



## SPA SIPS WALL LOADING CAPACITY AND SPAN TABLES

### DESIGN CRITERIA

1. MAX WIND PRESSURES ON EXTERNAL WALLS
2. SINGLE STOREY OR UPPER FLOOR OF 2 STOREY
3. DEFLECTION RATIO SPAN/240
4. DESIGN BASED ON DISCONTINUOUS SKINS FOR ALL HEIGHTS OVER 3000mm
5. WIND CLASSIFICATIONS BASED ON AS 4055 WIND LOADS FOR HOUSING

WALL HEIGHT	AS4055 WIND CLASSIFICATION					
	PANEL DESIGNATION					
	115	145	165	215	265	315
2400	N1	N3	N4	N5	N6	N6
2700	N1	N2	N3	N5	N6	N6
3000	N1	N2	N3	N4	N5	N6
3600	N1	N1	N2	N3	N4	N5
4200	N1	N1	N1	N2	N4	N4
4800	N1	N1	N1	N2	N3	N4
5400	N1	N1	N1	N1	N2	N3
6000	N1	N1	N1	N1	N2	N3

WALL HEIGHT	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
	115	145	165	215	265	315
2400	1.04	2.51	3.72	8.38	15.91	27.03
2700	0.73	1.76	2.61	5.88	11.18	18.98
3000	0.53	1.28	1.90	4.29	8.15	13.84
3600	0.31	0.74	1.10	2.48	4.72	8.01
4200	0.19	0.47	0.69	1.56	2.97	5.04
4800	0.13	0.31	0.47	1.05	1.99	3.38
5400	0.09	0.22	0.33	0.74	1.40	2.37
6000	0.07	0.16	0.24	0.54	1.02	1.73

WALL HEIGHT	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
	115	145	165	215	265	315
2400	1.21	2.93	4.27	9.31	17.34	29.04
2700	0.73	2.06	3.00	6.54	12.18	20.39
3000	0.53	1.50	2.19	4.77	8.88	14.87
3600	0.31	0.87	1.27	2.76	5.14	8.60
4200	0.19	0.55	0.80	1.74	3.23	5.42
4800	0.13	0.37	0.53	1.16	2.17	3.63
5400	0.09	0.26	0.38	0.82	1.52	2.55
6000	0.07	0.19	0.27	0.60	1.11	1.86



PANEL WITH MGP10 SPLINES	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
WALL HEIGHT	115	145	165	215	265	315
2400	1.25	2.94	4.64	11.55	23.19	40.83
2700	0.88	2.06	3.26	8.11	16.29	28.68
3000	0.64	1.50	2.38	5.91	11.88	20.91
3600	0.37	0.87	1.38	3.42	6.87	12.10
4200	0.23	0.55	0.87	2.15	4.33	7.62
4800	0.16	0.37	0.58	1.44	2.90	5.10
5400	0.11	0.26	0.41	1.01	2.04	3.58
6000	0.08	0.19	0.30	0.74	1.48	2.61

PANEL WITH LVL SPLINES	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
WALL HEIGHT	115	145	165	215	265	315
2400	1.41	3.32	5.25	13.06	26.23	46.18
2700	0.99	2.33	3.69	9.17	18.42	32.43
3000	0.72	1.70	2.69	6.69	13.43	23.64
3600	0.42	0.98	1.56	3.87	7.77	13.68
4200	0.26	0.62	0.98	2.44	4.89	8.62
4800	0.18	0.41	0.66	1.63	3.28	5.77
5400	0.12	0.29	0.46	1.15	2.30	4.05
6000	0.09	0.21	0.34	0.84	1.68	2.96

PANEL WITH 2 X MGP10 SPLINES	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
WALL HEIGHT	115	145	165	215	265	315
2400	1.79	4.22	6.67	16.59	33.32	58.66
2700	1.26	2.96	4.69	11.65	23.40	41.20
3000	0.92	2.16	3.42	8.49	17.06	30.03
3600	0.53	1.25	1.98	4.91	9.87	17.38
4200	0.33	0.79	1.25	3.09	6.22	10.94
4800	0.22	0.53	0.83	2.07	4.16	7.33
5400	0.16	0.37	0.59	1.46	2.93	5.15
6000	0.11	0.27	0.43	1.06	2.13	3.75



PANEL WITH 2 X LVL SPLINES	MAXIMUM WIND PRESSURE - STRENGTH LIMIT STATE					
	PANEL DESIGNATION					
WALL HEIGHT	115	145	165	215	265	315
2400	2.12	4.99	7.89	19.61	39.40	69.35
2700	1.49	3.50	5.54	13.77	27.67	48.71
3000	1.09	2.55	4.04	10.04	20.17	35.51
3600	0.63	1.48	2.34	5.81	11.67	20.55
4200	0.40	0.93	1.47	3.66	7.35	12.94
4800	0.27	0.62	0.99	2.45	4.92	8.67
5400	0.19	0.44	0.69	1.72	3.46	6.09
6000	0.14	0.32	0.50	1.26	2.52	4.44

**SECTION PROPERTIES FOR DESIGN**

		115	145	165	215	265	315
OSB SIPS - NO SPLINES	$\phi M_b$ (kNm)	1.66	2.93	3.98	7.30	11.62	16.94
	E <sub>ixx</sub>	3.039E+10	7.145E+10	1.131E+11	2.81E+11	5.646E+11	9.939E+11
OSB SIPS - 90MM BOX SPLINES	$\phi M_b$ (kNm)	2.57	1.63	2.04	3.26	4.77	6.57
	E <sub>ixx</sub>	4.344E+10	1.046E+11	1.559E+11	3.538E+11	6.752E+11	1.15E+12
OSB SIPS - 150MM BOX SPLINES	$\phi M_b$ (kNm)	0.74	1.18	1.35	1.75	2.16	2.57
	E <sub>ixx</sub>	5.213E+10	1.266E+11	1.845E+11	4.024E+11	7.489E+11	1.254E+12
OSB SIPS - MGP SPLINES	$\phi M_b$ (kNm)	0.50	0.89	1.21	2.22	3.53	5.15
	E <sub>ixx</sub>	5.394E+10	1.268E+11	2.007E+11	4.988E+11	1.002E+12	1.764E+12
OSB SIPS - LVL SPLINES	$\phi M_b$ (kNm)	1.65	2.92	3.97	7.28	11.60	16.91
	E <sub>ixx</sub>	6.101E+10	1.434E+11	2.269E+11	5.641E+11	1.133E+12	1.995E+12
OSB SIPS - DOUBLE MGP SPLINES	$\phi M_b$ (kNm)	1.01	1.78	2.42	4.43	7.06	10.29
	E <sub>ixx</sub>	7.749E+10	1.822E+11	2.883E+11	7.165E+11	1.439E+12	2.534E+12
OSB SIPS - DOUBLE LVL SPLINES	$\phi M_b$ (kNm)	3.31	5.85	7.94	14.57	23.19	33.81
	E <sub>ixx</sub>	9.162E+10	2.154E+11	3.408E+11	8.472E+11	1.702E+12	2.996E+12



# BOX BEAM LINTELS CAPACITY AND SPAN TABLES

## DESIGN CRITERIA

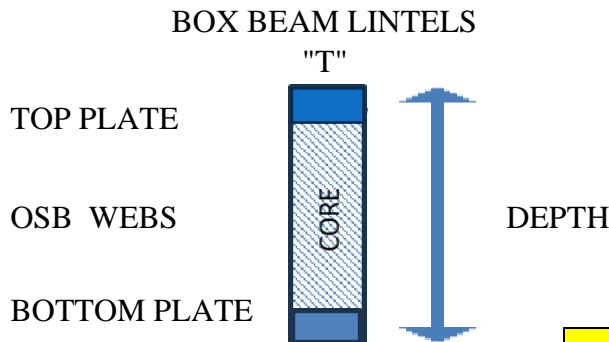
1. MAX ROOF COMBINATION WIND/GRAVITY PRESSURES LESS THAN 1.0
2. SINGLE STOREY OR UPPER FLOOR OF 2 STOREY
3. DEFLECTION RATIO SPAN/240
4. DESIGN BASED ON SPICED SKINS AND CONTINUOUS PLATES TOP AND BOTTOM
5. GRAVITY ROOF DEAD LOAD AT 90 kG/m<sup>2</sup>
6. SHEET ROOF WITH UPLIFT << THAN TILED ROOF GRAVITY

## NOTE:

SPAN TABLES ARE FOR 115 WIDE REPRESENTING TYPICAL WALL PANEL ASSEMBLIES

OTHER PANEL THICKNESS ARE PROPORTIONATELY LARGER THAN THE ULTIMATE LOADS TABULATED.

ALL LOADS TABULATED ARE ULTIMATE LIMIT STATE.



BOX BEAM LINTELS MATERIAL PROPERTIES			
FLANGES	MGP10	$M_b$	111.78
E	10000	$\phi$	0.8
G	670	$\phi M_b$	93.15
$f_c$	23	$\phi_s$	0.6
$f_s$	4.5	$\phi_{s_v}$	77.76

PROPERTIES FOR DESIGN		FLANGE DIMENSIONS		
	PANEL "T"	WIDTH	THICKNESS	AREA
PLATES	115	90	45	4050
SECTION PROPERTIES				
DEPTH	EFFECT DEPTH	$I_{xx}$	$\phi M_b$	$\phi V_s$
1200	1155	2701400625	89.424	77.76



PROPERTIES FOR DESIGN		FLANGE DIMENSIONS	
	PANEL "T"	WIDTH	THICKNESS
PLATES	115	90	45
SECTION PROPERTIES			
DEPTH	EFFECT DEPTH	I <sub>xx</sub>	ϕMb
1200	1155	2701400625	89.424

<b>Depth 300mm</b>	Opening Width					
	1200	2400	2700	3000	3600	4200
Defl Control	Max. Line Load kN/m					
End Shear Control	243.84	30.48	21.41	15.61	9.03	5.69
Shear Deflection	32.40	16.20	14.40	12.96	10.80	9.26
	6.07E-05	7.58E-06	5.33E-06	3.88E-06	2.25E-06	1.41E-06
	Max Roof Span For 90 kG/m <sup>2</sup> (meters)					
	36.00	18.00	16.00	14.40	12.00	10.29

<b>Depth 450mm</b>	Opening Width					
	1200	2400	2700	3000	3600	4200
Defl Control	Max. Line Load kN/m					
End Shear Control	615.09	76.89	54.00	39.37	22.78	14.35
Shear Deflection	48.60	24.30	21.60	19.44	16.20	13.89
	1.02E-04	1.28E-05	8.96E-06	6.53E-06	3.78E-06	2.38E-06
	Max Roof Span For 90 kG/m <sup>2</sup> (meters)					
	54.00	27.00	24.00	21.60	18.00	15.43

<b>Depth 600mm</b>	Opening Width					
	1200	2400	2700	3000	3600	4200
Defl Control	Max. Line Load kN/m					
End Shear Control	1155.09	144.39	101.41	73.93	42.78	26.94
Shear Deflection	64.80	32.40	28.80	25.92	21.60	18.51
	1.44E-04	1.80E-05	1.26E-05	9.19E-06	5.32E-06	3.35E-06
	Max Roof Span For 90 kG/m <sup>2</sup> (meters)					
	72.00	36.00	32.00	28.80	24.00	20.57

<b>Depth 900mm</b>	Opening Width					
	1200	2400	2700	3000	3600	4200
Defl Control	Max. Line Load kN/m					
End Shear Control	2741.34	342.67	240.67	175.45	101.53	63.94
Shear Deflection	97.20	48.60	43.20	38.88	32.40	27.77
	2.27E-04	2.84E-05	2.00E-05	1.45E-05	8.42E-06	5.30E-06
	Max Roof Span For 90 kG/m <sup>2</sup> (meters)					
	108.00	54.00	48.00	43.20	36.00	30.86



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PANELS  
AUSTRALIA**

phone: 1300 301 885  
 email: enquiries@structuralpanels.com.au  
 web: www.structuralpanels.com.au

Depth 1200mm	Opening Width					
	1200	2400	2700	3000	3600	4200
Defl Control	Max. Line Load kN/m					
End Shear Control	5002.59	625.32	439.19	320.17	185.28	116.68
Shear Deflection	129.60	64.80	57.60	51.84	43.20	37.03
	3.11E-04	3.89E-05	2.73E-05	1.99E-05	1.15E-05	7.26E-06
	Max Roof Span For 90 kG/m <sup>2</sup> (meters)					
	144.00	72.00	64.00	57.60	48.00	41.14