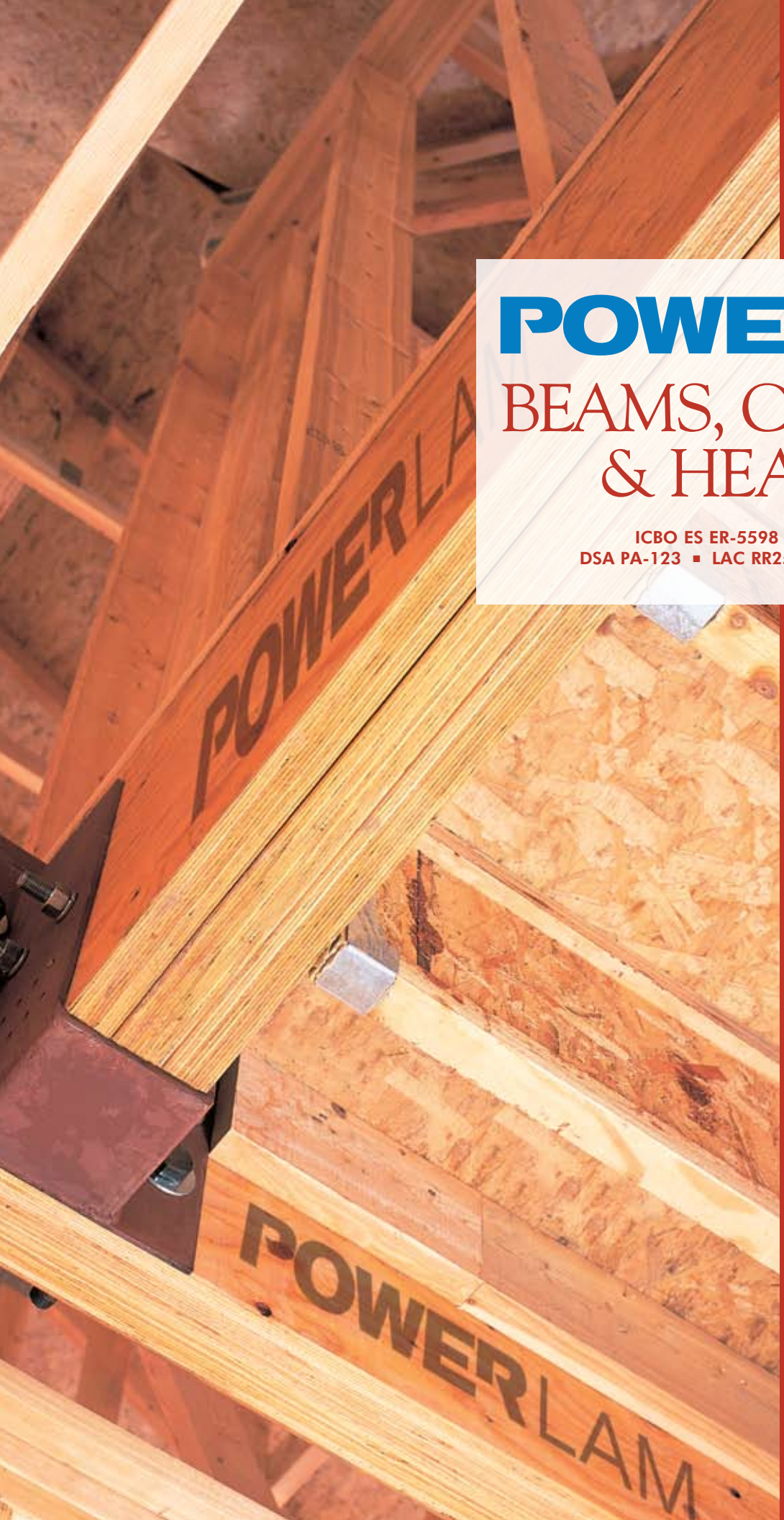


POWERLAM

BEAMS, COLUMNS & HEADERS

ICBO ES ER-5598 ▪ HUD MR 1310
DSA PA-123 ▪ LAC RR25448 ▪ CCMC 13006-R

LIMIT STATES DESIGN

phoenix
BUILDING COMPONENTS

POWERLAM MANUFACTURING

Materials	Percent of Production	Percent of Energy Use
Wood	47	4
Steel	23	48
Aluminum	2	8

WOOD—THE MIRACLE MATERIAL

Wood is the right choice for a host of construction applications. It is the earth's natural, energy efficient and renewable building material.

ENGINEERED WOOD IS A BETTER USE OF WOOD

The miracle in today's wood products is that they make more efficient use of the wood fiber resource to make stronger plywood, oriented strand board, I-joists, glued laminated timbers and laminated veneer lumber. That's good for the environment, and good for designers seeking strong, efficient and striking building design.

A FEW FACTS ABOUT WOOD

We're growing more wood every day. Forests fully cover one-third of the United States' and one-half of Canada's land mass. American landowners plant more than two billion trees every year.

In addition, millions of trees seed naturally. The forest products industry, which comprises about 15 percent of forestland ownership, is responsible for 41 percent of replanted forest acreage. That works out to more than one billion trees a year, or about three million trees planted every day. This high rate of replanting accounts for the fact that each year, 27 percent more timber is grown than is harvested. Canada's replanting record shows a fourfold increase in the number of trees planted between 1975 and 1990.

Life Cycle Assessment shows wood is the greenest building product. A 2004 CORRIM study gave scientific validation to the strength of wood as a green building product. In examining building products' life cycles—from extraction of the raw material to demolition of the building at the end of its long lifespan—CORRIM found that wood was better for the environment than steel or concrete in terms of embodied energy, global warming potential, air emissions, water emissions, and solid waste production. For the complete details of the report, visit www.CORRIM.org.

Manufacturing wood is energy efficient. Wood products made up 47 percent of all industrial raw materials manufactured in the United States, yet consumed only 4 percent of the energy needed to manufacture all industrial raw materials.

Good news for a healthy planet. For every ton of wood grown, a young forest produces 1.07 tons of oxygen and absorbs 1.47 tons of carbon dioxide.

Wood—the miracle material for the environment, for design, and for strong, lasting construction.

POWERLAM
1.5E & 2.0E PRODUCT LINES

You've probably been building with traditional sawn lumber beams and headers for as long as you've been building. Now through advances in technology and design, there is a better choice—POWERLAM LVL headers, beams, and columns. They are simply a better alternative than traditional sawn lumber pieces.

Work with a stronger, stiffer, more consistent and more predictable building material. Compared with similar sized sections, our POWERLAM headers, beams, and columns can support heavier loads and allows greater spans than conventional lumber.

Each piece of POWERLAM is pressure sprayed with a UV inhibitor and sealed with emulsified wax.

HANDLING & INSTALLATION

- POWERLAM should be stored lying flat and protected from the weather.
- Keep the material above ground to minimize the absorption of ground moisture and allow circulation of air.
- POWERLAM is for use in covered, dry conditions only. Protect from the weather on the job site both before and after installation.
- Except for cutting to length, POWERLAM shall not be cut, drilled or notched. Heel cuts may be possible. Contact your Phoenix Building Components representative.
- *Do not install any damaged LVL.*

GENERAL NOTES FOR UNIFORM LOAD TABLES

1. Unfactored Live Load – L/360 values produce deflections equal to L/360, where L is the length of the span.
2. Unfactored Total Load – L/240 values, when added to the beam's weight, produce deflections equal to L/240, where L is the length of the span. For beams 7½" deep and less, deflections are limited to 5⁄16".
3. Factored Total Load values are the maximum that can be added to 1.25 times the beam's weight.
4. End / Interior Bearing values are the minimum required lengths at end and interior supports. Support across the full width of the beam must be provided. These values are based on the compressive resistance of the beam and apply when the beam is supported by connection hardware or the end of a column. Check the compressive resistance of other types of support members.
5. Table values are for the worst case of simple or two-equal continuous spans. Span is measured from centre to centre of supports.
6. Tables values are for standard term (K_D = 1.0), single members (K_H = 1.0), dry service conditions (K_S = 1.0) and no treatment (K_T = 1.0).
7. Table values assume lateral support for the compression edge and all points of bearing (K_L = 1.0).
8. Single-ply beams that are 1¼", 1½" and 1¾" wide are limited to 9½", 11⅞" and 14" depths respectively. 2-1¼" ply beams are limited to 20" deep.
9. Calculations have been carried out in accordance with CSA O86-01, O86S1-05 and the 2005 NBCC.
10. These tables were design to apply to a broad range of applications. It might be possible to exceed the limitations of these tables by analyzing a specific application with sizing software or consulting a professional engineer.
11. For concentrated loads or other conditions outside the scope of these tables, or if any continuous span is less than half the length of an adjacent span, use sizing software or consult a professional engineer.

DIRECTIONS FOR UNIFORM LOAD TABLES

1. Determine the unfactored live load, unfactored total load and factored total load.
2. Choose a span that meets or exceeds the actual design span.
3. Scan from left to right along the chosen span row to find a cell where: the Unfactored Live Load – L/360 value exceeds the unfactored live load; the Unfactored Total Load – L/240 value exceeds the unfactored total load; the Factored Total Load value exceeds the factored total load. All three conditions, plus the minimum End / Interior Bearing requirements, must be satisfied.
4. Load values apply to single ply beams and may be doubled, tripled and quadrupled for 2, 3 and 4-ply beams. Do not exceed 4 plies or 7" in width without consulting a professional engineer. See Multiple-Ply Beam Assembly on page 8.
5. If the selected beam is too deep, or the minimum required bearing length is too long, select a wider beam.

Evaluation Reports:
CCMC Number 13006-R

POWERLAM
1.5E FACTORED RESISTANCE

1½" x 1.5E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	2757	4532	7027	7373	9995	11017	14817	18842	23292	25068	28156	33426	38728
Factored Shear Resistance [lbs][3]	2104	2773	3538	3634	4303	4542	5355	6120	6885	7172	7650	8415	9132
EI [x 10^6 lbs-in^2][4]	31	71	148	161	267	314	515	768	1094	1236	1500	1997	2552
Weight [plf]	2.1	2.8	3.6	3.7	4.4	4.6	5.5	6.2	7.0	7.3	7.8	8.6	9.3

1¾" x 1.5E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	3216	5288	8198	8601	11661	12853	17286	21983	27174	29246	32849	38997	45182
Factored Shear Resistance [lbs][3]	2454	3235	4128	4239	5020	5299	6248	7140	8033	8367	8925	9818	10654
EI [x 10^6 lbs-in^2][4]	36	83	173	188	311	366	600	896	1276	1442	1750	2329	2977
Weight [plf]	2.5	3.3	4.2	4.3	5.1	5.4	6.4	7.3	8.2	8.5	9.1	10.0	10.9

3½" x 1.5E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	6432	10576	16397	17203	23322	25706	34572	43966	54349	58493	65698	77994	90364
Factored Shear Resistance [lbs][3]	4909	6471	8256	8479	10041	10598	12495	14280	16065	16734	17850	19635	21308
EI [x 10^6 lbs-in^2][4]	73	167	346	375	623	733	1201	1792	2552	2884	3500	4659	5954
Weight [plf]	5.0	6.6	8.4	8.6	10.2	10.8	12.7	14.5	16.4	17.0	18.2	20.0	21.7

1. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05
2. φ = 0.9; standard term, K_D = 1.0; single member, K_H = 1.0; dry service conditions, K_{Sb} = 1.0; no treatment, K_T = 1.0; K_{Zb} = $(12/d)^{1/5}$; lateral support at points of bearing and the compression edge, K_L = 1.0
3. φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_{Sv} = 1.0; no treatment, K_T = 1.0; K_{Zv} = 1.0
4. Dry service conditions, K_{SE} = 1.0; no treatment, K_{TE} = 1.0

1.5E POWERLAM Specified Strength and Stiffness[1]

Modulus of Elasticity	E (edge)	1,500,000 psi
	(flat)	1,500,000 psi
Flexural Stress F_b	(edge)	4,158 psi[2]
	(flat)	4,158 psi[3]
Horizontal Shear F_v	(edge)	425 psi
	F_v (flat)	255 psi
Compression Perpendicular to Grain F_{cp}	(edge)	1,365 psi
	(flat)	819 psi
Tension Parallel to Grain F_t		2,360 psi[4]
Compression Parallel to Grain F_c		3,112 psi

1. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05
2. Multiply by K_{Zb} = $(12/d)^{1/5}$, where d = depth of member [in]. K_{Zb} = 1.47 for d < 3.5 inches
3. Multiply by K_{Zb} = $(1.75/d)^{1/5}$, where d = depth of member [in]. K_{Zb} = 1.00 for d < 1.75 inches
4. Multiply by K_{Zt} = $(20/L)^{1/10}$, where L = length of member [ft]. K_{Zt} = 1.17 for L < 4 feet

1.5E POWERLAM AVAILABLE SIZES

1½" 1.5E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16"

1¾" 1.5E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16"

3½" 1.5E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16"

SPECIFIC GRAVITY AND EQUIVALENT SPECIES FOR FASTENER DESIGN

Nail or Bolt	Face[1]	Edge[2]
Nail—Withdrawal	0.50, D. Fir - Larch	0.47, W. Hemlock
Nail—Lateral	0.50, D. Fir - Larch	0.50, D. Fir - Larch
Bolt—Lateral	0.50, D. Fir - Larch	0.50, D. Fir - Larch

1. Face: Member faces showing the face of one veneer, typically the wide faces of the member
2. Edge: Member faces showing the narrow edge of all veneers, typically the narrow faces of the member.

FASTENER SPACING—EDGE

POWERLAM Dimensions	Fastener	Minimum Spacing
Minimum ¾ inches thick and 3½ inches deep	2½" common wire nail	3"
	3" common wire nail	4"
	3¼" common wire nail	4"
	3½" common wire nail	Not Permitted
	14 Gage Staple	4"
Minimum 1¼ inches thick and 3½ inches deep	3" common wire nail	4"
	3¼" common wire nail	4"
	3½" common wire nail	6"[1]
	14 Gage Staple	4"

1. May be 4" when nailing through bottom wall plate and sheathing (maximum 1⅜" penetration)

PRODUCT IDENTIFICATION

APA EWS	
0.0E-0000F	
CCMC 13006-R	

PACIFIC WOODTECH	1047
MM/DD/YY	

POWERLAM components shall be designed in accordance with CSA O86-01, *Engineered Design in Wood*

For additional grades and sizes, please contact your Phoenix Building Components representative.

POWERLAM
2.0E FACTORED RESISTANCE

1½" x 2.0E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	3798	6245	9682	10158	13772	15179	20415	25962	32093	34540	38795	46055	53360
Factored Shear Resistance [lbs][3]	2624	3458	4412	4532	5366	5664	6678	7632	8586	8944	9540	10494	11388
EI [x 10^6 lbs-in^2][4]	42	95	198	214	356	419	686	1024	1458	1648	2000	2662	3402
Weight [plf]	2.1	2.8	3.6	3.7	4.4	4.6	5.5	6.2	7.0	7.3	7.8	8.6	9.3

1¾" x 2.0E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	4431	7286	11296	11851	16067	17709	23817	30289	37442	40296	45260	53731	62253
Factored Shear Resistance [lbs][3]	3061	4035	5148	5287	6261	6608	7791	8904	10017	10434	11130	12243	13286
EI [x 10^6 lbs-in^2][4]	49	111	231	250	415	488	800	1195	1701	1923	2333	3106	3969
Weight [plf]	2.5	3.3	4.2	4.3	5.1	5.4	6.4	7.3	8.2	8.5	9.1	10.0	10.9

3½" x 2.0E POWERLAM

Beam Depth	5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
Factored Moment Resistance [ft-lbs][2]	8862	14571	22592	23703	32134	35419	47635	60577	74883	80593	90521	107462	124506
Factored Shear Resistance [lbs][3]	6122	8069	10295	10574	12521	13217	15582	17808	20034	20869	22260	24486	26573
EI [x 10^6 lbs-in^2][4]	97	222	462	500	831	977	1601	2389	3402	3845	4667	6211	7939
Weight [plf]	5.0	6.6	8.4	8.6	10.2	10.8	12.7	14.5	16.4	17.0	18.2	20.0	21.7

1. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05
2. φ = 0.9; standard term, K_D = 1.0; single member, K_H = 1.0; dry service conditions, K_{Sb} = 1.0; no treatment, K_T = 1.0; K_{Zb} = $(12/d)^{1/5}$; lateral support at points of bearing and the compression edge, K_L = 1.0
3. φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_{Sv} = 1.0; no treatment, K_T = 1.0; K_{Zv} = 1.0
4. Dry service conditions, K_{SE} = 1.0; no treatment, K_{TE} = 1.0

2.0E POWERLAM Specified Strength and Stiffness[1]

Modulus of Elasticity	E (edge)	= 2,000,000 psi
	(flat)	= 2,000,000 psi
Flexural Stress F_b	(edge)	= 5,729 psi[2]
	(flat)	= 5,729 psi[3]
Horizontal Shear F_v	(edge)	= 530 psi
	F_v (flat)	= 260 psi
Compression Perpendicular to Grain F_{cp}	(edge)	= 1,547 psi
	(flat)	= 819 psi
Tension Parallel to Grain F_t		= 3,304 psi[4]
Compression Parallel to Grain F_c		= 4,389 psi

1. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05
2. Multiply by K_{Zb} = $(12/d)^{1/5}$, where d = depth of member [in]. K_{Zb} = 1.47 for d < 3.5 inches
3. Multiply by K_{Zb} = $(1.75/d)^{1/5}$, where d = depth of member [in]. K_{Zb} = 1.00 for d < 1.75 inches
4. Multiply by K_{Zt} = $(20/L)^{1/10}$, where L = length of member [ft]. K_{Zt} = 1.17 for L < 4 feet

2.0E POWERLAM AVAILABLE SIZES

1½" 2.0E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16" 18"

1¾" 2.0E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16" 18" 20" 22" 23⅞"

3½" 2.0E POWERLAM

5½" 7¼" 9½" 11⅞" 14" 16" 18"

SPECIFIC GRAVITY AND EQUIVALENT SPECIES FOR FASTENER DESIGN

Nail or Bolt	Face[1]	Edge[2]
Nail—Withdrawal	0.50, D. Fir - Larch	0.47, W. Hemlock
Nail—Lateral	0.50, D. Fir - Larch	0.50, D. Fir - Larch
Bolt—Lateral	0.50, D. Fir - Larch	0.50, D. Fir - Larch

1. Face: Member faces showing the face of one veneer, typically the wide faces of the member
2. Edge: Member faces showing the narrow edge of all veneers, typically the narrow faces of the member

FASTENER SPACING—EDGE

POWERLAM Dimensions	Fastener	Minimum Spacing
Minimum ¾ inches thick and 3½ inches deep	2½" common wire nail	3"
	3" common wire nail	4"
	3¼" common wire nail	4"
	3½" common wire nail	Not Permitted
	14 Gage Staple	4"
Minimum 1¼ inches thick and 3½ inches deep	3" common wire nail	4"
	3¼" common wire nail	4"
	3½" common wire nail	6"[1]
	14 Gage Staple	4"

1. May be 4" when nailing through bottom wall plate and sheathing (maximum 1⅜" penetration)

PRODUCT IDENTIFICATION

APA EWS	
0.0E-0000F	
CCMC 13006-R	

PACIFIC WOODTECH	1047
MM/DD/YY	

POWERLAM components shall be designed in accordance with CSA O86-01, *Engineered Design in Wood*.

For additional grades and sizes, please contact your Phoenix Building Components representative.

POWERLAM
1.5E UNIFORM LOADS

ALLOWABLE UNIFORM LOAD (PLF)—ONE 1¾" PLY

Span	Key	Beam Depth							* Minimum 2-Ply Application					
		5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
6′	Unfactored Load L/360	250	572	1187	1286									
	Unfactored Load L/240	372	854											
	Total Factored Load	712	1024	1380	1428	1779	1913	2410	2945	3560	3814	4273	5110	6039
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.6 / 4.0	2.2 / 5.4	2.2 / 5.6	2.8 / 7.0	3.0 / 7.5	3.8 / 9.5	4.6 / 11.6	5.6 / 14.0	6.0 / 15.0	6.7 / 16.8	8.0 / 20.1	9.5 / 23.8
7′	Unfactored Load L/360	157	360	748	810	1345								
	Unfactored Load L/240	208	479	1117										
	Total Factored Load	522	854	1140	1178	1454	1559	1939	2338	2784	2964	3284	3850	4453
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.6 / 3.9	2.1 / 5.2	2.2 / 5.4	2.7 / 6.7	2.9 / 7.2	3.6 / 8.9	4.3 / 10.7	5.1 / 12.8	5.4 / 13.6	6.0 / 15.1	7.1 / 17.7	8.2 / 20.5
8′	Unfactored Load L/360	105	241	501	543	901	1060							
	Unfactored Load L/240	121	279	747	810									
	Total Factored Load	399	657	971	1002	1229	1315	1622	1938	2285	2423	2666	3088	3526
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.5	2.0 / 5.1	2.1 / 5.3	2.6 / 6.5	2.8 / 6.9	3.4 / 8.5	4.1 / 10.2	4.8 / 12.0	5.1 / 12.7	5.6 / 14.0	6.5 / 16.2	7.4 / 18.5
9′	Unfactored Load L/360	74	169	352	381	633	744	1220						
	Unfactored Load L/240	75	173	524	567	944	1111							
	Total Factored Load	315	518	804	844	1065	1136	1393	1655	1937	2049	2243	2577	2917
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.1	1.9 / 4.8	2.0 / 5.0	2.5 / 6.3	2.7 / 6.7	3.3 / 8.2	3.9 / 9.8	4.6 / 11.5	4.8 / 12.1	5.3 / 13.3	6.1 / 15.2	6.9 / 17.3
10′	Unfactored Load L/360			256	278	461	543	889	1327					
	Unfactored Load L/240	48	112	381	412	687	809							
	Total Factored Load	254	419	651	683	927	1001	1221	1443	1681	1774	1936	2210	2487
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.0	1.7 / 4.3	1.8 / 4.5	2.4 / 6.1	2.6 / 6.6	3.2 / 8.0	3.8 / 9.5	4.4 / 11.1	4.7 / 11.7	5.1 / 12.7	5.8 / 14.5	6.5 / 16.4
11′	Unfactored Load L/360			193	209	347	408	668	997	1420				
	Unfactored Load L/240	32	76	285	309	515	606	996						
	Total Factored Load	210	345	537	563	765	843	1086	1279	1484	1564	1702	1935	2167
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.0	1.6 / 3.9	1.6 / 4.1	2.2 / 5.5	2.4 / 6.1	3.1 / 7.9	3.7 / 9.3	4.3 / 10.8	4.5 / 11.3	4.9 / 12.3	5.6 / 14.0	6.3 / 15.7
12′	Unfactored Load L/360			148	161	267	314	515	768	1094	1236	1500		
	Unfactored Load L/240		53	218	237	395	466	766	1145					
	Total Factored Load		290	450	472	641	707	952	1149	1329	1399	1519	1720	1920
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.5 / 3.6	1.5 / 3.8	2.0 / 5.1	2.2 / 5.6	3.0 / 7.5	3.6 / 9.1	4.2 / 10.5	4.4 / 11.1	4.8 / 12.0	5.4 / 13.6	6.1 / 15.2
13′	Unfactored Load L/360			117	126	210	247	405	604	860	972	1180		
	Unfactored Load L/240		37	171	185	310	365	601	899					
	Total Factored Load		246	383	402	546	602	810	1032	1202	1264	1371	1548	1723
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.5 / 3.3	1.5 / 3.5	1.9 / 4.7	2.1 / 5.2	2.8 / 7.0	3.5 / 8.8	4.1 / 10.3	4.3 / 10.8	4.7 / 11.8	5.3 / 13.3	5.9 / 14.8
14′	Unfactored Load L/360			93	101	168	198	324	484	689	779	945	1258	
	Unfactored Load L/240		27	136	148	247	291	480	718	1025				
	Total Factored Load		212	329	346	470	518	698	888	1098	1153	1249	1407	1562
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.5 / 3.1	1.5 / 3.2	1.7 / 4.4	1.9 / 4.8	2.6 / 6.5	3.3 / 8.2	4.1 / 10.1	4.3 / 10.7	4.6 / 11.5	5.2 / 13.0	5.8 / 14.4
15′	Unfactored Load L/360			76	82	137	161	263	393	560	633	768	1022	1307
	Unfactored Load L/240			110	119	200	236	389	583	832	941	1143		
	Total Factored Load			286	300	408	450	607	773	956	1029	1146	1289	1429
	Min. End/Int. Bearing (in.)			1.5 / 3.0	1.5 / 3.0	1.6 / 4.1	1.8 / 4.5	2.4 / 6.0	3.1 / 7.7	3.8 / 9.5	4.1 / 10.2	4.5 / 11.4	5.1 / 12.8	5.7 / 14.2
16′	Unfactored Load L/360			63	68	113	132	217	324	461	522	633	842	1077
	Unfactored Load L/240			90	97	164	193	319	479	684	774	940		
	Total Factored Load			251	263	358	395	532	678	839	903	1015	1190	1316
	Min. End/Int. Bearing (in.)			1.5 / 3.0	1.5 / 3.0	1.5 / 3.8	1.7 / 4.2	2.3 / 5.7	2.9 / 7.2	3.6 / 8.9	3.8 / 9.6	4.3 / 10.7	5.0 / 12.6	5.6 / 13.9
17′	Unfactored Load L/360			52	57	94	110	181	270	385	435	528	702	898
	Unfactored Load L/240			74	81	136	160	265	398	569	644	782	1044	
	Total Factored Load			222	233	316	349	471	599	742	799	898	1067	1220
	Min. End/Int. Bearing (in.)			1.5 / 3.0	1.5 / 3.0	1.5 / 3.6	1.6 / 4.0	2.1 / 5.3	2.7 / 6.8	3.3 / 8.4	3.6 / 9.0	4.0 / 10.1	4.8 / 12.0	5.5 / 13.7
18′	Unfactored Load L/360			44	48	79	93	152	228	324	366	445	592	756
	Unfactored Load L/240			62	67	114	134	222	334	478	541	658	878	
	Total Factored Load			197	207	282	311	419	534	661	711	800	950	1102
	Min. End/Int. Bearing (in.)			1.5 / 3.0	1.5 / 3.0	1.5 / 3.4	1.5 / 3.7	2.0 / 5.0	2.6 / 6.4	3.2 / 7.9	3.4 / 8.5	3.8 / 9.5	4.5 / 11.3	5.3 / 13.1
19′	Unfactored Load L/360				41	67	79	130	194	276	311	378	503	643
	Unfactored Load L/240				56	96	113	188	283	405	459	558	745	954
	Total Factored Load				185	252	278	375	478	592	637	717	852	988
	Min. End/Int. Bearing (in.)				1.5 / 3.0	1.5 / 3.2	1.5 / 3.5	1.9 / 4.8	2.4 / 6.1	3.0 / 7.5	3.2 / 8.1	3.6 / 9.0	4.3 / 10.7	5.0 / 12.4
20′	Unfactored Load L/360					58	68	111	166	236	267	324	431	551
	Unfactored Load L/240					81	96	160	242	346	392	477	637	816
	Total Factored Load					227	250	338	431	533	574	646	767	890
	Min. End/Int. Bearing (in.)					1.5 / 3.1	1.5 / 3.4	1.8 / 4.5	2.3 / 5.8	2.8 / 7.1	3.1 / 7.7	3.4 / 8.6	4.1 / 10.2	4.7 / 11.8

Refer to GENERAL NOTES on page 3

* Tabulated loads are per ply. Multiply tabulated loads by corresponding number of plies when determining allowable spans for multi-ply beam assemblies greater than 14" in depth (or where depth-to-width ratio exceeds 8:1).

POWERLAM
2.0E UNIFORM LOADS

ALLOWABLE UNIFORM LOAD (PLF)—**ONE 1¾" PLY**

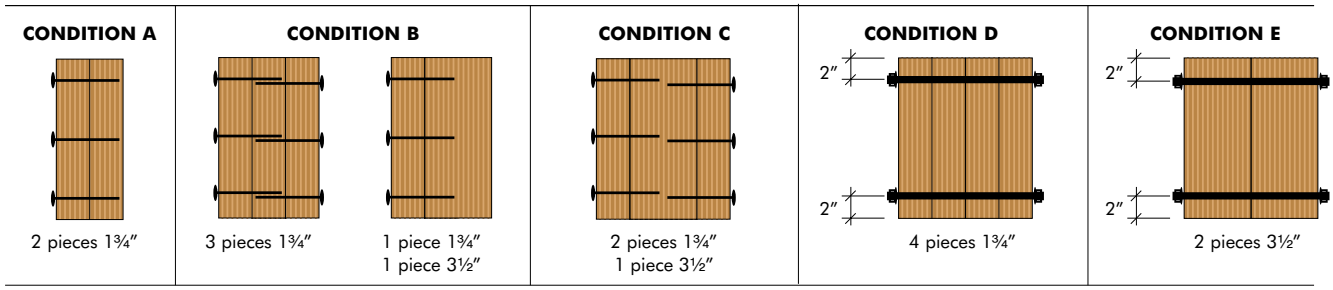
Span	Key	Beam Depth							* Minimum 2-Ply Application					
		5½"	7¼"	9¼"	9½"	11¼"	11⅞"	14"	16"	18"	18¾"	20"	22"	23⅞"
6′	Unfactored Load L/360	333	762	1583	1715									
	Unfactored Load L/240	497	1140											
	Total Factored Load	927	1278	1723	1782	2220	2387	3008	3675	4442	4759	5331	6375	7534
	Min. End/Int. Bearing (in.)	1.5 / 3.2	1.8 / 4.4	2.4 / 6.0	2.5 / 6.2	3.1 / 7.7	3.3 / 8.3	4.2 / 10.4	5.1 / 12.8	6.2 / 15.4	6.6 / 16.5	7.4 / 18.5	8.8 / 22.1	10.5 / 26.1
7′	Unfactored Load L/360	210	480	997	1080	1794								
	Unfactored Load L/240	278	640											
	Total Factored Load	720	1066	1423	1470	1815	1945	2420	2918	3474	3699	4098	4804	5556
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.7 / 4.3	2.3 / 5.8	2.4 / 6.0	2.9 / 7.4	3.2 / 7.9	3.9 / 9.8	4.7 / 11.8	5.6 / 14.1	6.0 / 15.0	6.6 / 16.6	7.8 / 19.5	9.0 / 22.5
8′	Unfactored Load L/360	140	322	668	724	1202	1413							
	Unfactored Load L/240	162	374	998	1081									
	Total Factored Load	551	907	1212	1251	1535	1641	2024	2419	2852	3025	3328	3854	4400
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.7 / 4.2	2.2 / 5.6	2.3 / 5.8	2.8 / 7.1	3.0 / 7.6	3.8 / 9.4	4.5 / 11.2	5.3 / 13.2	5.6 / 14.0	6.2 / 15.4	7.1 / 17.9	8.2 / 20.4
9′	Unfactored Load L/360	99	226	469	508	844	993	1626						
	Unfactored Load L/240	100	232	699	758	1261								
	Total Factored Load	435	715	1055	1088	1329	1419	1740	2066	2418	2558	2800	3216	3641
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.7	2.2 / 5.5	2.3 / 5.7	2.8 / 6.9	3.0 / 7.4	3.6 / 9.1	4.3 / 10.8	5.0 / 12.6	5.3 / 13.3	5.8 / 14.6	6.7 / 16.8	7.6 / 19.0
10′	Unfactored Load L/360			342	370	615	724	1186	1770					
	Unfactored Load L/240	65	151	509	551	918	1080							
	Total Factored Load	351	579	898	943	1172	1250	1525	1802	2099	2215	2417	2760	3105
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.4	2.1 / 5.2	2.2 / 5.5	2.7 / 6.8	2.9 / 7.3	3.5 / 8.8	4.2 / 10.5	4.9 / 12.2	5.1 / 12.8	5.6 / 14.0	6.4 / 16.0	7.2 / 18.0
11′	Unfactored Load L/360			257	278	462	544	891	1330					
	Unfactored Load L/240	44	102	381	413	688	810	1330						
	Total Factored Load	290	478	742	778	1048	1116	1357	1598	1853	1953	2126	2416	2706
	Min. End/Int. Bearing (in.)	1.5 / 3.0	1.5 / 3.1	1.9 / 4.7	2.0 / 5.0	2.7 / 6.7	2.9 / 7.1	3.5 / 8.7	4.1 / 10.2	4.7 / 11.8	5.0 / 12.5	5.4 / 13.6	6.2 / 15.4	6.9 / 17.3
12′	Unfactored Load L/360			198	214	356	419	686	1024	1458	1648			
	Unfactored Load L/240		71	293	317	529	623	1023						
	Total Factored Load		401	622	653	886	977	1222	1435	1659	1747	1897	2148	2398
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.7 / 4.3	1.8 / 4.6	2.5 / 6.2	2.7 / 6.8	3.4 / 8.5	4.0 / 10.0	4.6 / 11.6	4.9 / 12.2	5.3 / 13.2	6.0 / 15.0	6.7 / 16.7
13′	Unfactored Load L/360			156	169	280	329	540	806	1147	1296	1573		
	Unfactored Load L/240		51	229	249	415	489	803	1201					
	Total Factored Load		341	529	556	754	832	1112	1302	1502	1579	1712	1933	2152
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.6 / 4.0	1.7 / 4.2	2.3 / 5.7	2.5 / 6.3	3.4 / 8.4	3.9 / 9.8	4.5 / 11.3	4.8 / 11.9	5.2 / 12.9	5.8 / 14.6	6.5 / 16.2
14′	Unfactored Load L/360			125	135	224	264	432	645	918	1038	1260	1677	
	Unfactored Load L/240		37	183	198	331	390	642	960	1369				
	Total Factored Load		293	456	478	649	716	964	1191	1371	1441	1560	1758	1952
	Min. End/Int. Bearing (in.)		1.5 / 3.0	1.5 / 3.7	1.6 / 3.9	2.1 / 5.3	2.3 / 5.8	3.1 / 7.9	3.9 / 9.7	4.5 / 11.2	4.7 / 11.7	5.1 / 12.7	5.7 / 14.3	6.4 / 15.9
15′	Unfactored Load L/360			101	110	182	214	351	524	747	844	1024	1363	1742
	Unfactored Load L/240			148	160	268	316	521	779	1112	1257			
	Total Factored Load			396	416	565	623	839	1068	1262	1325	1433	1611	1785
	Min. End/Int. Bearing (in.)			1.5 / 3.5	1.5 / 3.6	2.0 / 4.9	2.2 / 5.5	2.9 / 7.3	3.7 / 9.3	4.4 / 11.0	4.6 / 11.6	5.0 / 12.5	5.6 / 14.1	6.2 / 15.6
16′	Unfactored Load L/360			83	90	150	177	289	432	615	695	844	1123	1436
	Unfactored Load L/240			121	131	220	260	428	641	915	1035	1257		
	Total Factored Load			348	365	496	547	736	937	1160	1226	1324	1487	1645
	Min. End/Int. Bearing (in.)			1.5 / 3.3	1.5 / 3.4	1.9 / 4.6	2.0 / 5.1	2.7 / 6.9	3.5 / 8.7	4.3 / 10.8	4.6 / 11.4	4.9 / 12.3	5.5 / 13.8	6.1 / 15.3
17′	Unfactored Load L/360			70	75	125	147	241	360	513	580	704	936	1197
	Unfactored Load L/240			100	109	183	216	356	533	761	861	1046		
	Total Factored Load			307	323	438	483	651	829	1026	1105	1231	1380	1525
	Min. End/Int. Bearing (in.)			1.5 / 3.1	1.5 / 3.2	1.7 / 4.4	1.9 / 4.8	2.6 / 6.5	3.3 / 8.2	4.1 / 10.2	4.4 / 10.9	4.9 / 12.2	5.5 / 13.7	6.0 / 15.1
18′	Unfactored Load L/360			59	64	105	124	203	303	432	488	593	789	1008
	Unfactored Load L/240			84	91	153	181	299	448	640	724	880	1173	
	Total Factored Load			274	287	390	431	580	739	914	984	1106	1288	1421
	Min. End/Int. Bearing (in.)			1.5 / 3.0	1.5 / 3.0	1.6 / 4.1	1.8 / 4.5	2.4 / 6.1	3.1 / 7.8	3.8 / 9.6	4.1 / 10.3	4.6 / 11.6	5.4 / 13.5	6.0 / 14.9
19′	Unfactored Load L/360				54	90	105	173	258	367	415	504	671	857
	Unfactored Load L/240				77	129	153	253	380	543	614	747	996	1275
	Total Factored Load				257	350	386	520	662	820	882	992	1178	1330
	Min. End/Int. Bearing (in.)				1.5 / 3.0	1.6 / 3.9	1.7 / 4.3	2.3 / 5.8	2.9 / 7.4	3.6 / 9.1	3.9 / 9.8	4.4 / 11.0	5.2 / 13.1	5.9 / 14.7
20′	Unfactored Load L/360					77	90	148	221	315	356	432	575	735
	Unfactored Load L/240					110	130	216	325	464	526	639	853	1092
	Total Factored Load					315	347	468	597	739	795	894	1062	1231
	Min. End/Int. Bearing (in.)					1.5 / 3.7	1.6 / 4.1	2.2 / 5.5	2.8 / 7.0	3.5 / 8.6	3.7 / 9.3	4.2 / 10.4	5.0 / 12.4	5.7 / 14.4

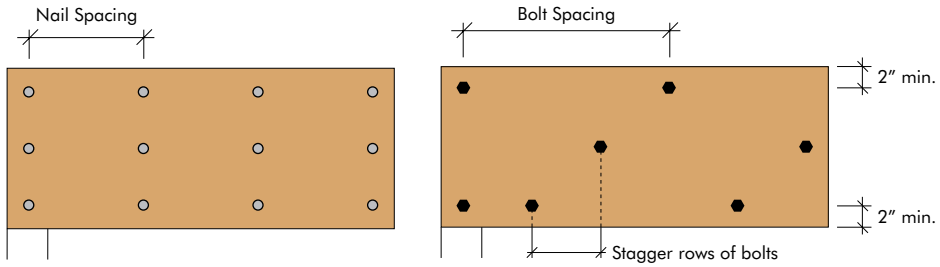
Refer to GENERAL NOTES on page 3

* Tabulated loads are per ply. Multiply tabulated loads by corresponding number of plies when determining allowable spans for multi-ply beam assemblies greater than 14" in depth (or where depth-to-width ratio exceeds 8:1).

POWERLAM
MULTIPLE-PLY BEAM ASSEMBLY

COMBINATIONS OF 1¾" AND 3½" PLIES





1¾" POWERLAM—MAXIMUM UNIFORM SIDE LOAD (PLF)

Condition	3½" Spiral Nails		3½" Wire Nails		½" ASTM A307 Bolts		
	2 rows at 12" o.c.	3 rows at 12" o.c.	2 rows at 12" o.c.	3 rows at 12" o.c.	2 rows at 24" o.c.	2 rows at 12" o.c.	3 rows at 12" o.c.
Condition A (2 – 1¾")	863	1294	917	1375	680	1359	2039
Condition B (3 – 1¾")	647	971	688	1031	510	1020	1529
Condition C (2 – 1¾" + 1 – 3½")	575	863	611	917	680	1359	2039
Condition D (4 – 1¾")	use bolts for this condition				453	906	1359
Condition E (2 – 3½")	use bolts for this condition				1359	2719	4078

Notes:

1. Minimum fastener schedule for smaller side loads and top-loaded POWERLAM beams:
   Conditions A, B & C, beams 12" deep or less:
   2 rows 3½" spiral nails at 12" o.c.
   Conditions A, B & C, beams deeper than 12":
   3 rows 3½" spiral nails at 12" o.c.
   Conditions D & E, all beam depths:
   2 rows ½" bolts at 24" o.c.
2. The table values for nails may be doubled for 6" o.c. and tripled for 4" o.c. nail spacings.
3. The nail schedules shown apply to both sides of a 3-ply beam.
4. Washers must be used under bolt heads and nuts. The distance from the edge of the beam to the bolt holes must be at least 2" for ½" bolts. Bolt holes must be the same diameter as the bolt.
5. 4-ply or 7" wide beams must be loaded from both sides and/or top loaded, or otherwise be detailed by a professional engineer.
6. Beams wider than 7" must be sized and detailed by a professional engineer.
7. Table values are for standard term (K_D = 1.0), dry service conditions (K_{SF} = 1.0) and no treatment (K_T = 1.0).
8. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05.
9. Nails are common spiral and wire nails with diameters of 0.152" and 0.160" respectively.

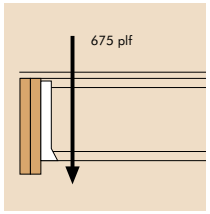
HOW TO USE THE MAXIMUM UNIFORM SIDE LOAD TABLE

1¾" POWERLAM EXAMPLES

EXAMPLE 1:

Beam loaded from one side, two 1¾" plies (Condition A)

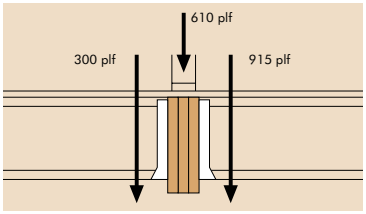
1. Use load tables or sizing software to size the beam to carry a total factored load of 675 plf.
2. Refer to the Condition A row in the table. Scan across the Condition A row from left to right for a table value greater than 675 plf. The first value in the row indicates that 2 rows of 3½" common spiral nails at 12" o.c. will accommodate a side load of 755 plf which is greater than the 675 plf required. Use 2 rows of 3½" common spiral nails at 12" o.c. to assemble the beam. Note that a minimum of 3 rows of nails are required for beams deeper than 12".



EXAMPLE 2:

Beam loaded from both sides and above, three 1¾" plies (Condition B)

1. Use load tables or sizing software to size the beam to carry a total factored load of (300 + 610 + 915) = 1825 plf.
2. Refer to the Condition B row in the table. Scan across the Condition B row from left to right for a table value greater than 915 plf, which is the greatest side load carried by the beam. The fourth value in the row indicates that 3 rows of 3½" common wire nails at 12" o.c. will accommodate a side load of 1031 plf which is greater than the 915 plf required. Use 3 rows of 3½" common wire nails at 12" o.c., from both sides, to assemble the beam.



POWERLAM 2.0E COLUMNS

The properties that make POWERLAM a superior beam material make it ideal for column use as well. In POWERLAM columns, you'll find only quality construction, free of deep cracks, checks or twists. These columns are desirable enough to leave exposed, for a beautiful finish.

COLUMN LOAD TABLES

POWERLAM COLUMNS—FACTORED RESISTANCE [LBS]

Length	1.5E Grade			2.0E Grade		
	3½" x 3½"	3½" x 5½"	3½" x 7¼"	3½" x 3½"	3½" x 5½"	3½" x 7¼"
6′	11260	17690	23320	15440	24270	31990
7′	9670	15200	20040	13220	20770	27380
8′	8240	12950	17070	11220	17630	23240
9′	6980	10980	14470	9480	14900	19650
10′	5910	9290	12240	8010	12580	16580
11′	5000	7860	10360	6760	10620	14000
12′	4240	6660	8770	5720	8980	11840
13′	3600	5650	7450	4840	7610	10030
14′	3060	4810	6340	4120	6470	8530
> 14′	Not Permitted			Not Permitted		

1. Table values apply to solid, one-piece columns with an effective length equal to the actual column length.
2. Table values are for standard term (K_D = 1.0), dry service conditions (K_S = 1.0) and no treatment (K_T = 1.0).
3. Table values apply to axially-loaded columns. A load eccentricity equal to the worst case of one-sixth of either column dimension is assumed. Refer to CSA-O86 when designing for combined bending and axial loads or other load eccentricities.
4. Calculations have been carried out in accordance with CSA O86-01, O86S1-05 and the 2005 NBCC

POWERLAM NAILED, BUILT-UP COLUMNS—FACTORED RESISTANCE [LBS]

Length	1.5E Grade						2.0E Grade					
	2-Ply 1½" x			2-Ply 1¾" x			2-Ply 1½" x			2-Ply 1¾" x		
	3½"	5½"	7¼"	3½"	5½"	7¼"	3½"	5½"	7¼"	3½"	5½"	7¼"
6′	5020	7890	10410	6750	10610	13990	6860	10790	14220	9270	14560	19190
7′	4160	6530	8610	5800	9120	12020	5660	8890	11720	7930	12460	16430
8′	3420	5380	7090	4940	7770	10240	4640	7300	9620	6730	10580	13950
9′	2810	4420	5830	4190	6590	8680	3810	5980	7890	5690	8940	11790
10′	2310	3640	4790	3550	5570	7350	3130	4910	6470	4800	7550	9950
11′	1910	3000	3950	3000	4710	6220	2570	4040	5330	4060	6370	8400
12′	1580	2480	3270	2540	3990	5260	2130	3340	4400	3430	5390	7100
13′	Not Permitted			2160	3390	4470	Not Permitted			2910	4570	6020
14′				1840	2880	3800				2470	3880	5120
> 14′				Not Permitted						Not Permitted		

1. Table values apply to solid, one-piece columns with an effective length equal to the actual column length.
2. Table values are for standard term (K_D = 1.0), dry service conditions (K_S = 1.0) and no treatment (K_T = 1.0).
3. Table values apply to axially-loaded columns. A load eccentricity equal to the worst case of one-sixth of either column dimension is assumed. Refer to CSA-O86 when designing for combined bending and axial loads or other load eccentricities.
4. Calculations have been carried out in accordance with CSA O86-01, O86S1-05 and the 2005 NBCC

NAIL SCHEDULE

1½" Plies	1¾" Plies
2" minimum length	3" minimum length
9" maximum spacing along column	10½" maximum spacing along column
One row for 3½" wide plies	One row for 3½" wide plies
Two rows for 5½" & 7¼" wide plies	Two rows for 5½" & 7¼" wide plies
Maximum row spacing = 20 nail diameters	Maximum row spacing = 20 nail diameters
Alternate from face to face when driving nails	Alternate from face to face when driving nails

POWERLAM 1¾" PLIES BEARING LENGTH REQUIREMENTS

POWERLAM BEARING LENGTH REQUIREMENTS[1][2][3][4][5]

Support Material		S-P-F[6]				Douglas Fir – Larch[6]				Northern Species[6]				1.5E POWERLAM[7]				2.0E POWERLAM[7]			
Factored Resistance		615 psi				812 psi				406 psi				1092 psi (edge bearing)				1238 psi (edge bearing)			
Number of 1¾" LVL Plies		1-Ply	2-Ply	3-Ply	4-Ply	1-Ply	2-Ply	3-Ply	4-Ply	1-Ply	2-Ply	3-Ply	4-Ply	1-Ply	2-Ply	3-Ply	4-Ply	1-Ply	2-Ply	3-Ply	4-Ply
Factored Reaction (x 1000 lbs)	1	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"
	2	2"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	3"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"	1½"
	3	3"	1½"	1½"	1½"	2¼"	1½"	1½"	1½"	4¼"	2¼"	1½"	1½"	1¾"	1½"	1½"	1½"	1½"	1½"	1½"	1½"
	4	3¾"	2"	1½"	1½"	3"	1½"	1½"	1½"	5¾"	3"	2"	1½"	2¼"	1½"	1½"	1½"	2"	1½"	1½"	1½"
	5	4¾"	2½"	1¾"	1½"	3¾"	2"	1½"	1½"	7¼"	3¾"	2½"	2"	2¾"	1½"	1½"	1½"	2½"	1½"	1½"	1½"
	6	5¾"	3"	2"	1½"	4¼"	2¼"	1½"	1½"	8½"	4¼"	3"	2¼"	3¼"	1¾"	1½"	1½"	3"	1½"	1½"	1½"
	7	6¾"	3½"	2¼"	1¾"	5"	2½"	1¾"	1½"	10"	5"	3½"	2½"	3¾"	2"	1½"	1½"	3¼"	1¾"	1½"	1½"
	8	7½"	3¾"	2½"	2"	5¾"	3"	2"	1½"		5¾"	4"	3"	4¼"	2¼"	1½"	1½"	3¾"	2"	1½"	1½"
	9	8½"	4¼"	3"	2¼"	6½"	3¼"	2¼"	1¾"		6½"	4¼"	3¼"	4¾"	2½"	1¾"	1½"	4¼"	2¼"	1½"	1½"
	10	9½"	4¾"	3¼"	2½"	7¼"	3¾"	2½"	2"		7¼"	4¾"	3¾"	5¼"	2¾"	1¾"	1½"	4¾"	2½"	1¾"	1½"
	11	10¼"	5¼"	3½"	2¾"	7¾"	4"	2¾"	2"		7¾"	5¼"	4"	6"	3"	2"	1½"	5¼"	2¾"	1¾"	1½"
	12	11¼"	5¾"	3¾"	3"	8½"	4¼"	3"	2¼"		8½"	5¾"	4¼"	6½"	3¼"	2¼"	1¾"	5¾"	3"	2"	1½"
	13		6¼"	4¼"	3¼"	9¼"	4¾"	3¼"	2½"		9¼"	6¼"	4¾"	7"	3½"	2½"	1¾"	6¼"	3¼"	2¼"	1¾"
	14		6¾"	4½"	3½"	10"	5"	3½"	2½"		10"	6¾"	5"	7½"	3¾"	2½"	2"	6½"	3¼"	2¼"	1¾"
	15		7"	4¾"	3½"	10¾"	5½"	3¾"	2¾"		10¾"	7¼"	5½"	8"	4"	2¾"	2"	7"	3½"	2½"	1¾"
	16		7½"	5"	3¾"		5¾"	4"	3"			7¾"	5¾"	8½"	4¼"	3"	2¼"	7½"	3¾"	2½"	2"
	17		8"	5½"	4"		6"	4"	3"			8"	6"	9"	4½"	3"	2¼"	8"	4"	2¾"	2"
	18		8½"	5¾"	4¼"		6½"	4¼"	3¼"			8½"	6½"	9½"	4¾"	3¼"	2½"	8½"	4¼"	3"	2¼"
	19		9"	6"	4½"		6¾"	4½"	3½"			9"	6¾"	10"	5"	3½"	2½"	9"	4½"	3"	2¼"
	20		9½"	6¼"	4¾"		7¼"	4¾"	3¾"			9½"	7¼"	10½"	5¼"	3½"	2¾"	9¼"	4¾"	3¼"	2½"
	21		10"	6¾"	5"		7½"	5"	3¾"			10"	7½"	11"	5½"	3¾"	2¾"	9¾"	5"	3¼"	2½"
	22		10¼"	7"	5¼"		7¾"	5¼"	4"			10½"	7¾"	11¾"	6"	4"	3"	10¼"	5¼"	3½"	2¾"
	23		10¾"	7¼"	5½"		8¼"	5½"	4¼"			11"	8¼"	12¼"	6¼"	4¼"	3¼"	10¾"	5½"	3¾"	2¾"
	24		11¼"	7½"	5¾"		8½"	5¾"	4¼"				8½"	12¾"	6½"	4¼"	3¼"	11¼"	5¾"	3¾"	3"
	25			7¾"	6"		9"	6"	4½"				9"		6¾"	4½"	3½"	11¾"	6"	4"	3"
	26			8¼"	6¼"		9¼"	6¼"	4¾"				9¼"		7"	4¾"	3½"	12¼"	6¼"	4¼"	3¼"
	27			8½"	6½"		9¾"	6½"	5"				9¾"		7¼"	4¾"	3¾"	12½"	6¼"	4¼"	3¼"
	28			8¾"	6¾"		10"	6¾"	5"				10"		7½"	5"	3¾"	13"	6½"	4½"	3¼"
	29			9"	6¾"		10¼"	7"	5¼"				10¼"		7¾"	5¼"	4"		6¾"	4½"	3½"
	30			9½"	7"		10¾"	7¼"	5½"				10¾"		8"	5¼"	4"		7"	4¾"	3½"
	31			9¾"	7¼"		11"	7½"	5½"				11"		8¼"	5½"	4¼"		7¼"	5"	3¾"
	32			10"	7½"			7¾"	5¾"						8½"	5¾"	4¼"		7½"	5"	3¾"
	33			10¼"	7¾"			7¾"	6"						8¾"	6"	4½"		7¾"	5¼"	4"
	34			10¾"	8"			8"	6"						9"	6"	4½"		8"	5¼"	4"
	35			11"	8¼"			8¼"	6¼"						9¼"	6¼"	4¾"		8¼"	5½"	4¼"
	36			11¼"	8½"			8½"	6½"						9½"	6½"	4¾"		8½"	5¾"	4¼"
	37				8¾"			8¾"	6¾"						9¾"	6½"	5"		8¾"	5¾"	4½"
	38				9"			9"	6¾"						10"	6¾"	5"		9"	6"	4½"

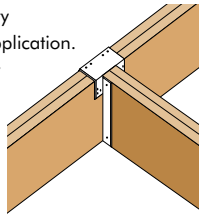
Notes:

1. Table values are for standard term (K_D=1.0, no adjustment permitted, dry service conditions (K_{SCP}=1.0), and no treatment (K_T=1.0)
2. The minimum required bearing length is 1½".
3. All beams require support across their full width and lateral support at bearing points.
4. The support member must be sized to carry the load from the beam.
5. Calculations have been carried out in accordance with CSA O86-01, O86S1-05, and the 2005 NBCC.
6. Use these values when the beam is supported by a wall plate, sill plate, timber, or built-up girder.
7. Use these values when the beam is supported by the end of a column or connection hardware.

POWERLAM BEARING DETAILS

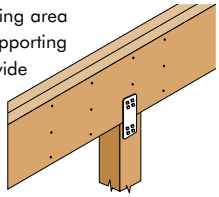
BEAM-TO-BEAM CONNECTION

Make sure hanger capacity is appropriate for each application. Hangers must be properly installed to accommodate full capacity.



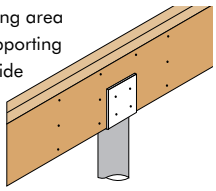
BEARING ON WOOD COLUMN

Verify the required bearing area and the ability of the supporting column member to provide adequate strength.



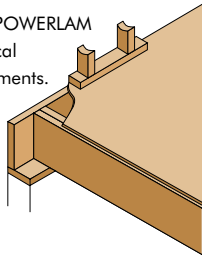
BEARING ON STEEL COLUMN

Verify the required bearing area and the ability of the supporting column member to provide adequate strength.



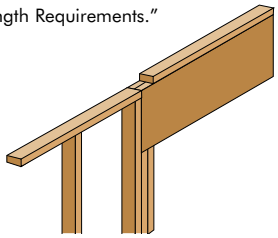
BEARING ON EXTERIOR WALL

Prevent direct contact of POWERLAM with concrete. Consult local building code for requirements.



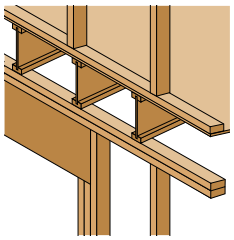
BEARING FOR DOOR OR WINDOW HEADER – 1-STORY TYPICAL

See "Bearing Length Requirements."



WINDOW/DOOR HEADER – 2-STORY TYPICAL

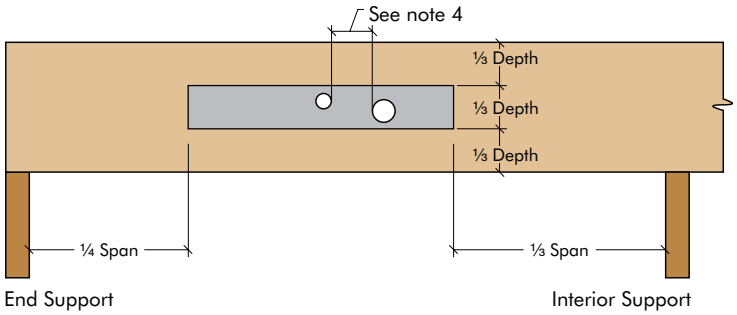
See "Bearing Length Requirements."



For multiple-ply POWERLAM beam assembly conditions and fastening recommendations, see page 8

POWERLAM HOLE DETAILS

HOLES IN POWERLAM BEAMS



Notes:

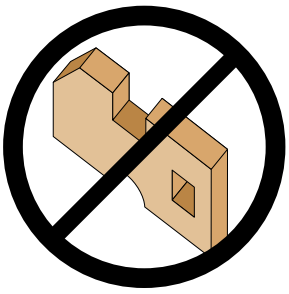
1. These detail notes apply only to uniformly loaded, simple and multiple span beams. Cantilevered beams and beams that carry concentrated loads are outside the scope of these details.
2. Square and rectangular holes are not permitted.
3. Round holes may be drilled or cut with a hole saw anywhere within the shaded area of the beam.
4. The horizontal distance between adjacent holes must be at least two times the size of the larger hole. This restriction also applies to the location of access holes relative to bolt holes in multi-ply beams.
5. Do not drill more than three access holes in any four foot long section of beam.
6. The maximum round hole diameter permitted is:

Beam Depth	5½"	7¼"	9½" to 24"
Max Hole Diam.	1⅛	1½"	2"

7. These limitations apply to holes drilled for plumbing or wiring access only. The size and location of holes drilled for fasteners are governed by the provisions of CSA O86-01, *Engineered Design in Wood.*
8. Beams deflect under load. Size holes to provide clearance where required.

NOTCHES & HOLES

Do not cut, notch or drill holes in POWERLAM except as noted in this brochure.



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