.2

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements

Jamb studs to be nogged at maximum 1350 mm
Notching of the jamb studs not permitted
Multiple sections to be nail laminated as per AS 1684
Provide 1 full length stud plus 1 secondary Jamb Stud to Detail H19

Member 15

1) Member code and description 3X35, Jamb studs - In single or upper storey load bearing walls

2) Date prepared 14/03/2016

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Opening width 4800 mm
Stud height 2550 mm
Roof type Sheet roof and ceiling - 40 kg/m²
Roof load width 'RLW' 1.5 m

5) Member specification

3/90 x 35 MGP10 Laserframe

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Wind load - W_S^*	17.0 mm	10.1 mm	1.7
*Critical serviceability load case			
See 'Notes for interpretation of serviceability data' at the end of this report			

7) Reactions

Load case	k_1^1	Limit states design reaction ^{2,3}	
		End ⁴ kN	Horizontal kN
1.35G	0.57	-2.2	
1.2G + 1.5Q	0.80	-3.5	
1.2G + $W_U + \Psi_C Q$	1.00	-5.3	3.6
0.9G + W_U	1.00	3.9	2.9

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements
- Jamb studs to be nogged at maximum 1350 mm
 - Notching of the jamb studs not permitted
 - Multiple sections to be nail laminated as per AS 1684
 - Provide 2 full length studs plus 1 secondary Jamb Stud to Detail H19

Member 16

- 1) Member code and description L1 - Lintels - In single or upper storey load bearing walls
- 2) Date prepared 14/03/2016
- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999
- 4) Design inputs
- Span 1.9 m
 - Roof load width 'RLW' 8.5 m
 - Roof type and mass Sheet roof & ceiling - 40 kg/m²

5) Member specification

- Size, stress grade/product Use 200 x 35 hySPAN
- Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$ *	6.3 mm	3.8 mm (long term)	1.7

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1 ¹	Limit states design reaction ^{2,3}
		End ⁴ kN
1.35G	0.57	-5.9
1.2G + 1.5Q	0.94	-9.2
1.2G + W_U + $\psi_C Q$	1.00	-14.2
0.9G + W_U	1.00	13.8

See 'Notes for interpretation of reaction data' at the end of this report

- 8) Installation requirements Provide at least 45 mm bearing at end supports

Member 17

- 1) Member code and description RB1 - Bressumer
- 2) Date prepared 14/03/2016
- 3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999
- 4) Design inputs
- Span 1.8 m - single
 - Roof Load Width 'RLW' 8.5 m

Roof type and mass Sheet roof & ceiling - 40 kg/m²

5) Member specification

Size, stress grade/product Use 200 x 45 hySPAN
Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q^*$	6.0 mm	3.4 mm (long term)	1.8

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	k_1^1	Limit states design reaction ^{2,3}	
		End ⁴ kN	
1.35G	0.57	-6.0	
1.2G + 1.5Q	0.94	-8.2	
1.2G + $W_U + \psi_C Q$	1.00	-11.7	
0.9G + W_U	1.00	8.7	

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements Provide at least 30 mm bearing at end supports

Member 18

1) Member code and description R1 - Common rafters
2) Date prepared 15/03/2016
3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999
4) Design inputs
Span 4.9 m - single
Maximum rafter spacing 1100 mm
Roof mass 10 kg/m²

5) Member specification

Size, stress grade/product Use 290 x 45 F7
Material type Seasoned softwood to AS 2858
Strength Group SD6 (verify for species) refer AS 1720
Assumed design density < 550 kg/m³ refer AS 1720

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q$	16.3 mm	3.8 mm (long term)	4.3
Wind load - W_S^*	32.7 mm	7.7 mm	4.2

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

7) Reactions

Load case	Limit states design reaction ^{2,3}	
	k_1 ¹	End ⁴ kN
1.35G	0.57	-0.6
1.2G + 1.5Q	0.94	-2.3
1.2G + W_U + $\Psi_C Q$	1.00	-2.9
0.9G + W_U	1.00	4.2

See 'Notes for interpretation of reaction data' at the end of this report

8) Installation requirements Minimum bearing - end supports, 30 mm.

Notes for interpretation of serviceability data

- 'average deflection' is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS 1170, AS 1684.1 and AS 1720. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.
- Deflection is the flexural response to load 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

F-grades – visually graded to AS 2082 / AS 2858	Average + 100%
MGP grades - mechanically graded to AS 1748	Average + 43%
GL grades for glulam to AS 1328	Average + 33%
LVL to AS 4357 (includes hySPAN and hyJOIST (LVL flanges))	Average +18%

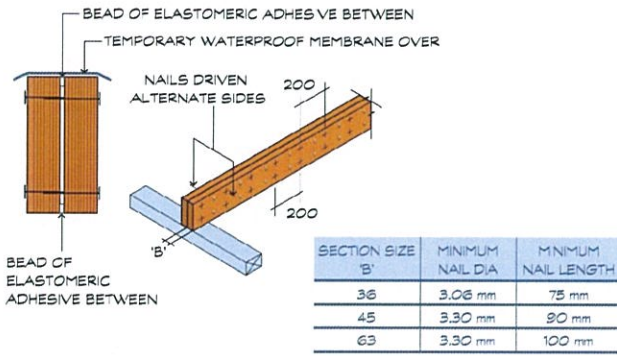
As can be seen, comparison of the 'average deflection' for different materials, even if calculated on the same basis, does not give the whole picture!
- The limits referred are those specified in AS 1684.1, or to GLTAA criteria as specified by the user, for the stated load case.
- 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1684.1

Notes for interpretation of reaction data

- Duration of load factor ' k_1 ' for strength of timber as per table 2.3, AS 1720.1
- Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support
- Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support

4. End reaction includes allowance for overhang/cantilever where one has been designed

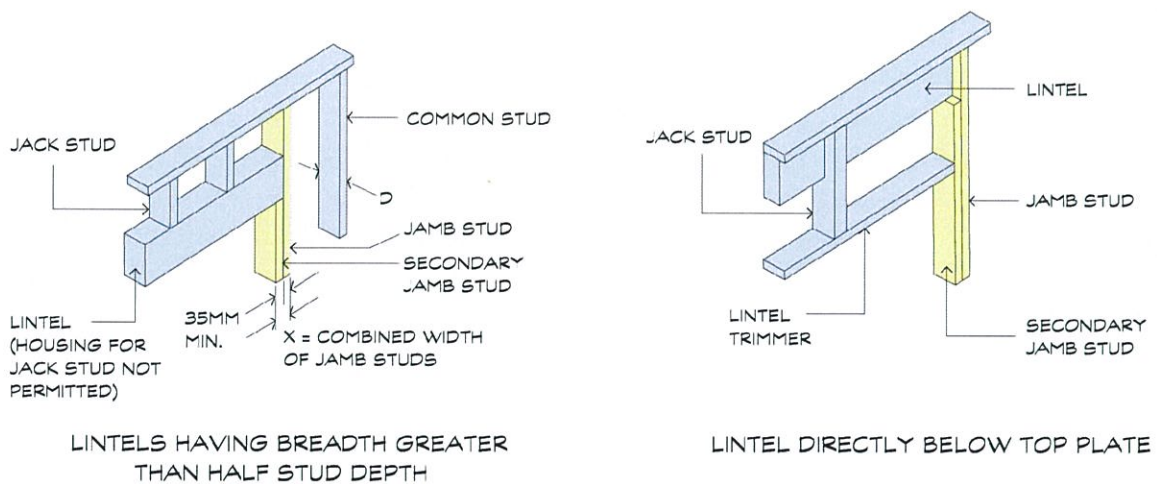
Vertical nail lamination
- two pieces



DETAIL H1

The details shown are intended to both limit the entry of moisture between the laminates and to provide adequate shear transfer.

Multiple Stud Configuration



DETAIL H19