

Section Properties of Structural Glued Laminated Timber

American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size				x-x Axis			y-y Axis		DF-L	HF
				A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)		
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft		
in.	in.									
2	1/8	X 3	6.375	3.188	4.781	2.258	2.399	1.5	1.2	
2	1/8	X 4 1/2	9.563	7.172	16.14	3.387	3.598	2.3	1.8	
2	1/8	X 6	12.75	12.75	38.25	4.516	4.798	3.1	2.4	
2	1/8	X 7 1/2	15.94	19.92	74.71	5.645	5.997	3.9	3.0	
2	1/8	X 9	19.13	28.69	129.1	6.773	7.197	4.6	3.6	
2	1/8	X 10 1/2	22.31	39.05	205.0	7.902	8.396	5.4	4.2	
2	1/8	X 12	25.50	51.00	306.0	9.031	9.596	6.2	4.8	
2	1/8	X 13 1/2	28.69	64.55	435.7	10.16	10.80	7.0	5.4	
2	1/8	X 15	31.88	79.69	597.7	11.29	11.99	7.7	6.0	
2	1/8	X 16 1/2	35.06	96.42	795.5	12.42	13.19	8.5	6.6	
2	1/8	X 18	38.25	114.8	1033	13.55	14.39	9.3	7.2	
2	1/8	X 19 1/2	41.44	134.7	1313	14.68	15.59	10.1	7.8	
2	1/2	X 3	7.500	3.750	5.625	3.125	3.906	1.8	1.4	
2	1/2	X 4 1/2	11.25	8.438	18.98	4.688	5.859	2.7	2.1	
2	1/2	X 6	15.00	15.00	45.00	6.250	7.813	3.6	2.8	
2	1/2	X 7 1/2	18.75	23.44	87.89	7.813	9.766	4.6	3.5	
2	1/2	X 9	22.50	33.75	151.9	9.375	11.72	5.5	4.2	
2	1/2	X 10 1/2	26.25	45.94	241.2	10.94	13.67	6.4	4.9	
2	1/2	X 12	30.00	60.00	360.0	12.50	15.63	7.3	5.6	
2	1/2	X 13 1/2	33.75	75.94	512.6	14.06	17.58	8.2	6.3	
2	1/2	X 15	37.50	93.75	703.1	15.63	19.53	9.1	7.0	
2	1/2	X 16 1/2	41.25	113.4	935.9	17.19	21.48	10.0	7.7	
2	1/2	X 18	45.00	135.0	1215.0	18.75	23.44	10.9	8.4	
2	1/2	X 19 1/2	48.75	158.4	1545	20.31	25.39	11.8	9.1	
3	1/8	X 3	9.375	4.688	7.031	4.883	7.629	2.3	1.8	
3	1/8	X 4 1/2	14.06	10.55	23.73	7.324	11.44	3.4	2.6	
3	1/8	X 6	18.75	18.75	56.25	9.766	15.26	4.6	3.5	
3	1/8	X 7 1/2	23.44	29.30	109.9	12.21	19.07	5.7	4.4	
3	1/8	X 9	28.13	42.19	189.8	14.65	22.89	6.8	5.3	
3	1/8	X 10 1/2	32.81	57.42	301.5	17.09	26.70	8.0	6.2	
3	1/8	X 12	37.50	75.00	450.0	19.53	30.52	9.1	7.0	
3	1/8	X 13 1/2	42.19	94.92	640.7	21.97	34.33	10.3	7.9	
3	1/8	X 15	46.88	117.2	878.9	24.41	38.15	11.4	8.8	
3	1/8	X 16 1/2	51.56	141.8	1170	26.86	41.96	12.5	9.7	
3	1/8	X 18	56.25	168.8	1519	29.30	45.78	13.7	10.5	
3	1/8	X 19 1/2	60.94	198.0	1931	31.74	49.59	14.8	11.4	
3	1/8	X 21	65.63	229.7	2412	34.18	53.41	16.0	12.3	
3	1/8	X 22 1/2	70.31	263.7	2966	36.62	57.22	17.1	13.2	
3	1/8	X 24	75.00	300.0	3600	39.06	61.04	18.2	14.1	
3	1/8	X 25 1/2	79.69	338.7	4318	41.50	64.85	19.4	14.9	
3	1/8	X 27	84.38	379.7	5126	43.95	68.66	20.5	15.8	
3	1/8	X 28 1/2	89.06	423.0	6028	46.39	72.48	21.6	16.7	
3	1/8	X 30	93.75	468.8	7031	48.83	76.29	22.8	17.6	
3	1/2	X 3	10.50	5.250	7.875	6.125	10.72	2.6	2.0	
3	1/2	X 4 1/2	15.75	11.81	26.58	9.188	16.08	3.8	3.0	
3	1/2	X 6	21.00	21.00	63.00	12.25	21.44	5.1	3.9	
3	1/2	X 7 1/2	26.25	32.81	123.00	15.31	26.80	6.4	4.9	

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Section Properties of Structural Glued Laminated Timber
American Institute of Timber Construction
Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF
		A	S _x	I _x	S _y	I _y	Weight per foot (based on 35 lb/ft ³)	Weight per foot (based on 27 lb/ft ³)
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	lb/ft	lb/ft
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴		
in.	in.							
3 1/2	X 9	31.50	47.25	212.6	18.38	32.16	7.7	5.9
3 1/2	X 10 1/2	36.75	64.31	337.6	21.44	37.52	8.9	6.9
3 1/2	X 12	42.00	84.00	504.0	24.50	42.88	10.2	7.9
3 1/2	X 13 1/2	47.25	106.3	717.6	27.56	48.23	11.5	8.9
3 1/2	X 15	52.50	131.3	984.4	30.63	53.59	12.8	9.8
3 1/2	X 16 1/2	57.75	158.8	1310	33.69	58.95	14.0	10.8
3 1/2	X 18	63.00	189.0	1701	36.75	64.31	15.3	11.8
3 1/2	X 19 1/2	68.25	221.8	2163	39.81	69.67	16.6	12.8
3 1/2	X 21	73.50	257.3	2701	42.88	75.03	17.9	13.8
3 1/2	X 22 1/2	78.75	295.3	3322	45.94	80.39	19.1	14.8
3 1/2	X 24	84.00	336.0	4032	49.00	85.75	20.4	15.8
3 1/2	X 25 1/2	89.25	379.3	4836	52.06	91.11	21.7	16.7
3 1/2	X 27	94.50	425.3	5741	55.13	96.47	23.0	17.7
3 1/2	X 28 1/2	99.75	473.8	6752	58.19	101.8	24.2	18.7
3 1/2	X 30	105.0	525.0	7875	61.25	107.2	25.5	19.7
5 1/8	X 3	15.38	7.688	11.53	13.13	33.65	3.7	2.9
5 1/8	X 4 1/2	23.06	17.30	38.92	19.70	50.48	5.6	4.3
5 1/8	X 6	30.75	30.75	92.25	26.27	67.31	7.5	5.8
5 1/8	X 7 1/2	38.44	48.05	180.2	32.83	84.13	9.3	7.2
5 1/8	X 9	46.13	69.19	311.3	39.40	101.0	11.2	8.6
5 1/8	X 10 1/2	53.81	94.17	494.4	45.96	117.8	13.1	10.1
5 1/8	X 12	61.50	123.0	738.0	52.53	134.6	14.9	11.5
5 1/8	X 13 1/2	69.19	155.7	1051	59.10	151.4	16.8	13.0
5 1/8	X 15	76.88	192.2	1441	65.66	168.3	18.7	14.4
5 1/8	X 16 1/2	84.56	232.5	1919	72.23	185.1	20.6	15.9
5 1/8	X 18	92.25	276.8	2491	78.80	201.9	22.4	17.3
5 1/8	X 19 1/2	99.94	324.8	3167	85.36	218.7	24.3	18.7
5 1/8	X 21	107.6	376.7	3955	91.93	235.6	26.2	20.2
5 1/8	X 22 1/2	115.3	432.4	4865	98.50	252.4	28.0	21.6
5 1/8	X 24	123.0	492.0	5904	105.1	269.2	29.9	23.1
5 1/8	X 25 1/2	130.7	555.4	7082	111.6	286.0	31.8	24.5
5 1/8	X 27	138.4	622.7	8406	118.2	302.9	33.6	26.0
5 1/8	X 28 1/2	146.1	693.8	9887	124.8	319.7	35.5	27.4
5 1/8	X 30	153.8	768.8	11530	131.3	336.5	37.4	28.8
5 1/8	X 31 1/2	161.4	847.5	13350	137.9	353.4	39.2	30.3
5 1/8	X 33	169.1	930.2	15350	144.5	370.2	41.1	31.7
5 1/8	X 34 1/2	176.8	1017	17540	151.0	387.0	43.0	33.2
5 1/8	X 36	184.5	1107	19930	157.6	403.8	44.8	34.6
5 1/8	X 37 1/2	192.2	1201	22520	164.2	420.7	46.7	36.0
5 1/8	X 39	199.9	1299	25330	170.7	437.5	48.6	37.5
5 1/8	X 40 1/2	207.6	1401	28370	177.3	454.3	50.5	38.9
5 1/8	X 42	215.3	1507	31640	183.9	471.1	52.3	40.4
5 1/8	X 43 1/2	222.9	1616	35150	190.4	488.0	54.2	41.8
5 1/8	X 45	230.6	1730	38920	197.0	504.8	56.0	43.2
5 1/8	X 46 1/2	238.3	1847	42940	203.6	521.6	57.9	44.7
5 1/8	X 48	246	1968	47230	210.1	538.4	59.8	46.1
5 1/2	X 3	16.5	8.25	12.38	15.13	41.59	4.0	3.1

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Section Properties of Structural Glued Laminated Timber

American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft
in.	in.							
5 1/2	X 4 1/2	24.75	18.56	41.77	22.69	62.39	6.0	4.6
5 1/2	X 6	33.00	33.00	99.00	30.25	83.19	8.0	6.2
5 1/2	X 7 1/2	41.25	51.56	193.4	37.81	104.0	10.0	7.7
5 1/2	X 9	49.50	74.25	334.1	45.38	124.8	12.0	9.3
5 1/2	X 10 1/2	57.75	101.1	530.6	52.94	145.6	14.0	10.8
5 1/2	X 12	66.00	132.0	792.0	60.50	166.4	16.0	12.4
5 1/2	X 13 1/2	74.25	167.1	1128	68.06	187.2	18.0	13.9
5 1/2	X 15	82.50	206.3	1547	75.63	208.0	20.1	15.5
5 1/2	X 16 1/2	90.75	249.6	2059	83.19	228.8	22.1	17.0
5 1/2	X 18	99.00	297.0	2673	90.75	249.6	24.1	18.6
5 1/2	X 19 1/2	107.3	348.6	3398	98.31	270.4	26.1	20.1
5 1/2	X 21	115.5	404.3	4245	105.9	291.2	28.1	21.7
5 1/2	X 22 1/2	123.8	464.1	5221	113.4	312.0	30.1	23.2
5 1/2	X 24	132.0	528.0	6336	121.0	332.8	32.1	24.8
5 1/2	X 25 1/2	140.3	596.1	7600	128.6	353.5	34.1	26.3
5 1/2	X 27	148.5	668.3	9021	136.1	374.3	36.1	27.8
5 1/2	X 28 1/2	156.8	744.6	10610	143.7	395.1	38.1	29.4
5 1/2	X 30	165.0	825.0	12380	151.3	415.9	40.1	30.9
5 1/2	X 31 1/2	173.3	909.6	14330	158.8	436.7	42.1	32.5
5 1/2	X 33	181.5	998.3	16470	166.4	457.5	44.1	34.0
5 1/2	X 34 1/2	189.8	1091	18820	173.9	478.3	46.1	35.6
5 1/2	X 36	198.0	1188	21380	181.5	499.1	48.1	37.1
5 1/2	X 37 1/2	206.3	1289	24170	189.1	519.9	50.1	38.7
5 1/2	X 39	214.5	1394	27190	196.6	540.7	52.1	40.2
5 1/2	X 40 1/2	222.8	1504	30450	204.2	561.5	54.2	41.8
5 1/2	X 42	231.0	1617	33960	211.8	582.3	56.1	43.3
5 1/2	X 43 1/2	239.3	1735	37730	219.3	603.1	58.2	44.9
5 1/2	X 45	247.5	1856	41770	226.9	623.9	60.2	46.4
5 1/2	X 46 1/2	255.8	1982	46080	234.4	644.7	62.2	48.0
5 1/2	X 48	264.0	2112	50690	242.0	665.5	64.2	49.5
6 3/4	X 3	20.25	10.13	15.19	22.78	76.89	4.9	3.8
6 3/4	X 4 1/2	30.38	22.78	51.26	34.17	115.3	7.4	5.7
6 3/4	X 6	40.50	40.50	121.5	45.56	153.8	9.8	7.6
6 3/4	X 7 1/2	50.63	63.28	237.3	56.95	192.2	12.3	9.5
6 3/4	X 9	60.75	91.13	410.1	68.34	230.7	14.8	11.4
6 3/4	X 10 1/2	70.88	124.0	651.2	79.73	269.1	17.2	13.3
6 3/4	X 12	81.00	162.0	972.0	91.13	307.5	19.7	15.2
6 3/4	X 13 1/2	91.13	205.0	1384	102.5	346.0	22.1	17.1
6 3/4	X 15	101.3	253.1	1898	113.9	384.4	24.6	19.0
6 3/4	X 16 1/2	111.4	306.3	2527	125.3	422.9	27.1	20.9
6 3/4	X 18	121.5	364.5	3281	136.7	461.3	29.5	22.8
6 3/4	X 19 1/2	131.6	427.8	4171	148.1	499.8	32.0	24.7
6 3/4	X 21	141.8	496.1	5209	159.5	538.2	34.5	26.6
6 3/4	X 22 1/2	151.9	569.5	6407	170.9	576.7	36.9	28.5
6 3/4	X 24	162.0	648.0	7776	182.3	615.1	39.4	30.4
6 3/4	X 25 1/2	172.1	731.5	9327	193.6	653.5	41.8	32.3
6 3/4	X 27	182.3	820.1	11070	205.0	692.0	44.3	34.2

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Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft
in.	in.							
6 3/4	X 28 1/2	192.4	913.8	13020	216.4	730.4	46.8	36.1
6 3/4	X 30	202.5	1013	15190	227.8	768.9	49.2	38.0
6 3/4	X 31 1/2	212.6	1116	17580	239.2	807.3	51.7	39.9
6 3/4	X 33	222.8	1225	20210	250.6	845.8	54.2	41.8
6 3/4	X 34 1/2	232.9	1339	23100	262.0	884.2	56.6	43.7
6 3/4	X 36	243.0	1458	26240	273.4	922.6	59.1	45.6
6 3/4	X 37 1/2	253.1	1582	29660	284.8	961.1	61.5	47.5
6 3/4	X 39	263.3	1711	33370	296.2	999.5	64.0	49.4
6 3/4	X 40 1/2	273.4	1845	37370	307.5	1038	66.5	51.3
6 3/4	X 42	283.5	1985	41670	318.9	1076	68.9	53.2
6 3/4	X 43 1/2	293.6	2129	46300	330.3	1115	71.4	55.1
6 3/4	X 45	303.8	2278	51260	341.7	1153	73.8	57.0
6 3/4	X 46 1/2	313.9	2433	56560	353.1	1192	76.3	58.9
6 3/4	X 48	324.0	2592	62210	364.5	1230	78.8	60.8
6 3/4	X 49 1/2	334.1	2757	68220	375.9	1269	81.2	62.6
6 3/4	X 51	344.3	2926	74620	387.3	1307	83.7	64.6
6 3/4	X 52 1/2	354.4	3101	81400	398.7	1346	86.1	66.5
6 3/4	X 54	364.5	3281	88570	410.1	1384	88.6	68.3
6 3/4	X 55 1/2	374.6	3465	96160	421.5	1422	91.0	70.2
6 3/4	X 57	384.8	3655	104200	432.8	1461	93.5	72.2
6 3/4	X 58 1/2	394.9	3850	112600	444.2	1499	96.0	74.0
6 3/4	X 60	405.0	4050	121500	455.6	1538	98.4	75.9
8 3/4	X 3	26.25	13.13	19.69	38.28	167.5	6.4	4.9
8 3/4	X 4 1/2	39.38	29.53	66.45	57.42	251.2	9.6	7.4
8 3/4	X 6	52.50	52.50	157.5	76.56	335.0	12.8	9.8
8 3/4	X 7 1/2	65.63	82.03	307.6	95.70	418.7	16.0	12.3
8 3/4	X 9	78.75	118.1	531.6	114.8	502.4	19.1	14.8
8 3/4	X 10 1/2	91.88	160.8	844.1	134.0	586.2	22.3	17.2
8 3/4	X 12	105.0	210.0	1260	153.1	669.9	25.5	19.7
8 3/4	X 13 1/2	118.1	265.8	1794	172.3	753.7	28.7	22.1
8 3/4	X 15	131.3	328.1	2461	191.4	837.4	31.9	24.6
8 3/4	X 16 1/2	144.4	397.0	3276	210.5	921.1	35.1	27.1
8 3/4	X 18	157.5	472.5	4253	229.7	1005	38.3	29.5
8 3/4	X 19 1/2	170.6	554.5	5407	248.8	1089	41.5	32.0
8 3/4	X 21	183.8	643.1	6753	268.0	1172	44.7	34.5
8 3/4	X 22 1/2	196.9	738.3	8306	287.1	1256	47.9	36.9
8 3/4	X 24	210.0	840.0	10080	306.3	1340	51.0	39.4
8 3/4	X 25 1/2	223.1	948.3	12090	325.4	1424	54.2	41.8
8 3/4	X 27	236.3	1063	14350	344.5	1507	57.4	44.3
8 3/4	X 28 1/2	249.4	1185	16880	363.7	1591	60.6	46.8
8 3/4	X 30	262.5	1313	19690	382.8	1675	63.8	49.2
8 3/4	X 31 1/2	275.6	1447	22790	402.0	1759	67.0	51.7
8 3/4	X 33	288.8	1588	26200	421.1	1842	70.2	54.2
8 3/4	X 34 1/2	301.9	1736	29940	440.2	1926	73.4	56.6
8 3/4	X 36	315.0	1890	34020	459.4	2010	76.6	59.1
8 3/4	X 37 1/2	328.1	2051	38450	478.5	2094	79.7	61.5
8 3/4	X 39	341.3	2218	43250	497.7	2177	83.0	64.0

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Section Properties of Structural Glued Laminated Timber American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF	
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot	
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)	
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft	
in.	in.								
8	3/4	X 40	354.4	2392	48440	516.8	2261	86.1	66.5
8	3/4	X 42	367.5	2573	54020	535.9	2345	89.3	68.9
8	3/4	X 43	380.6	2760	60020	555.1	2428	92.5	71.4
8	3/4	X 45	393.8	2953	66450	574.2	2512	95.7	73.8
8	3/4	X 46	406.9	3153	73310	593.4	2596	98.9	76.3
8	3/4	X 48	420.0	3360	80640	612.5	2680	102.1	78.8
8	3/4	X 49	433.1	3573	88440	631.6	2763	105.3	81.2
8	3/4	X 51	446.3	3793	96720	650.8	2847	108.5	83.7
8	3/4	X 52	459.4	4020	105500	669.9	2931	111.7	86.1
8	3/4	X 54	472.5	4253	114800	689.1	3015	114.8	88.6
8	3/4	X 55	485.6	4492	124700	708.2	3098	118.0	91.1
8	3/4	X 57	498.8	4738	135000	727.3	3182	121.2	93.5
8	3/4	X 58	511.9	4991	146000	746.5	3266	124.4	96.0
8	3/4	X 60	525.0	5250	157500	765.6	3350	127.6	98.4
8	3/4	X 61	538.1	5516	169600	784.8	3433	130.8	100.9
8	3/4	X 63	551.3	5788	182300	803.9	3517	134.0	103.4
8	3/4	X 64	564.4	6067	195700	823.0	3601	137.2	105.8
8	3/4	X 66	577.5	6353	209600	842.2	3685	140.4	108.3
8	3/4	X 67	590.6	6645	224300	861.3	3768	143.5	110.7
8	3/4	X 69	603.8	6943	239500	880.5	3852	146.8	113.2
8	3/4	X 70	616.9	7248	255500	899.6	3936	149.9	115.7
8	3/4	X 72	630.0	7560	272200	918.8	4020	153.1	118.1
8	3/4	X 73	643.1	7878	289500	937.9	4103	156.3	120.6
8	3/4	X 75	656.3	8203	307600	957.0	4187	159.5	123.1
10	3/4	X 3	32.25	16.13	24.19	57.78	310.6	7.8	6.0
10	3/4	X 4	48.38	36.28	81.63	86.67	465.9	11.8	9.1
10	3/4	X 6	64.50	64.50	193.5	115.6	621.1	15.7	12.1
10	3/4	X 7	80.63	100.8	377.9	144.5	776.4	19.6	15.1
10	3/4	X 9	96.75	145.1	653.1	173.3	931.7	23.5	18.1
10	3/4	X 10	112.9	197.5	1037	202.2	1087	27.4	21.2
10	3/4	X 12	129.0	258.0	1548	231.1	1242	31.4	24.2
10	3/4	X 13	145.1	326.5	2204	260.0	1398	35.3	27.2
10	3/4	X 15	161.3	403.1	3023	288.9	1553	39.2	30.2
10	3/4	X 16	177.4	487.8	4024	317.8	1708	43.1	33.3
10	3/4	X 18	193.5	580.5	5225	346.7	1863	47.0	36.3
10	3/4	X 19	209.6	681.3	6642	375.6	2019	50.9	39.3
10	3/4	X 21	225.8	790.1	8296	404.5	2174	54.9	42.3
10	3/4	X 22	241.9	907.0	10200	433.4	2329	58.8	45.4
10	3/4	X 24	258.0	1032	12380	462.3	2485	62.7	48.4
10	3/4	X 25	274.1	1165	14850	491.1	2640	66.6	51.4
10	3/4	X 27	290.3	1306	17630	520.0	2795	70.6	54.4
10	3/4	X 28	306.4	1455	20740	548.9	2950	74.5	57.5
10	3/4	X 30	322.5	1613	24190	577.8	3106	78.4	60.5
10	3/4	X 31	338.6	1778	28000	606.7	3261	82.3	63.5
10	3/4	X 33	354.8	1951	32190	635.6	3416	86.2	66.5
10	3/4	X 34	370.9	2133	36790	664.5	3572	90.1	69.5
10	3/4	X 36	387.0	2322	41800	693.4	3727	94.1	72.6

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COUNTY OF VENTURA**

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Section Properties of Structural Glued Laminated Timber
American Institute of Timber Construction
Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft
in.	in.							
10 3/4	X 37 1/2	403.1	2520	47240	722.3	3882	98.0	75.6
10 3/4	X 39	419.3	2725	53140	751.2	4037	101.9	78.6
10 3/4	X 40 1/2	435.4	2939	59510	780.0	4193	105.8	81.6
10 3/4	X 42	451.5	3161	66370	808.9	4348	109.7	84.7
10 3/4	X 43 1/2	467.6	3390	73740	837.8	4503	113.7	87.7
10 3/4	X 45	483.8	3628	81630	866.7	4659	117.6	90.7
10 3/4	X 46 1/2	499.9	3874	90070	895.6	4814	121.5	93.7
10 3/4	X 48	516.0	4128	99070	924.5	4969	125.4	96.8
10 3/4	X 49 1/2	532.1	4390	108700	953.4	5124	129.3	99.8
10 3/4	X 51	548.3	4660	118800	982.3	5280	133.3	102.8
10 3/4	X 52 1/2	564.4	4938	129600	1011	5435	137.2	105.8
10 3/4	X 54	580.5	5225	141100	1040	5590	141.1	108.8
10 3/4	X 55 1/2	596.6	5519	153100	1069	5746	145.0	111.9
10 3/4	X 57	612.8	5821	165900	1098	5901	148.9	114.9
10 3/4	X 58 1/2	628.9	6132	179300	1127	6056	152.9	117.9
10 3/4	X 60	645.0	6450	193500	1156	6211	156.8	120.9
10 3/4	X 61 1/2	661.1	6777	208400	1185	6367	160.7	124.0
10 3/4	X 63	677.3	7111	224000	1213	6522	164.6	127.0
10 3/4	X 64 1/2	693.4	7454	240400	1242	6677	168.5	130.0
10 3/4	X 66	709.5	7805	257500	1271	6833	172.4	133.0
10 3/4	X 67 1/2	725.6	8163	275500	1300	6988	176.4	136.1
10 3/4	X 69	741.8	8530	294300	1329	7143	180.3	139.1
10 3/4	X 70 1/2	757.9	8905	313900	1358	7298	184.2	142.1
10 3/4	X 72	774.0	9288	334400	1387	7454	188.1	145.1
10 3/4	X 73 1/2	790.1	9679	355700	1416	7609	192.0	148.1
10 3/4	X 75	806.3	10080	377900	1445	7764	196.0	151.2
10 3/4	X 76 1/2	822.4	10490	401100	1473	7920	199.9	154.2
10 3/4	X 78	838.5	10900	425100	1502	8075	203.8	157.2
10 3/4	X 79 1/2	854.6	11320	450100	1531	8230	207.7	160.2
10 3/4	X 81	870.8	11760	476100	1560	8386	211.7	163.3
10 3/4	X 82 1/2	886.9	12190	503000	1589	8541	215.6	166.3
10 3/4	X 84	903.0	12640	531000	1618	8696	219.5	169.3
10 3/4	X 85 1/2	919.1	13100	559900	1647	8851	223.4	172.3
10 3/4	X 87	935.3	13560	589900	1676	9007	227.3	175.4
10 3/4	X 88 1/2	951.4	14030	621000	1705	9162	231.2	178.4
10 3/4	X 90	967.5	14510	653100	1733	9317	235.2	181.4
12 1/4	X 3	36.75	18.38	27.56	75.03	459.6	8.9	6.9
12 1/4	X 4 1/2	55.13	41.34	93.02	112.5	689.3	13.4	10.3
12 1/4	X 6	73.50	73.50	220.5	150.1	919.1	17.9	13.8
12 1/4	X 7 1/2	91.88	114.8	430.7	187.6	1149	22.3	17.2
12 1/4	X 9	110.3	165.4	744.2	225.1	1379	26.8	20.7
12 1/4	X 10 1/2	128.6	225.1	1182	262.6	1608	31.3	24.1
12 1/4	X 12	147.0	294.0	1764	300.1	1838	35.7	27.6
12 1/4	X 13 1/2	165.4	372.1	2512	337.6	2068	40.2	31.0
12 1/4	X 15	183.8	459.4	3445	375.2	2298	44.7	34.5
12 1/4	X 16 1/2	202.1	555.8	4586	412.7	2528	49.1	37.9
12 1/4	X 18	220.5	661.5	5954	450.2	2757	53.6	41.3

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Section Properties of Structural Glued Laminated Timber

American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF	
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot	
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)	
Width in.	Depth in.	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft	
12	1/4	X 19	238.9	776.3	7569	487.7	2987	58.1	44.8
12	1/4	X 21	257.3	900.4	9454	525.2	3217	62.5	48.2
12	1/4	X 22	275.6	1034	11630	562.7	3447	67.0	51.7
12	1/4	X 24	294.0	1176	14110	600.3	3677	71.5	55.1
12	1/4	X 25	312.4	1328	16930	637.8	3906	75.9	58.6
12	1/4	X 27	330.8	1488	20090	675.3	4136	80.4	62.0
12	1/4	X 28	349.1	1658	23630	712.8	4366	84.9	65.5
12	1/4	X 30	367.5	1838	27560	750.3	4596	89.3	68.9
12	1/4	X 31	385.9	2026	31910	787.8	4825	93.8	72.4
12	1/4	X 33	404.3	2223	36690	825.3	5055	98.3	75.8
12	1/4	X 34	422.6	2430	41920	862.9	5285	102.7	79.2
12	1/4	X 36	441.0	2646	47630	900.4	5515	107.2	82.7
12	1/4	X 37	459.4	2871	53830	937.9	5745	111.7	86.1
12	1/4	X 39	477.8	3105	60550	975.4	5974	116.1	89.6
12	1/4	X 40	496.1	3349	67810	1013	6204	120.6	93.0
12	1/4	X 42	514.5	3602	75630	1050	6434	125.1	96.5
12	1/4	X 43	532.9	3863	84030	1088	6664	129.5	99.9
12	1/4	X 45	551.3	4134	93020	1125	6893	134.0	103.4
12	1/4	X 46	569.6	4415	102600	1163	7123	138.4	106.8
12	1/4	X 48	588.0	4704	112900	1201	7353	142.9	110.3
12	1/4	X 49	606.4	5003	123800	1238	7583	147.4	113.7
12	1/4	X 51	624.8	5310	135400	1276	7813	151.9	117.2
12	1/4	X 52	643.1	5627	147700	1313	8042	156.3	120.6
12	1/4	X 54	661.5	5954	160700	1351	8272	160.8	124.0
12	1/4	X 55	679.9	6289	174500	1388	8502	165.3	127.5
12	1/4	X 57	698.3	6633	189100	1426	8732	169.7	130.9
12	1/4	X 58	716.6	6987	204400	1463	8962	174.2	134.4
12	1/4	X 60	735.0	7350	220500	1501	9191	178.6	137.8
12	1/4	X 61	753.4	7722	237500	1538	9421	183.1	141.3
12	1/4	X 63	771.8	8103	255300	1576	9651	187.6	144.7
12	1/4	X 64	790.1	8494	273900	1613	9881	192.0	148.1
12	1/4	X 66	808.5	8894	293500	1651	10110	196.5	151.6
12	1/4	X 67	826.9	9302	314000	1688	10340	201.0	155.0
12	1/4	X 69	845.3	9720	335400	1726	10570	205.5	158.5
12	1/4	X 70	863.6	10150	357700	1763	10800	209.9	161.9
12	1/4	X 72	882.0	10580	381000	1801	11030	214.4	165.4
12	1/4	X 73	900.4	11030	405300	1838	11260	218.8	168.8
12	1/4	X 75	918.8	11480	430700	1876	11490	223.3	172.3
12	1/4	X 76	937.1	11950	457000	1913	11720	227.8	175.7
12	1/4	X 78	955.5	12420	484400	1951	11950	232.2	179.2
12	1/4	X 79	973.9	12900	512900	1988	12180	236.7	182.6
12	1/4	X 81	992.3	13400	542500	2026	12410	241.2	186.1
12	1/4	X 82	1011	13900	573200	2063	12640	245.7	189.6
12	1/4	X 84	1029	14410	605100	2101	12870	250.1	192.9
12	1/4	X 85	1047	14930	638000	2138	13100	254.5	196.3
12	1/4	X 87	1066	15450	672200	2176	13330	259.1	199.9
12	1/4	X 88	1084	15990	707600	2213	13560	263.5	203.3

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Section Properties of Structural Glued Laminated Timber

American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft
in.	in.							
12	1/4 X 90	1103	16540	744200	2251	13790	268.1	206.8
12	1/4 X 91 1/2	1121	17090	782000	2288	14020	272.5	210.2
12	1/4 X 93	1139	17660	821100	2326	14250	276.8	213.6
12	1/4 X 94 1/2	1158	18230	861500	2363	14480	281.5	217.1
12	1/4 X 96	1176	18820	903200	2401	14710	285.8	220.5
12	1/4 X 97 1/2	1194	19410	946200	2439	14940	290.2	223.9
12	1/4 X 99	1213	20010	990500	2476	15170	294.8	227.4
12	1/4 X 100 1/2	1231	20620	1036000	2514	15400	299.2	230.8
12	1/4 X 102	1250	21240	1083000	2551	15630	303.8	234.4
12	1/4 X 103 1/2	1268	21870	1132000	2589	15860	308.2	237.8
12	1/4 X 105	1286	22510	1182000	2626	16080	312.6	241.1
12	1/4 X 106 1/2	1305	23160	1233000	2664	16310	317.2	244.7
12	1/4 X 108	1323	23810	1286000	2701	16540	321.6	248.1
12	1/4 X 109 1/2	1341	24480	1340000	2739	16770	325.9	251.4
12	1/4 X 111	1360	25160	1396000	2776	17000	330.6	255.0
12	1/4 X 112 1/2	1378	25840	1453000	2814	17230	334.9	258.4
14	1/4 X 3	42.75	21.38	32.06	101.5	723.4	10.4	8.0
14	1/4 X 4 1/2	64.13	48.09	108.2	152.3	1085	15.6	12.0
14	1/4 X 6	85.50	85.50	256.5	203.1	1447	20.8	16.0
14	1/4 X 7 1/2	106.9	133.6	501.0	253.8	1809	26.0	20.0
14	1/4 X 9	128.3	192.4	865.7	304.6	2170	31.2	24.1
14	1/4 X 10 1/2	149.6	261.8	1375	355.4	2532	36.4	28.1
14	1/4 X 12	171.0	342.0	2052	406.1	2894	41.6	32.1
14	1/4 X 13 1/2	192.4	432.8	2922	456.9	3255	46.8	36.1
14	1/4 X 15	213.8	534.4	4008	507.7	3617	52.0	40.1
14	1/4 X 16 1/2	235.1	646.6	5334	558.4	3979	57.1	44.1
14	1/4 X 18	256.5	769.5	6926	609.2	4340	62.3	48.1
14	1/4 X 19 1/2	277.9	903.1	8805	660.0	4702	67.5	52.1
14	1/4 X 21	299.3	1047	11000	710.7	5064	72.7	56.1
14	1/4 X 22 1/2	320.6	1202	13530	761.5	5426	77.9	60.1
14	1/4 X 24	342.0	1368	16420	812.3	5787	83.1	64.1
14	1/4 X 25 1/2	363.4	1544	19690	863.0	6149	88.3	68.1
14	1/4 X 27	384.8	1731	23370	913.8	6511	93.5	72.2
14	1/4 X 28 1/2	406.1	1929	27490	964.5	6872	98.7	76.1
14	1/4 X 30	427.5	2138	32060	1015	7234	103.9	80.2
14	1/4 X 31 1/2	448.9	2357	37120	1066	7596	109.1	84.2
14	1/4 X 33	470.3	2586	42680	1117	7958	114.3	88.2
14	1/4 X 34 1/2	491.6	2827	48760	1168	8319	119.5	92.2
14	1/4 X 36	513.0	3078	55400	1218	8681	124.7	96.2
14	1/4 X 37 1/2	534.4	3340	62620	1269	9043	129.9	100.2
14	1/4 X 39	555.8	3612	70440	1320	9404	135.1	104.2
14	1/4 X 40 1/2	577.1	3896	78890	1371	9766	140.3	108.2
14	1/4 X 42	598.5	4190	87980	1421	10130	145.5	112.2
14	1/4 X 43 1/2	619.9	4494	97750	1472	10490	150.7	116.2
14	1/4 X 45	641.3	4809	108200	1523	10850	155.9	120.2
14	1/4 X 46 1/2	662.6	5135	119400	1574	11210	161.0	124.2
14	1/4 X 48	684.0	5472	131300	1625	11570	166.3	128.3

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Section Properties of Structural Glued Laminated Timber American Institute of Timber Construction

Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		x-x Axis			y-y Axis		DF-L	HF	
		A	S _x	I _x	S _y	I _y	Weight per foot	Weight per foot	
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia	(based on 35 lb/ft ³)	(based on 27 lb/ft ³)	
Width in.	Depth in.	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft	
14	1/4	X 49	705.4	5819	144000	1675	11940	171.5	132.3
14	1/4	X 51	726.8	6177	157500	1726	12300	176.7	136.3
14	1/4	X 52	748.1	6546	171800	1777	12660	181.8	140.3
14	1/4	X 54	769.5	6926	187000	1828	13020	187.0	144.3
14	1/4	X 55	790.9	7316	203000	1878	13380	192.2	148.3
14	1/4	X 57	812.3	7716	219900	1929	13740	197.4	152.3
14	1/4	X 58	833.6	8128	237700	1980	14110	202.6	156.3
14	1/4	X 60	855.0	8550	256500	2031	14470	207.8	160.3
14	1/4	X 61	876.4	8983	276200	2081	14830	213.0	164.3
14	1/4	X 63	897.8	9426	296900	2132	15190	218.2	168.3
14	1/4	X 64	919.1	9881	318600	2183	15550	223.4	172.3
14	1/4	X 66	940.5	10350	341400	2234	15920	228.6	176.3
14	1/4	X 67	961.9	10820	365200	2284	16280	233.8	180.4
14	1/4	X 69	983.3	11310	390100	2335	16640	239.0	184.4
14	1/4	X 70	1005	11800	416100	2386	17000	244.3	188.4
14	1/4	X 72	1026	12310	443200	2437	17360	249.4	192.4
14	1/4	X 73	1047	12830	471500	2488	17720	254.5	196.3
14	1/4	X 75	1069	13360	501000	2538	18090	259.8	200.4
14	1/4	X 76	1090	13900	531600	2589	18450	264.9	204.4
14	1/4	X 78	1112	14450	563500	2640	18810	270.3	208.5
14	1/4	X 79	1133	15010	596700	2691	19170	275.4	212.4
14	1/4	X 81	1154	15580	631100	2741	19530	280.5	216.4
14	1/4	X 82	1176	16160	666800	2792	19890	285.8	220.5
14	1/4	X 84	1197	16760	703800	2843	20260	290.9	224.4
14	1/4	X 85	1218	17360	742200	2894	20620	296.0	228.4
14	1/4	X 87	1240	17980	782000	2944	20980	301.4	232.5
14	1/4	X 88	1261	18600	823100	2995	21340	306.5	236.4
14	1/4	X 90	1283	19240	865700	3046	21700	311.8	240.6
14	1/4	X 91	1304	19880	909700	3097	22060	316.9	244.5
14	1/4	X 93	1325	20540	955200	3147	22430	322.0	248.4
14	1/4	X 94	1347	21210	1002000	3198	22790	327.4	252.6
14	1/4	X 96	1368	21890	1051000	3249	23150	332.5	256.5
14	1/4	X 97	1389	22580	1101000	3300	23510	337.6	260.4
14	1/4	X 99	1411	23280	1152000	3351	23870	343.0	264.6
14	1/4	X 100	1432	23990	1205000	3401	24230	348.1	268.5
14	1/4	X 102	1454	24710	1260000	3452	24600	353.4	272.6
14	1/4	X 103	1475	25440	1317000	3503	24960	358.5	276.6
14	1/4	X 105	1496	26180	1375000	3554	25320	363.6	280.5
14	1/4	X 106	1518	26940	1434000	3604	25680	369.0	284.6
14	1/4	X 108	1539	27700	1496000	3655	26040	374.1	288.6
14	1/4	X 109	1560	28480	1559000	3706	26400	379.2	292.5
14	1/4	X 111	1582	29260	1624000	3757	26770	384.5	296.6
14	1/4	X 112	1603	30060	1691000	3807	27130	389.6	300.6
14	1/4	X 114	1625	30870	1759000	3858	27490	395.0	304.7
14	1/4	X 115	1646	31680	1830000	3909	27850	400.1	308.6
14	1/4	X 117	1667	32510	1902000	3960	28210	405.2	312.6
14	1/4	X 118	1689	33350	1976000	4010	28570	410.5	316.7

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Section Properties of Structural Glued Laminated Timber
American Institute of Timber Construction
Western Species (Based on 1-1/2 in. Thick Laminations)

Beam Size		A	x-x Axis		y-y Axis		DF-L	HF
			S _x	I _x	S _y	I _y	Weight per foot (based on 35 lb/ft ³)	Weight per foot (based on 27 lb/ft ³)
b	d	Area	Section Modulus	Moment of Inertia	Section Modulus	Moment of Inertia		
Width	Depth	in. ²	in. ³	in. ⁴	in. ³	in. ⁴	lb/ft	lb/ft
in.	in.							
14 1/4	X 120	1710	34200	2052000	4061	28940	415.6	320.6
14 1/4	X 121 1/2	1731	35060	2130000	4112	29300	420.7	324.6
14 1/4	X 123	1753	35930	2210000	4163	29660	426.1	328.7
14 1/4	X 124 1/2	1774	36810	2292000	4214	30020	431.2	332.6
14 1/4	X 126	1796	37710	2375000	4264	30380	436.5	336.8
14 1/4	X 127 1/2	1817	38610	2461000	4315	30740	441.6	340.7
14 1/4	X 129	1838	39520	2549000	4366	31110	446.7	344.6
14 1/4	X 130 1/2	1860	40450	2639000	4417	31470	452.1	348.8

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