PARALLAM® PSL

PSL High Strength for Long Spans

With Parallam® parallel strand lumber (PSL), you have iLevel™'s highest-strength manufactured timber working for you. Precision-manufactured, using patented technologies that minimise the natural inconsistencies of wood, Parallam® PSL brings together the uniformity and consistency of manufactured products in a wide variety of sizes and lengths.

BBA BRITISH BOARD OF AGRÉMENT
CERTIFICATE No 92/2813

The superior stiffness, strength and dimensional stability of Parallam® PSL make it the ideal choice for residential and commercial building applications including beams, purlins, columns and heavy timber trusses. Its standard sections make Parallam® PSL an integral component of the floor system. With an aesthetic appearance as desirable as its performance, Parallam® PSL can be left exposed as a visible sign of the finest design and construction.

Parallam® PSL Design Properties

Size		Section Properties			Maximum Section Capacity		Weight (kg/m)
Width (mm)	Depth (mm)	Area ($mm^2 \times 10^2$)	Section Modulus ($mm^3 \times 10^3$)	Moment of Inertia ($mm^4 \times 10^6$)	Maximum Moment (kN·m)	Maximum Shear (kN)	
45	220	97.79	358.6	39.44	6.23	14.34	7.0
	241	107.26	431.4	52.04	7.42	15.73	7.7
	302	134.07	674.0	101.65	11.32	19.66	9.7
	356	158.06	936.8	166.56	15.44	23.18	11.4
68	200	136.65	455.5	45.55	8.00	20.04	9.8
	241	164.87	663.1	80.00	11.41	24.18	11.9
	302	206.09	1036.0	156.25	17.39	30.23	14.8
	356	242.97	1440.0	256.03	23.74	35.64	17.5
	406	277.68	1880.8	382.18	30.55	40.73	20.0
	457	312.39	2380.4	544.16	38.16	45.82	22.5
89	200	177.80	592.7	59.27	10.42	26.08	12.8
	220	195.58	717.1	78.88	12.47	28.69	14.1
	241	214.52	862.7	104.09	14.85	31.46	15.4
	302	268.14	1348.0	203.29	22.63	39.33	19.3
	356	316.13	1873.6	333.12	30.89	46.37	22.8
	406	361.29	2447.1	497.26	39.75	52.99	26.0
	457	406.45	3097.2	708.01	49.65	59.61	29.3
133	200	266.70	889.0	88.90	15.62	39.12	19.2
	241	321.77	1294.1	156.13	22.27	47.19	23.2
	302	402.22	2022.0	304.94	33.95	58.99	29.0
	356	474.19	2810.4	499.69	46.33	69.55	34.1
	406	541.93	3670.7	745.89	59.62	79.48	39.0
	457	609.68	4645.7	1062.01	74.48	89.42	43.9
178	200	355.60	1185.3	118.53	20.83	52.15	25.6
	241	429.03	1725.4	208.17	29.70	62.92	30.9
	302	536.29	2696.0	406.59	45.27	78.66	38.6
	356	632.26	3747.2	666.25	61.78	92.73	45.5
	406	722.58	4894.3	994.52	79.50	105.98	52.0
	457	812.90	6194.3	1416.02	99.31	119.23	58.5

General Notes

- Design properties are based on long-term resistance ($K_3 = 1.0$) and non-load-sharing conditions.
- Lateral support of beam compression edge is required at intervals of 600 mm centres or closer.
- Design properties are based on BBA Agrément Certificate 92/2813. See BBA certificate for additional information.
- Section properties are based on the actual member size. Width and depth shown on the table are converted from imperial sizes and may vary by ± 0.5 mm.
- Values shown throughout this brochure are applicable to Parallam® PSL in dry-service conditions only (SC1 and SC2).

Parallam® PSL 2.0E Allowable Design Stresses (N/mm²)

Bending parallel to grain	16.8 (1)
Tension parallel to grain	14.8
Compression parallel to grain	15.1
Compression perpendicular to grain:	
Load parallel to wide face of strands	3.6
Load perpendicular to wide face of strands	2.8
Shear parallel to grain:	
Load parallel to wide face of strands	2.2
Load perpendicular to wide face of strands	1.6
Modulus of elasticity parallel to grain	12 750
Modulus of rigidity	modulus of elasticity parallel to grain ÷ 20

(1) For 300 mm depth. For other depths, multiply by: $\left(\frac{300}{d}\right)^{0.111}$

Allowable Total Uniform Load (kN/m)

Span (m)	89x200 mm		89x220 mm		89x241 mm		89x302 mm		89x356 mm		89x406 mm		89x457 mm	
	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load	Floor Total Load	Roof Total Load
1.5	34.65	38.33	38.11	47.67	41.80	52.28	52.25	65.36	61.60	77.06	70.40	88.06	79.19	99.06
2.0	18.13	18.13	23.37	23.37	29.55	29.72	39.14	48.97	46.15	57.74	52.73	65.98	59.32	74.23
2.5	9.80	9.80	12.77	12.77	16.45	16.45	28.78	29.68	36.87	44.88	42.14	52.73	47.40	59.32
3.0	5.82	5.82	7.64	7.64	9.92	9.92	18.33	18.33	27.23	28.32	35.07	39.75	39.45	49.39
3.5	3.70	3.70	4.89	4.89	6.38	6.38	12.00	12.00	18.82	18.82	25.70	26.81	32.14	36.25
4.0	2.47	2.47	3.28	3.28	4.31	4.31	8.22	8.22	13.05	13.05	18.79	18.79	24.54	25.69
4.5	1.72	1.72	2.29	2.29	3.03	3.03	5.84	5.84	9.37	9.37	13.60	13.60	18.76	18.76
5.0	1.23	1.23	1.65	1.65	2.19	2.19	4.28	4.28	6.91	6.91	10.12	10.12	14.05	14.05
5.5	0.90	0.90	1.21	1.21	1.62	1.62	3.20	3.20	5.22	5.22	7.69	7.69	10.75	10.75
6.0	0.66	0.66	0.91	0.91	1.22	1.22	2.45	2.45	4.02	4.02	5.96	5.96	8.38	8.38
6.5	0.50	0.50	0.69	0.69	0.93	0.93	1.90	1.90	3.15	3.15	4.69	4.69	6.63	6.63
7.0	0.37	0.37	0.52	0.52	0.72	0.72	1.49	1.49	2.49	2.49	3.74	3.74	5.32	5.32
7.5			0.40	0.40	0.56	0.56	1.18	1.18	2.00	2.00	3.02	3.02	4.31	4.31
8.0			0.31	0.31	0.44	0.44	0.95	0.95	1.62	1.62	2.46	2.46	3.54	3.54
8.5					0.34	0.34	0.76	0.76	1.32	1.32	2.02	2.02	2.92	2.92
9.0							0.61	0.61	1.08	1.08	1.67	1.67	2.43	2.43
9.5							0.49	0.49	0.89	0.89	1.39	1.39	2.04	2.04
10.0							0.40	0.40	0.73	0.73	1.16	1.16	1.71	1.71

General Notes

- Values shown are the maximum uniform loads, in kilonewtons per metre (kN/m), that can be applied to the beam in addition to its own weight.
- Parallam® PSL beams are made without camber; therefore, in addition to the code-required deflection limits, other deflection considerations such as aesthetics, must be evaluated.
- Lateral support of beam compression edge is required at intervals of 600 mm centres or closer.
- Lateral support of beams is required at bearing points.
- Bearing area to be calculated for specific application; see **Bearing Length Requirements** on page 28.
- Roof members shall either be pitched for drainage or designed to account for load and deflection as specified in the applicable building code.
- **Floor Load Total** is based on long term load duration with $K_3 = 1.0$.
- **Roof Load Total** is based on medium term load duration with $K_3 = 1.25$.

PARALLAM® PSL COLUMNS AND POSTS

Allowable Axial Loads (kN)

Effective Column Length (m)	Parallam® PSL Column Size (mm)											
	89x89		89x133		89x178		133x133		133x178		178x178	
	100%	125%	100%	125%	100%	125%	100%	125%	100%	125%	100%	125%
1.25	72	87										
1.50	64	76	96	114								
1.75	56	66	84	99	112	132						
2.00	49	57	74	85	99	114	156	188				
2.25	43	49	65	74	86	98	144	171				
2.50	38	43	57	64	76	85	132	155	176	207		
2.75	34	37	50	56	67	74	121	141	161	188		
3.00	30	33	45	49	59	65	111	128	148	170		
3.25	26	29	40	43	53	58	102	116	135	155		
3.50	24	26	35	38	47	51	93	105	124	140		
3.75	21	23	32	34	42	46	86	96	114	128		
4.00	19	20	29	31	38	41	79	87	105	117		
4.25	17	18	26	28	35	37	72	80	97	107	185	211
4.50	16	17	24	25	32	34	67	73	89	98	173	196
4.75							62	67	82	90	162	183
5.00							57	62	76	83	152	170
5.25							53	58	71	77	143	159
5.50							49	53	66	71	134	149
5.75							46	50	61	66	126	139
6.00							43	46	57	61	119	130

General Notes

- Table applies to solid, one-piece column members used in dry-service conditions only (SC1 and SC2).
- Loads are based on simple axial loaded columns using the design provisions of BS5268: Part 2, 2002 edition. The modification factor for compression members, K_{12}, is calculated using the equation in Annex B. The eccentricity factor (η) is taken as 0.01 of the slenderness ratio (λ). For side loads, or other combined bending and axial loads see provisions of BS 5268: Part 2, 2002 edition.
- Table assumes that the column is unbraced except at the column ends and that the effective column length is equal to the actual column length.