

FILLER KING™ LAMINATED BEAMS & WOOD ROOF DECKING



Boise Cascade

STRUCTURAL WOODS



FILLER KING™

manufactures laminated random length roof decking, long length roof decking and Douglas Fir laminated wood beams.

Filler King™ was founded in 1988 by Bud Filler and Wayne King. With their over thirty years of experience in wood product manufacturing and marketing, Bud and Wayne offered their expertise as forestry graduates with advanced degrees in wood technology and business. On April 20, 2011, Boise Cascade, L.L.C. purchased Filler King™ and is now moving forward in integrating the various product lines in the EWP product family. Filler King's substantial growth is proof that it has a continual commitment to its customers. With our label on the package and the company's professional reputation on the line, every stage of manufacturing is controlled to produce a quality product that we, along with our customers, may be proud of.

Filler King™ under the direction of Boise Cascade Engineered Wood Products manufacturing stands ready to supply your structural wood requirements, whether industrial, residential, religious or commercial. From traditional to contemporary styling, the magnificence of western softwoods is the foundation on which architectural dreams are based.



RANDOM LENGTH LAMINATED ROOF DECKING

Filler King™ decking is manufactured from the western softwood species of Douglas Fir/Larch, Alaskan Yellow Cedar, Ponderosa Pine, and Inland Red Cedar. The face is a sound tight-knotted grade that is machine sanded to accentuate the grain and growth characteristics of the wood. The lumber is kiln-dried and laminated with a fully water-proof exterior phenolic resorcinol adhesive.

The decking is fastened to the main structural beams with ring shank or common nails. To produce a rigid roof to withstand modest racking and lateral loads, nailing 30" along the top edges of the deck is recommended. Resistance to greater lateral loads may be achieved with more robust nailing or application of structural wood panel sheathing over the decking.

For short beam spacings, a 2" nominal decking is recommended. As the wood beam spacings and roof loads increase, a heavier 3", 4" or even 5" deck is used. Load span tables are included for the engineer and designer.

Laminated wood roof decking is the number one choice for a spacious and distinctive setting. Where natural wood is desired, the elegance of laminated wood decking will grace any building design.

LONG LENGTH LAMINATED ROOF DECKING

Filler King™, known for quality structural wood products, also manufactures laminated long-length decking. The elegance and timeless beauty of laminated roof decking is now available in lengths up to 24'. While providing the added strength for larger structures requested by architects, more efficient use is made of raw materials by Filler King's unique horizontal finger jointing system, designed specifically for long lengths.

The utilization of smaller members of sound lumber is another step taken to conserve our natural resources. The face grade is selected for its small tight knots and straight grain, desired by designers and architects. The center and back laminates are pre-graded to produce a dry, straight finished piece of beautifully structured decking. Laminated roof decking compliments laminated timbers wherever the ambience of natural wood is desired.



TWO SPAN ROOF LAY-UP WITH END JOINTS OVER SUPPORTS

Pounds per square foot includes live and dead loads and weight of decking

Loads limited by deflection*

SIZE	SPAN FEET	DOUGLAS FIR/LARCH E = 1,800,000 psi b = 2,585 psi = 165 psi		PONDEROSA PINE E = 1,150,000 psi b = 1,485 psi = 150 psi		PONDEROSA PINE ACE E = 1,500,000 psi ** b = 1,720 psi = 150 psi		INLAND RED CEDAR ACE E = 1,250,000 psi b = 1,485 psi = 130 psi		ALASKAN YELLOW CEDAR ACE E = 1,450,000 psi b = 1,700 psi = 165 psi	
		L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF
2 x 6"	3	793	793	455	455	528	528	455	455	521	521
	4	446	446	256	256	297	297	256	256	293	293
	5	285	229	164	146	190	190	164	159	187	184
	6	177	132	113	85	132	110	114	92	130	107
	7	111	83	71	53	93	70	77	58	90	67
	8	75	56	48	36	62	47	52	39	60	45
	9	52	39	33	25	44	33	36	27	42	32
	10	38	29	24	18	32	24	26	20	31	23
	11	29	22	18	14	24	18	20	15	23	17
	12	22	17	14	11	18	14	15	12	18	13
3 x 6"	4	1011	1011	581	581	673	673	581	581	678	678
	5	647	647	372	372	431	431	372	372	434	434
	6	450	450	258	258	299	299	258	258	301	301
	7	330	289	190	185	220	270	190	190	221	221
	8	253	194	145	124	168	161	145	134	169	159
	9	181	136	115	87	133	113	115	94	134	111
	10	132	99	84	63	108	83	92	69	108	81
	11	99	74	63	48	83	62	69	52	81	61
4 x 6"	4	1718	1718	1008	1008	1168	1168	1008	1008	1171	1171
	5	1124	1124	645	645	748	748	645	645	749	749
	6	780	780	448	448	519	519	448	448	520	520
	7	573	573	329	329	382	382	329	329	382	382
	8	439	439	252	252	292	292	252	252	293	293
	9	347	310	199	198	231	231	199	199	231	231
	10	281	226	161	144	187	187	161	157	187	184
	11	226	170	133	108	155	141	133	118	155	139
5 x 6"	4	2182	2182	1624	1624	1495	1495	1495	1495	1894	1894
	5	1746	1746	1040	1040	1196	1196	1040	1040	1212	1212
	6	1257	1257	722	722	837	837	722	722	842	842
	7	924	924	530	530	615	615	530	530	618	618
	8	707	707	406	406	471	471	406	406	473	473
	9	559	559	321	321	372	372	321	321	374	374
	10	453	453	260	260	301	301	260	260	303	303
	11	374	348	215	215	249	249	215	215	250	250
6 x 6"	12	314	268	180	171	209	209	180	180	210	210

* = controlled by bending
= controlled by shear

** Douglas Fir/Larch centers and backs

Loads controlled by **bending (b)** or **shear (v)** are based on a Two-Month Duration of Load factor of 1.15. For Normal Duration of Loading or floor Loads, values must be divided by 1.15. For floor loads based on deflection using L/360, use 1/2 of L/180 values.

Solid 2x6 Decking is available. See separate flyer for performance ratings.

THERMAL INSULATION VALUES

Laminated wood decking typically has an R-Value of approximately 1 per inch of net wood thickness. When using laminated roof decking in conjunction with a rigid insulation, roof assemblies of nearly any desired thermal performance are achievable. Consult your design professional to determine the roof assembly necessary to arrive at the desired thermal resistance.

Published rigid insulation R-values vary by manufacturer.

A typical roof assembly can include:

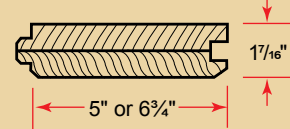
- Shingles or roof covering
- Roof paper
- Sheathing or nail base
- Vapor barrier
- Rigid insulation
- Laminated decking
- Roof framing members

TECHNICAL MEMO

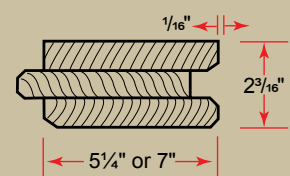
Because of possible shrinkage, as decking reaches an equilibrium with the moisture levels of the surrounding environment, Filler King™ strongly encourages that decking be manufactured with an edge vee. This will take the "eye" away from any separations that may occur between the decking faces. Decking manufactured without the edge vee, i.e. square edges or channel groove, has the appearance of planking for the "rustic" look of old. Separations between faces will be highly visible and will be difficult, if not impossible, to close. Filler King™ will not be responsible for the edge appearance of the decking installed due to gaps or separations between faces.

SIZE

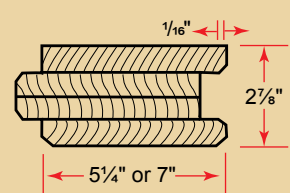
2 X 6"



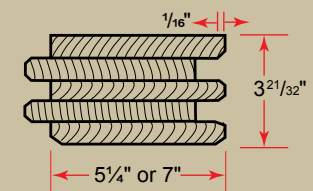
3 X 6"



4 X 6"



5 X 6"



ALLOWABLE UNIFORMLY DISTRIBUTED ROOF LOADS IN A SIMPLE OR RANDOM LAY-UP SYSTEM

Pounds per square foot includes live and dead loads and weight of decking

Loads limited by deflection*

SPAN FEET	DOUGLAS FIR/LARCH E = 1,800,000 psi F _b = 2,585 psi F _v = 165 psi				PONDEROSA PINE E = 1,150,000 psi F _b = 1,485 psi F _v = 150 psi				PONDEROSA PINE FACE E = 1,500,000 psi ** F _b = 1,720 psi F _v = 150 psi				INLAND RED CEDAR FACE E = 1,250,000 psi F _b = 1,485 psi F _v = 130 psi				ALASKAN YELLOW CEDAR FACE E = 1,450,000 psi F _b = 1,700 psi F _v = 165 psi			
	SIMPLE SPAN		RANDOM LENGTH CONTINUOUS		SIMPLE SPAN		RANDOM LENGTH CONTINUOUS		SIMPLE SPAN		RANDOM LENGTH CONTINUOUS		SIMPLE SPAN		RANDOM LENGTH CONTINUOUS		SIMPLE SPAN		RANDOM LENGTH CONTINUOUS	
	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF	L/180 PSF	L/240 PSF
2	1783	1485	1139	1138	1024	949	854	854	1187	1187	867	867	1024	1024	854	854	1171	1171	976	976
3	587	440	660	660	374	281	379	379	489	367	440	440	407	305	379	379	473	355	434	434
4	248	186	371	315	158	119	213	201	206	155	247	247	172	129	213	213	199	150	244	253
5	127	95	215	161	81	61	137	103	106	79	158	134	88	66	137	112	102	77	156	130
6	73	55	124	93	47	35	79	60	61	46	103	78	51	38	86	65	59	44	100	75
7	46	35	78	59	29	22	50	38	38	29	65	49	32	24	54	41	37	28	63	47
8	31	23	52	39	20	15	33	25	26	19	44	33	22	16	36	27	25	19	42	32
9	22	17	37	28	14	11	24	17	18	14	31	23	15	12	26	19	18	13	30	22
10	16	12	27	20	10	7	17	13	13	10	12	17	11	8	19	14	13	10	22	16
4	858	643	844	844	547	410	484	484	536	536	561	561	581	446	484	484	678	527	565	565
5	439	329	539	539	281	210	316	316	366	274	359	359	305	228	316	316	360	270	362	362
6	254	191	375	323	162	122	216	206	212	159	249	249	176	133	216	216	208	156	251	251
7	160	120	271	203	102	76	158	130	133	100	183	169	111	83	158	141	131	98	184	166
8	107	80	181	136	68	52	116	86	89	67	140	113	74	56	121	94	88	66	141	112
9	75	56	127	95	48	36	81	61	63	47	106	80	52	39	88	66	62	46	104	78
10	55	41	93	70	35	26	60	45	46	34	77	58	38	28	65	49	45	34	76	57
11	41	31	69	52	26	20	44	33	34	26	58	44	28	22	48	36	34	25	57	43
12	32	24	54	41	20	16	34	26	26	20	45	34	22	17	37	28	26	20	44	33
13	25	19	42	32	16	12	27	20	21	16	35	26	17	13	29	22	20	15	35	26
14	20	15	34	26	13	9	22	17	17	12	28	21	14	10	24	18	16	12	28	21
6	579	434	651	651	370	277	379	379	482	362	519	519	402	301	379	379	473	354	434	434
7	364	273	479	462	233	174	278	278	304	228	382	382	253	189	278	278	298	223	319	319
8	244	183	366	310	155	117	213	198	203	153	292	258	169	127	213	213	199	150	244	244
9	171	128	289	218	109	82	168	139	143	107	231	181	119	89	168	151	140	105	193	178
10	125	94	212	159	80	60	136	101	104	78	176	132	87	65	136	110	102	77	156	130
11	94	71	159	119	60	45	101	76	78	59	132	99	65	49	110	83	77	58	129	97
12	72	54	122	92	46	34	78	59	60	45	102	77	50	37	85	64	59	44	100	75
13	57	43	97	73	37	28	62	47	47	36	80	60	40	30	67	51	46	35	79	59
14	46	35	78	59	29	22	50	38	38	28	64	48	32	24	54	41	37	28	63	47
15	37	28	63	47	24	17	40	30	31	23	52	39	26	19	44	33	30	23	51	38
16	31	23	52	39	20	15	33	25	25	19	43	32	22	16	36	27	25	19	42	32
17	25	19	42	32	16	12	27	20	21	16	36	27	17	13	29	22	21	16	35	26
18	21	16	36	27	14	10	23	17	18	13	30	23	15	11	25	19	18	13	30	22
8	501	376	589	589	320	239	345	345	417	313	471	471	348	260	345	345	410	308	395	395
9	352	264	474	454	224	168	272	272	293	220	372	372	244	183	272	272	288	216	312	312
10	256	192	378	366	164	122	221	208	214	160	301	271	178	133	221	221	210	158	253	253
11	193	146	312	245	123	93	182	156	161	120	249	204	134	101	182	170	158	118	209	200
12	148	111	251	188	95	71	153	120	124	93	209	157	103	77	153	130	122	91	175	154
13	117	88	198	149	75	56	126	95	97	73	165	123	81	61	131	103	96	72	149	121
14	93	70	157	118	60	45	100	75	78	58	132	99	65	49	109	82	77	57	129	97
15	76	57	129	97	49	37	83	62	63	47	107	80	53	40	90	67	62	47	105	79
16	63	47	107	80	40	30	68	52	52	39	88	66	44	33	74	56	51	38	87	65
17	52	39	88	66	33	25	56	42	43	33	74	55	36	27	61	46	43	32	72	54
18	44	33	74	56	28	21	48	36	37	27	62	47	31	23	52	39	36	27	61	46

* f = loads controlled by bending. Loads controlled by bending are based on a Two-Month Duration of Load Factor of 1.15. For Normal Duration of Loading or Floor Loads, values governed by bending must be divided by 1.15. For Floor Loads based on deflection using L/360, use 1/2 o L/180 values.

** Douglas Fir/Larch centers and back

Spans in excess of 15' may require a special mill tally, which is usually structural finger-jointed long lengths.

ROOF DECKING WEIGHTS			
L/180 PSF	NOMINAL INCHES	LBS. PER SQ. FT.	LBS. PER MBF
DOUGLAS FIR/ LARCH	2	4.0	1800
	3	6.2	1800
	4	8.2	1800
	5	10	1800
PONDEROSA PINE	2	3.8	1600
	3	5.5	1600
	4	7.3	1600
	5	9.1	1600
PONDEROSA PINE FACE	2	4.0	1700
	3	5.8	1700
	4	7.7	1700
	5	9.6	1700
INLAND RED CEDAR FACE	2	3.6	1500
	3	5.1	1500
	4	6.9	1500
	5	8.6	1500
ALASKAN YELLOW CEDAR	2	3.6	1700
	3	5.6	1700
	4	7.5	1700
	5	9.6	1700

ROOF QUANTITY ESTIMATING FACTORS			
NOMINAL INCHES	ACTUAL SIZES INCHES	BD. FT./ SQ. FT.	BD. FT./ LINEAL FT.
2 X 6	1 ⁷ / ₁₆ x 5	2.40	1.000
2 X 8	1 ⁷ / ₁₆ x 6 ³ / ₄	2.37	1.334
3 X 6	2 ³ / ₁₆ x 5 ¹ / ₄	3.43	1.500
3 X 8	2 ³ / ₁₆ x 7	3.43	2.000
4 X 6	2 ⁷ / ₈ x 5 ¹ / ₄	4.57	2.000
4 X 8	2 ⁷ / ₈ x 7	4.57	2.667
5 X 6	3 ²¹ / ₃₂ x 5 ¹ / ₄	5.71	2.500
5 X 8	3 ²¹ / ₃₂ x 7	5.71	3.334

*EXAMPLE: 10,000 sq. ft. of roof deck x 3.43 equals 34,300 bd. ft. of 3 x 6 deck. Add a trim waste factor per job conditions.

SECTION PROPERTIES PER FOOT OF DECK WIDTH				
NOMINAL INCHES	ACTUAL SIZES INCHES	I - IN. ⁴	S - IN. ³	A - IN. ²
2	1 ⁷ / ₁₆	2.97	4.14	17.26
3	2 ³ / ₁₆	10.29	9.39	25.88
4	2 ⁷ / ₈	23.44	16.30	33.95
5	3 ²¹ / ₃₂	48.08	26.26	43.13

LOFT DECK® FLOOR/CEILING APPLICATIONS

Please be advised that allowable uniformly distributed roof loads in a two-span lay-up or a simple/random lay-up system do not apply to ceiling/floor applications. Please contact your local distributor for more information.

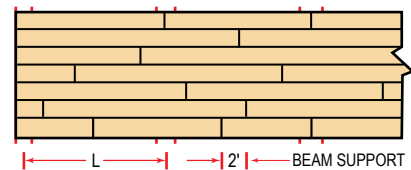


Courtesy of Deck House, Acton, MA

INSTALLATION ON ROOF

Random Length Continuous

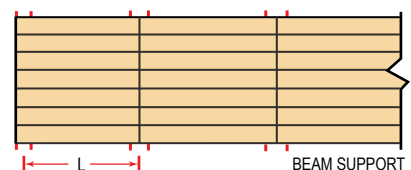
This system is often the most economical design lay-up. A random length continuous lay-up system is applied over three or more spans. Each individual plank must bear on at least one supporting member. All joints shall be end-matched and all planks shall be nailed together within one foot of each side of the end joint. End joints in adjacent planks shall be at least two feet apart, and end joints in alternate planks shall be more than one foot apart when measured along the span of the decking. Eliminate end joints in $\frac{1}{3}$ of the end span course.



$$\Delta = \frac{wL^4}{130EI} \quad F_b = \frac{wL^2}{6.67S}$$

Single Spans

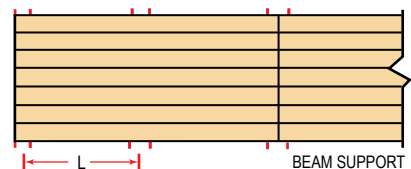
This lay-up requires specific length decking and provides short spans than the random length system.



$$\Delta = \frac{5}{384} \frac{wL^4}{EI} \quad F_b = \frac{wL^2}{8S}$$

Two Span Continuous

Each continuous unit is made up of decking bearing on three equally spaced supports. (maximum space is 12'). The end joints between pieces, when of more than a single span unit, are in line over every other support. Continuity reduces deflection so that this arrangement of decking provides the stiffest deck of all.



$$\Delta = \frac{wL^4}{185EI} \quad F_b = \frac{wL^2}{8S}$$

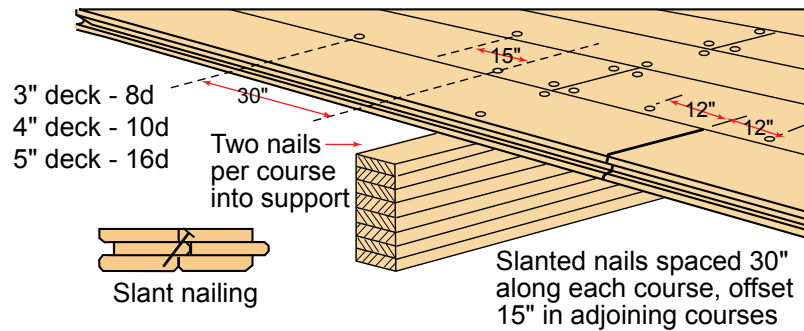
- ▲ = Allowable Deflection, inches
- E = Modulus of elasticity of the decking, lbs. per in.²
- I = Moment of inertia for a 1-foot wide strip, inches⁴
- S = Section modulus for a 1-foot wide strip, inches³
- F_b = Allowable unit stress for extreme fiber bending, lbs. per in.²
- L = Spans, inches
- w = Allowable Unit load along a 1-foot wide strip, lbs. per in.

Fastening and Nailing Schedule

Face nail the laminated decking to the beams as follows:

- 2" deck - 12d common or ring shank
- 3" deck - 20d common or ring shank
- 4" deck - 60d common or ring shank (pre-drill holes)
- 5" deck - 60d common or ring shank (pre-drill holes)

Course nail the decking together every 30" with a slant nail as shown. Offset alternate courses by 15". Slant nail within 12" of each end joint. (Slant nailing is not required with 2" decking.)



Courtesy of Deck House, Acton, MA

Specifications

SPECIES AVAILABLE

Douglas Fir/Larch, Ponderosa Pine, Alaskan Yellow Cedar and Inland Red Cedar are readily available.

APPEARANCE GRADES

DECORATIVE

Available in all species, this grade contains sound tight knots and natural wood characteristics. Occasional pieces may contain chipped edge knots, short end splits or seasoning checks, and pin holes. This is the most widely used grade. It is well suited to most applications.

INDUSTRIAL

Available on inquiry, this rustic grade is recommended for industrial applications where strength is more important than appearance. This grade allows face knotholes, stain, end splits, skip, roller split, planer burn and other nonstrength reducing characteristics.

SUPREME

Available in most species, this grade is manufactured with a "clear" face. This grade may contain occasional small knots or minor characteristics that do not detract from the overall appearance. This grade is the finest in quality and the ultimate in appearance. Supreme is for use where appearance is more important than budget.

NOMINAL SIZES

Length Structure Tallies by Piece Count:

- 2 x 6, 2 x 8 ($1\frac{7}{16}$ x 5" or 6.75" actual)
Maximum 15% 6-9' 65% 10-12'~ Minimum 15% 14-16'
- 3 x 6, 3 x 8 ($2\frac{3}{16}$ x 5 $\frac{1}{4}$ " or 7" actual)
Maximum 10% 6-9' 70% 10-12'~ Minimum 20% 14-16'
- 4 x 6, 4 x 8 ($2\frac{7}{8}$ x 5 $\frac{1}{4}$ " or 7" actual)
Maximum 10% 6-9' 55% 10-12'~ Minimum 35% 14-16'
- 5 x 6, 5 x 8 ($3\frac{21}{32}$ x 5 $\frac{1}{4}$ " or 7" actual)
Maximum 5% 6-9' 55% 10-12'~ Minimum 45% 14-16'

PATTERN CM - EM - EVIS with sanded face.

Center matched, end matched, edge vee one side with sanded face (or square edges, channel edges or bull nose edges at small upcharge).

MOISTURE CONTENT 10-12%, maximum 15%.

ADHESIVE Fully exterior, phenolic resorcinol waterproof.

QUALITY CONTROL Lumber is graded under American Softwood Lumber Standard grading provisions. Manufacturing complies with AITC 200-04 and ASTM D905.03 Grading and laminating are certified by the American Institute of Timber Construction. For CSI specifications, please refer to www.fillerking.com

LAMINATED TIMBERS

Laminated wood beams are used in a variety of applications from industrial, commercial and religious construction to beautifully designed residences. Because the beams are considered the main structural framing members of the building, precise lumber selection, grading, and quality control are demanded. The beams are manufactured in compliance with ANSI / AITC 190.1 - 02, the standard recognized by building codes throughout the United States.

The term glue-laminated timber refers to an engineered, stress-rated product comprising parallel assemblies of wood laminations, finger-jointed at the ends, and face laminated with exterior-grade adhesives. Filler King™ uses the best grades of Douglas Fir and Alaskan Yellow Cedar laminating stock and adhesives the industry has to offer. No short-cuts are taken when producing a magnificent surfaced structural wood member.

Each beam is manufactured to a stress-rated formula as set forth by AITC. The lay-up of the beam prescribes the high grades of lumber on



the bottom and top to establish the stress grade (f) of the member. When the customer specifies the grade, e.g., 2400f or 2000f architectural appearance, the beam

is manufactured to the stress grade, size, and finish required. Filler King™ manufactures columns, straight or cambered beams to lengths up to 76 feet. Beams can be finished to industrial, architectural, premium or rough-sawn appearances. The grades of architectural and premium beams are planer surfaced and sanded.

Fabrication service is also available. Shop drawings can be developed, or customers' drawings can be used for fabrication in the beam finishing department.



Benefits

ECONOMICAL Laminated timbers can be manufactured for large spans and heavy uniform or concentrated load requirements. Standard carpentry tools can be used.

CREATIVE Designers have the option to providing construction without the need for interior walls, supports and costly footings.

CONSERVES RESOURCES Smaller sized, but carefully dried and machined lumber is used in the center where in-place stresses are low, while higher grades are used on the faces.

KILN-DRIED All lumber is kiln-dried to 10-12% moisture content (maximum 15%) to reduce changes in size and wood checking when the wood beam is in its ambient condition.

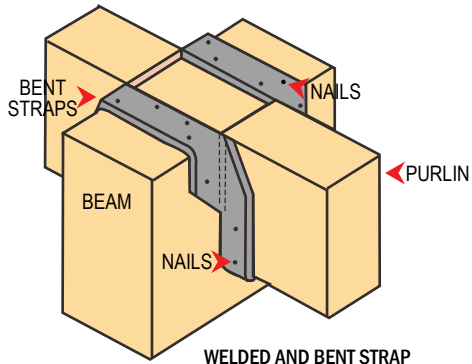
WATERPROOF Adhesives used are fully waterproof.

INSULATING Wood changes less in thermal expansion than steel or concrete. Its insulating power is many times higher than steel or concrete. It has excellent electrical insulating qualities.

ABSORBS IMPACT Wood is resilient and can absorb impact loads.

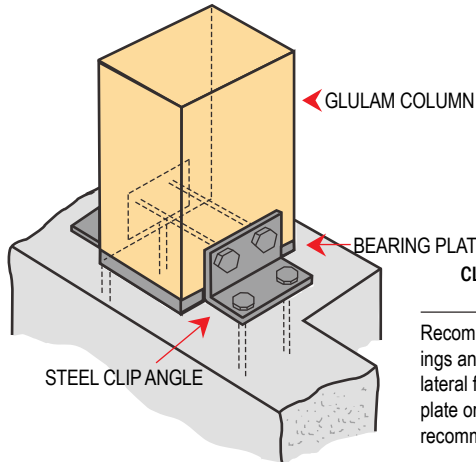
RENEWABLE RESOURCE Wood laminates making up the timbers come from the utilization of our most renewable resource — the forests of America.

AITC Suggested Wood / Steel Connection Details



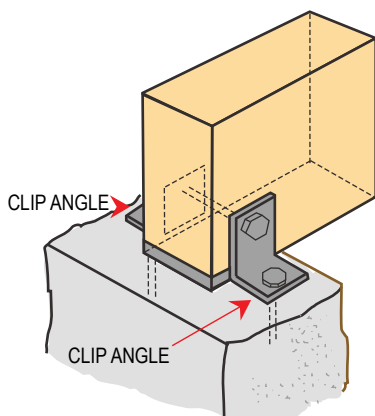
**WELDED AND BENT STRAP
TYPE PURLIN HANGER**

For moderate and heavy loads. Provides uniform fit where good appearance is desired. Purlins must be raised above top of the beam to allow sheathing to clear straps.



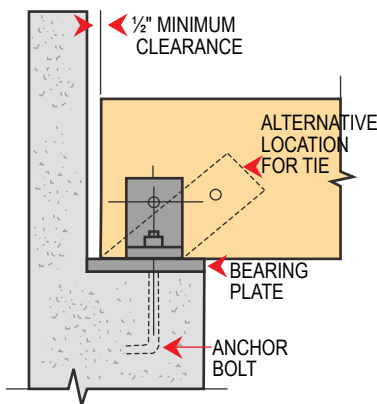
**CLIP ANGLE ANCHORAGE
TO CONCRETE BASE**

Recommended for industrial buildings and warehouses to resist both lateral forces and uplift. Bearing plate or moisture barrier is recommended.



BEAM ANCHORAGE DETAIL

For anchorage which resist both uplift and lateral forces. May have one or more anchor bolts in masonry and one or more bolts with or without shear plates through the beam. One-half inch minimum clearance or impervious moisture barrier on all wall contact surfaces, ends, sides, and tops (if masonry exists above beam end).

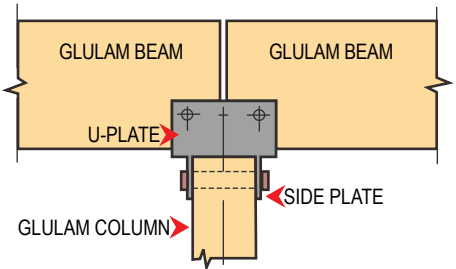


**BEAM ANCHORAGE
CLEARANCE DETAIL**

For beams with depths 24 in. and less. Resists uplift and small lateral forces. Bearing plate or moisture barrier recommended.

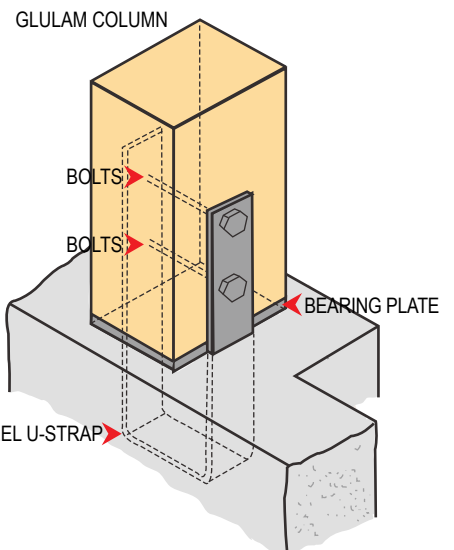
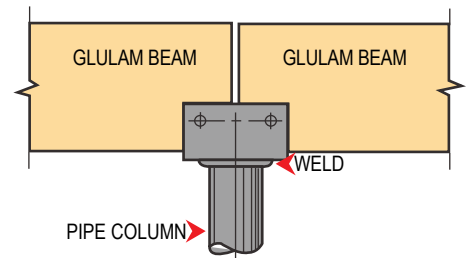
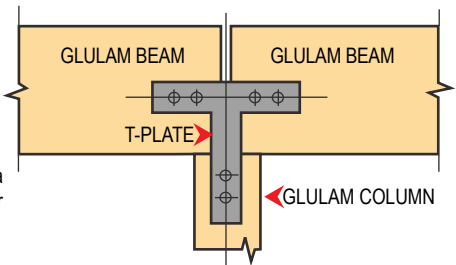
**BEAMS TO GLUED LAMINATED
TIMBER COLUMN U-PLATE**

Steel U-plate passes under abutting laminated timber beams and is welded to steel plates bolted to Glued Laminated Timber column.



**BEAMS TO GLUED LAMINATED
TIMBER COLUMN T-PLATE**

Steel T-plate is bolted to abutting glued laminated beams and to Glued Laminated Timber column. Loose bearing plate may be used where column cross-sectional area is insufficient to provide bearing for beams in compression perpendicular to grain.



**U-STRAP ANCHORAGE
TO CONCRETE BASE**

Recommended for industrial buildings and warehouses to resist both lateral forces and uplift. Bearing plate or moisture barrier is recommended. May be used with shear plates.

DESIGN CONVERSION TABLES¹

FOR DOUGLAS FIR BEAMS $F_b=2400$ psi $E=1,800,000$ psi

EQUIVALENT GLULAM SECTIONS FOR SOLID SAWN BEAMS

SAWN ⁴ SECTION NOMINAL SIZE	ROOF BEAMS ^{1,2}		FLOOR BEAMS ^{1,3}	
	SELECT STRUCTURAL	#1	SELECT STRUCTURAL	#1
3 x 8	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$
3 x 10	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 9
3 x 12	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$
3 x 14	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$
4 x 6	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 6
4 x 8	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 6	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 9
4 x 10	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 7 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$
4 x 12	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 9	3 $\frac{3}{8}$ x 12	3 $\frac{3}{8}$ x 12
4 x 14	3 $\frac{3}{8}$ x 12	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 15	3 $\frac{3}{8}$ x 15
4 x 16	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 16 $\frac{1}{2}$	3 $\frac{3}{8}$ x 16 $\frac{1}{2}$
6 x 8	5 $\frac{1}{8}$ x 7 $\frac{1}{2}$	5 $\frac{1}{8}$ x 7 $\frac{1}{2}$	5 $\frac{1}{8}$ x 7 $\frac{1}{2}$	5 $\frac{1}{8}$ x 7 $\frac{1}{2}$
6 x 10	5 $\frac{1}{8}$ x 9	5 $\frac{1}{8}$ x 7 $\frac{1}{2}$	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$
6 x 12	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 9	5 $\frac{1}{8}$ x 12	5 $\frac{1}{8}$ x 12
6 x 14	5 $\frac{1}{8}$ x 12	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$
6 x 16	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 12	5 $\frac{1}{8}$ x 15 $\frac{1}{8}$	5 $\frac{1}{8}$ x 15 $\frac{1}{8}$
6 x 18	5 $\frac{1}{8}$ x 15	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 18	5 $\frac{1}{8}$ x 18
6 x 20	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$
8 x 10	6 $\frac{3}{4}$ x 9	6 $\frac{3}{4}$ x 9	6 $\frac{3}{4}$ x 10 $\frac{1}{2}$	6 $\frac{3}{4}$ x 10 $\frac{1}{2}$
8 x 12	6 $\frac{3}{4}$ x 10 $\frac{1}{2}$	6 $\frac{3}{4}$ x 10 $\frac{1}{2}$	6 $\frac{3}{4}$ x 12	6 $\frac{3}{4}$ x 12
8 x 14	6 $\frac{3}{4}$ x 12	6 $\frac{3}{4}$ x 12	6 $\frac{3}{4}$ x 13 $\frac{1}{2}$	6 $\frac{3}{4}$ x 13 $\frac{1}{2}$
8 x 16	6 $\frac{3}{4}$ x 13 $\frac{1}{2}$	6 $\frac{3}{4}$ x 13 $\frac{1}{2}$	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$
8 x 18	6 $\frac{3}{4}$ x 15	6 $\frac{3}{4}$ x 15	6 $\frac{3}{4}$ x 18	6 $\frac{3}{4}$ x 18
8 x 20	6 $\frac{3}{4}$ x 18	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$
8 x 22	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	6 $\frac{3}{4}$ x 18	6 $\frac{3}{4}$ x 21	6 $\frac{3}{4}$ x 21

EQUIVALENT GLULAM SECTIONS FOR STEEL BEAMS

STEEL ⁵ BEAM	ROOF BEAMS ^{1,2}		FLOOR BEAMS ^{1,3}	
	SELECT STRUCTURAL	#1	SELECT STRUCTURAL	#1
w 6 x 9	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 9	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 9
w 8 x 10	3 $\frac{3}{8}$ x 12	5 $\frac{1}{8}$ x 9	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 12
w 12 x 14	3 $\frac{3}{8}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 18	5 $\frac{1}{8}$ x 15
w 12 x 16	3 $\frac{3}{8}$ x 18	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$
w 12 x 19	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$	3 $\frac{3}{8}$ x 21	5 $\frac{1}{8}$ x 18
w 10 x 22	3 $\frac{3}{8}$ x 21	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$
w 12 x 22	5 $\frac{1}{8}$ x 18	6 $\frac{3}{4}$ x 15	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$
w 14 x 22	5 $\frac{1}{8}$ x 18	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 18
w 12 x 26	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$	6 $\frac{3}{4}$ x 18	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$
w 14 x 26	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 18	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$
w 16 x 26	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 22 $\frac{1}{2}$	6 $\frac{3}{4}$ x 21
w 12 x 30	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 21	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$
w 14 x 30	5 $\frac{1}{8}$ x 22 $\frac{1}{2}$	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 22 $\frac{1}{2}$	6 $\frac{3}{4}$ x 21
w 16 x 31	5 $\frac{1}{8}$ x 24	6 $\frac{3}{4}$ x 21	5 $\frac{1}{8}$ x 25 $\frac{1}{2}$	6 $\frac{3}{4}$ x 22 $\frac{1}{2}$
w 14 x 34	5 $\frac{1}{8}$ x 24	6 $\frac{3}{4}$ x 21	5 $\frac{1}{8}$ x 24	6 $\frac{3}{4}$ x 22 $\frac{1}{2}$
w 18 x 35	5 $\frac{1}{8}$ x 27	6 $\frac{3}{4}$ x 24	5 $\frac{1}{8}$ x 27	6 $\frac{3}{4}$ x 25 $\frac{1}{2}$
w 16 x 40	5 $\frac{1}{8}$ x 28 $\frac{1}{2}$	6 $\frac{3}{4}$ x 25 $\frac{1}{2}$	5 $\frac{1}{8}$ x 27	6 $\frac{3}{4}$ x 25 $\frac{1}{2}$
w 21 x 44	5 $\frac{1}{8}$ x 33	6 $\frac{3}{4}$ x 28 $\frac{1}{2}$	5 $\frac{1}{8}$ x 33	6 $\frac{3}{4}$ x 30
w 18 x 50	5 $\frac{1}{8}$ x 34 $\frac{1}{2}$	6 $\frac{3}{4}$ x 30	5 $\frac{1}{8}$ x 31 $\frac{1}{2}$	6 $\frac{3}{4}$ x 28 $\frac{1}{2}$
w 21 x 50	5 $\frac{1}{8}$ x 34 $\frac{1}{2}$	6 $\frac{3}{4}$ x 31 $\frac{1}{2}$	5 $\frac{1}{8}$ x 34 $\frac{1}{2}$	6 $\frac{3}{4}$ x 31 $\frac{1}{2}$
w 18 x 55	5 $\frac{1}{8}$ x 36	6 $\frac{3}{4}$ x 31 $\frac{1}{2}$	5 $\frac{1}{8}$ x 33	6 $\frac{3}{4}$ x 30
w 21 x 62		6 $\frac{3}{4}$ x 36		6 $\frac{3}{4}$ x 34 $\frac{1}{2}$

EQUIVALENT GLULAM SECTIONS FOR LVL BEAMS

LVL ⁶ BEAM	ROOF BEAMS ^{1,2}		FLOOR BEAMS ^{1,3}	
	SELECT STRUCTURAL	#1	SELECT STRUCTURAL	#1
2 pcs. 1 $\frac{3}{4}$ x 9 $\frac{1}{2}$	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 9	3 $\frac{3}{8}$ x 10 $\frac{1}{2}$	5 $\frac{1}{8}$ x 9
2 pcs. 1 $\frac{3}{4}$ x 11 $\frac{7}{8}$	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 12
2 pcs. 1 $\frac{3}{4}$ x 14	3 $\frac{3}{8}$ x 15	5 $\frac{1}{8}$ x 12	3 $\frac{3}{8}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$
2 pcs. 1 $\frac{3}{4}$ x 16	3 $\frac{3}{8}$ x 18	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 18	5 $\frac{1}{8}$ x 15
2 pcs. 1 $\frac{3}{4}$ x 18	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 15	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 16 $\frac{1}{2}$
3 pcs. 1 $\frac{3}{4}$ x 9 $\frac{1}{2}$	3 $\frac{3}{8}$ x 13 $\frac{1}{2}$	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$	3 $\frac{3}{8}$ x 12	5 $\frac{1}{8}$ x 10 $\frac{1}{2}$
3 pcs. 1 $\frac{3}{4}$ x 11 $\frac{7}{8}$	3 $\frac{3}{8}$ x 16 $\frac{1}{2}$	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$	3 $\frac{3}{8}$ x 15	5 $\frac{1}{8}$ x 13 $\frac{1}{2}$
3 pcs. 1 $\frac{3}{4}$ x 14	3 $\frac{3}{8}$ x 19 $\frac{1}{2}$	5 $\frac{1}{8}$ x 15	3 $\frac{3}{8}$ x 18	5 $\frac{1}{8}$ x 15
3 pcs. 1 $\frac{3}{4}$ x 16	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$	6 $\frac{3}{4}$ x 16 $\frac{1}{2}$	3 $\frac{3}{8}$ x 21	5 $\frac{1}{8}$ x 18
3 pcs. 1 $\frac{3}{4}$ x 18	5 $\frac{1}{8}$ x 24	6 $\frac{3}{4}$ x 19 $\frac{1}{2}$	3 $\frac{3}{8}$ x 22 $\frac{1}{2}$	5 $\frac{1}{8}$ x 19 $\frac{1}{2}$

SECTION PROPERTIES • Based on 1 $\frac{1}{2}$ in. thick laminations

NO. OF LAM	d DEPTH	A AREA	I MOMENT OF INERTIA	S SECTION MODULUS	NO. OF LAM	d DEPTH	A AREA	I MOMENT OF INERTIA	S SECTION MODULUS
2½ in. Widths					6¾ in. Widths				
6	9	22.5	151.9	33.75	19	28½	192.4	13020	913.8
7	10½	26.25	241.2	45.94	20	30	202.5	15190	1013
8	12	30.00	360.0	60.00	21	31½	212.6	17581	1116
9	13½	33.75	512.6	75.64	22	33	222.8	20210	1225
10	15	37.5	703.1	93.75	23	34½	232.9	23100	1339
11	16½	41.25	935.9	113.4	24	36	243.0	26240	1458
12	18	45.00	1215	135.0	25	37½	253.1	29660	1582
13	19½	48.75	1545	158.4	26	39	263.3	33370	1711
14	21	52.50	1929	183.8	27	40½	273.4	37370	1845
15	22½	56.25	2373	210.9	28	42	283.5	41670	1985
3¾ in. Widths					29	43½	293.6	46300	2129
4	6	18.75	56.25	18.75	30	45	303.8	51260	2278
5	7½	23.44	109.9	29.30	31	46½	313.9	56560	2433
6	9	28.13	189.9	42.19	32	48	324	62210	2592
7	10½	32.81	301.5	57.42	8¾ in. Widths				
8	12	37.50	450.0	75.00	6	9	78.75	531.6	118.1
9	13½	42.19	640.7	94.92	7	10½	91.88	844.1	160.8
10	15	46.88	878.9	117.2	8	12	105.0	1260	210.0
11	16½	51.56	1170	141.8	9	13½	118.1	1794	265.8
12	18	56.25	1519	168.8	10	15	131.3	2461	328.1
13	19½	60.94	1931	198.0	11	16½	144.4	3276	397.0
14	21	65.63	2412	229.7	12	18	157.5	4253	472.5
15	22½	70.31	2966	263.7	13	19½	170.6	5407	554.5
16	24	75.00	3600	300.0	14	21	183.8	6753	643.1
17	25½	79.70	4318	338.7	15	22½	196.9	8306	738.3
18	27	84.40	5126	379.7	16	24	210.0	10080	840.0
19	28½	89.10	6028	423.0	17	25½	223.1	12090	948.3
5¼ in. Widths					18	27	236.3	14350	1063
4	6	30.75	92.25	30.75	19	28½	249.4	16880	1185
5	7½	38.44	180.2	48.05	20	30	262.5	19690	1313
6	9	46.13	311.3	69.19	21	31½	275.6	22790	1447
7	10½	53.81	494.4	94.17	22	33	288.8	26200	1588
8	12	61.50	738.0	123.0	23	34½	301.9	29940	1736
9	13½	69.19	1051	155.7	24	36	315.0	34020	1890
10	15	76.88	1441	192.2	25	37½	328.1	38450	2051
11	16½	84.56	1919	232.5	26	39	341.3	43250	2218
12	18	92.95	2491	276.8	27	40½	354.4	48440	2392
13	19½	99.94	3167	324.8	28	42	367.5	54020	2573
14	21	107.6	3955	376.7	29	43½	380.6	60020	2760
15	22½	115.3	4865	432.4	30	45	393.8	66440	2953
16	24	123.0	5904	492.0	31	46½	406.9	73310	3153
17	25½	130.7	7082	555.4	32	48	420.0	80640	3360
18	27	138.4	8406	622.7	10¼ in. Widths				
19	28½	146.1	9887	693.8	7	10½	112.9	1037	197.5
20	30	153.8	11530	768.8	8	12	129	1548	258.0
21	31½	161.4	13350	847.5	9	13½	145.1	2204	326.5
22	33	169.1	15350	930.2	10	15	161.3	3023	403.1
23	34½	176.8	17540	1017	11	16½	177.4	4024	487.8
24	36	184.5	19930	1107	12	18	193.5	5225	580.5
6¾ in. Widths					13	19½	209.6	6642	681.3
5	7½	50.63	273.3	63.28	14	21	225.8	8296	790.1
6	9	60.75	410.1	91.13	15	22½	241.9	10200	907.0
7	10½	70.88	651.2	124.0	16	24	258	12380	1032
8	12	81.00	972.0	162.0	17	25½	274.1	14850	1165
9	13½	91.33	1384	205.0	18	27	290.3	17630	1306
10	15	101.3	1898	253.1	19	28½	306.4	20740	1455
11	16½	111.4	2527	306.3	20	30	322.5	24190	1613
12	18	121.5	3281	364.5	21	31½	338.6	28000	1778
13	19½	131.6	4171	427.8	22	33	354.8	32190	1951
14	21	141.8	5209	496.1	23	34½	370.9	36790	2133
15	22½	151.9	6407	569.5	24	36	387	41800	2322
16	24	162.0	7776	648.0	25	37½	403.1	47240	2520
17	25½	172.1	9327	731.5	26	39	419.3	53140	2725
18	27	182.3	11070	820.1	27	40½	435.4	59510	2939
					28	42	451.5	66370	3161

CAMBER CURVATURE IN INCHES

BEAM LENGTH	RADIUS IN FEET																
	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3500	5000
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1/8	1/8	1/8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1/4	1/8	1/8	1/8	1/8	1/8	0	0	0	0	0	0	0	0	0	0	0
10	3/8	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0	0	0	0	0	0
12	1/2	3/8	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0	0
14	3/4	1/2	3/8	1/4	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0
16	1	5/8	1/2	3/8	3/8	1/4	1/4	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0
18	1 1/4	3/4	5/8	1/2	3/8	3/8	1/4	1/4	1/4	1/4	1/4	1/8	1/8	1/8	1/8	1/8	1/8
20	1 1/2	1	3/4	5/8	1/2	3/8	3/8	1/8	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/8	1/8
22	1 7/8	1 1/4	7/8	3/4	5/8	1/2	1/2	3/8	3/8	3/8	1/4	1/4	1/4	1/4	1/4	1/4	1/8
24	2 1/8	1 1/2	1 1/8	7/8	3/4	5/8	1/2	1/2	3/8	3/8	3/8	3/8	1/4	1/4	1/4	1/4	1/8
26	2 1/2	1 3/4	1 1/4	1	7/8	3/4	5/8	5/8	1/2	1/2	3/8	3/8	3/8	3/8	3/8	1/4	1/4
28	3	2	1 1/2	1 1/8	1	7/8	3/4	5/8	5/8	1/2	1/2	1/2	3/8	3/8	3/8	3/8	1/4
30	3 3/8	2 1/4	1 3/4	1 1/8	1 1/8	1	7/8	3/4	5/8	5/8	1/2	1/2	1/2	1/2	3/8	3/8	1/4
32	3 7/8	2 1/2	1 7/8	1 1/2	1 1/4	1 1/8	1	7/8	3/4	5/8	5/8	1/2	1/2	1/2	1/2	1/2	1/4
34	4 3/8	2 7/8	2 1/8	1 3/4	1 1/2	1 1/4	1 1/8	1	7/8	3/4	5/8	5/8	1/2	1/2	1/2	1/2	3/8
36	4 7/8	3 1/4	2 3/8	2	1 5/8	1 3/8	1 1/4	1 1/8	1	7/8	3/4	3/4	3/4	5/8	5/8	1/2	3/8
38	5 3/8	3 5/8	2 3/4	2 1/8	1 3/4	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	7/8	3/4	3/4	5/8	5/8	3/8
40	6	4	3	2 3/8	2	1 3/4	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	7/8	3/4	3/4	5/8	1/2
42	6 5/8	4 3/8	3 1/4	2 5/8	2 1/4	1 7/8	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	1	7/8	7/8	3/4	1/2
44	7 1/4	4 7/8	3 5/8	2 7/8	2 3/8	2 1/8	1 7/8	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	1	7/8	7/8	1/2
46	7 7/8	5 1/4	4	3 1/8	2 5/8	2 1/4	2	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	1	7/8	5/8
48	8 5/8	5 3/4	4 3/8	3 1/2	2 7/8	2 1/2	2 1/8	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1 1/8	1	5/8
50	9 3/8	6 1/4	4 3/4	3 3/4	3 1/8	2 5/8	2 3/8	2 1/8	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1 1/8	3/4
52	10 5/8	6 3/4	5 1/8	4	3 3/8	2 7/8	2 1/2	2 1/4	2	1 7/8	1 3/4	1 1/2	1 1/2	1 3/8	1 1/4	1 1/8	3/4
54	10 7/8	7 1/4	5 1/2	4 3/8	3 3/8	3 1/4	2 3/8	2 1/8	2	1 7/8	1 5/8	1 1/2	1 1/2	1 3/8	1 3/8	1 1/4	7/8
56	11 3/4	7 7/8	5 5/8	4 3/4	3 7/8	3 3/8	3	2 5/8	2 3/8	2 1/8	2	1 3/4	1 5/8	1 1/8	1 1/2	1 3/8	7/8
58	12 5/8	8 3/8	6 1/4	5	4 1/4	3 5/8	3 3/8	2 3/4	2 1/2	2 1/4	2 1/8	2	1 3/4	1 5/8	1 5/8	1 1/2	1
60	13 1/2	9	6 3/4	5 3/8	4 1/2	3 7/8	3 3/8	3	2 3/4	2 1/2	2 1/4	2 1/8	1 7/8	1 3/4	1 3/4	1 1/2	1
62	14 3/8	9 5/8	7 1/4	5 5/4	4 3/4	4 1/8	3 3/8	3 3/4	2 7/8	2 5/8	2 3/8	2 1/4	2	1 7/8	1 3/4	1 5/8	1 1/8
64	15 3/8	10 1/4	7 5/8	6 1/8	5 1/8	4 3/8	3 7/8	3 3/8	3 3/8	2 3/4	2 1/2	2 3/8	2 1/4	2	1 7/8	1 3/4	1 1/4
66	16 3/8	10 7/8	8 1/8	6 1/2	5 1/2	4 5/8	4	3 3/8	3 3/4	3	2 3/4	2 1/2	2 3/8	2 1/8	2	1 7/8	1 1/4
68	17 3/8	11 1/2	8 5/8	6 3/8	5 3/4	5	4 3/8	3 7/8	3 3/2	3 3/8	2 7/8	2 5/8	2 1/2	2 1/4	2 1/8	2	1 3/8
70	18 3/8	12 1/4	9 1/4	7 3/8	6 1/8	5 1/4	4 3/8	4 1/8	3 5/8	3 3/8	3 1/8	2 7/8	2 5/8	2 1/2	2 1/4	2 1/8	1 1/2
72	19 1/2	13	9 3/4	7 3/4	6 1/2	5 1/2	4 7/8	4 3/8	3 7/8	3 1/2	3 1/4	3	2 3/4	2 5/8	2 3/8	2 1/4	1 5/8
74	20 1/2	13 3/4	10 1/4	8 1/4	6 7/8	5 5/8	5 1/8	4 3/8	4 3/8	3 3/4	3 3/8	3 1/8	2 7/8	2 3/4	2 5/8	2 3/8	1 5/8
76	21 1/8	14 1/2	10 7/8	8 5/8	7 1/4	6 1/4	5 5/8	4 7/8	4	4	3 3/8	3 3/8	3 1/8	2 7/8	2 3/4	2 1/2	1 3/4

CAMBER CURVATURE

Camber is the amount of curvature (reverse deflection) built into a laminated timber to offset dead-load deflection plus some potential long-term creep in the wood fiber. The industry has moved to a 5000-foot radius camber which has become the standard camber. Other cambers can be built into the beams on request. Beams with zero camber, comparable to solid timbers, can also be manufactured. The table to the left illustrates the camber at the center of the beam when specific lengths and radii are specified.

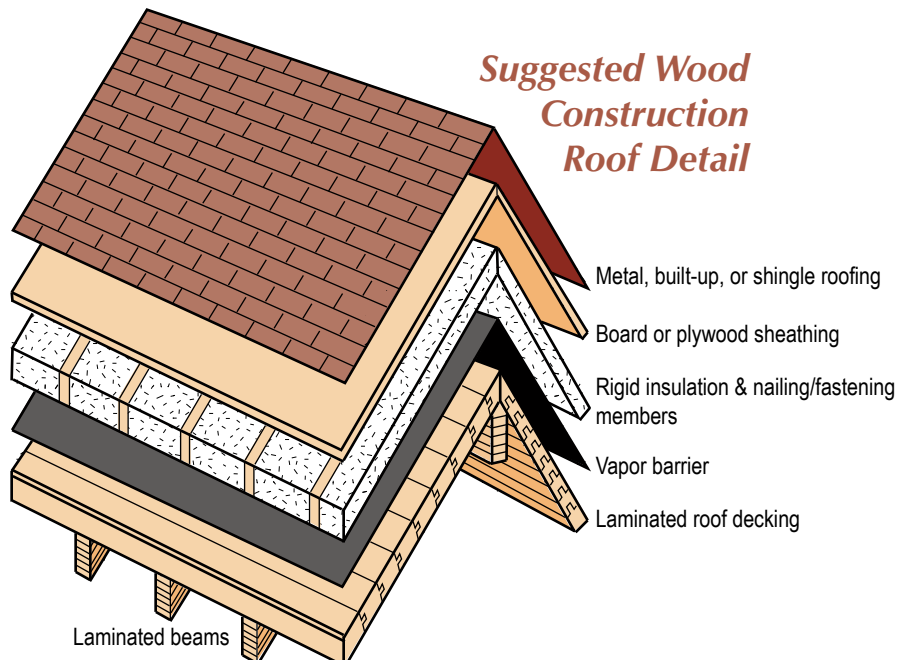
ANSI-AITC A190.1-2007 4.2.2 Tolerance for Camber or Straightness – The tolerances are applicable at the time of manufacture without allowances for dead load deflection. Up to 20 ft., the tolerance is plus or minus 1/4 in.. Over 20 ft., increase tolerance 1/8 in. per each additional 20 ft. or fraction thereof, but not to exceed 3/4 in.

The tolerances are intended for use with straight or slightly cambered members and are not applicable to curved members such as arches.

DESIGN CONVERSION TABLES FOOTNOTES CONTINUED . . .

- Floor beam sections are compared on the basis of equivalent stiffness (EI) only, using a dry service condition for the wood members. Sizes shown should be checked for shear, bending and other applicable strength properties and design considerations. For determining glulam floor beam sections, an E value of 1,800,000 psi was used.
- Solid sawn sections are based on using either a select structural or No. 1 grade. Design values used are from the 1991 NDS.
Douglas Fir members 2 to 4 inches thick and 5 inches or wider:
Select Structural: $F_b = 1450$ psi No. 1: $F_b = 1000$ psi
 $E = 1,800,000$ psi $E = 1,700,000$ psi

Members having a least dimension of 5 inches or greater:
Select Structural: $F_b = 1500$ psi No. 1: $F_b = 1350$ psi
 $E = 1,500,000$ psi $E = 1,500,000$
- Steel sections were selected as the most economical from the Manual of Steel Construction, AISC, 9th Edition. Design values used were:
 $F_y = 36$ ksi
 $F_b = .66 \times F_y$
 $E = 29,000$ ksi
- LVL sections are based on the following design values:
 $F_b = 2800$ psi (adjusted for $C_f = (12/d)^{1/6}$ for depths greater than 12 in.)
 $E = 2,000,000$ psi



STRUCTURAL LAMINATED DOUG FIR/LARCH ROOF BEAMS – CONSTRUCTION LOAD

	Indicates loads controlled by deflection													F _b	F _v	E	Deflection Limit						
	Indicates loads controlled by bending													2400	**265	1.8x10 ⁶	Span / 180						
	Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible													psi	psi	psi	for TOTAL LOAD						
	BEAM SIZE			BEAM WEIGHT		SPAN FT.			BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT														
WIDTH b, in.	DEPTH d, in.	WEIGHT plf	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
3½"	4½"	3.4	127	95																			
	6	4.6	300	225	174	137	109	89															
	7½"	5.7	586	440	339	267	214	174	143	119	100												
	9	6.8	844	697	586	461	369	300	247	206	174	148	127	109	95								
	10½"	8.0	1148	949	798	680	586	476	393	327	276	234	201	174	151	132	116	103	91				
	12	9.1	1500	1240	1042	888	765	667	586	488	412	350	300	259	225	197	174	154	137	122	109	98	89
	13½"	10.3	1898	1569	1318	1123	969	844	742	657	586	498	427	369	321	281	247	219	194	174	156	140	127
	15	11.4	2344	1937	1628	1387	1196	1042	916	811	723	649	586	506	440	385	339	300	267	238	214	192	174
	16½"	12.5	2836	2344	1969	1678	1447	1260	1108	981	875	786	709	643	586	513	451	399	355	317	284	256	231
18	13.7	3000	2789	2344	1997	1722	1500	1318	1168	1042	935	844	765	697	638	583	518	461	412	369	332	300	
5½"	10½"	13.1	1883	1557	1308	1114	961	781	644	537	452	384	330	285	248	217	191	169	150				
	12	14.9	2460	2033	1708	1456	1255	1093	961	801	675	574	492	425	370	323	285	252	224	200	179	161	146
	13½"	16.8	3113	2573	2162	1842	1588	1384	1216	1077	961	817	701	605	526	461	405	359	319	285	255	230	208
	15	18.7	3844	3177	2669	2274	1961	1708	1501	1328	1178	1052	944	830	722	632	556	492	437	391	350	315	285
	16½"	20.6	4651	3844	3230	2752	2373	2067	1808	1592	1412	1261	1132	1022	926	841	740	655	582	520	466	420	379
	18	22.4	5535	4574	3844	3275	2824	2443	2133	1878	1666	1487	1335	1205	1093	996	911	836	756	675	605	545	492
	19½"	24.3	6000*	5369	4511	3841	3288	2844	2484	2187	1940	1731	1555	1403	1273	1159	1060	973	896	828	767	692	626
	21	26.2	6000*	6000*	5232	4422	3785	3274	2859	2518	2233	1993	1790	1615	1465	1334	1220	1120	1032	953	883	820	764
	22½"	28.0	6000*	6000*	5965	5042	4315	3733	3260	2870	2546	2272	2040	1842	1670	1521	1391	1277	1176	1086	1007	935	871
	24	29.9	6000*	6000*	6000*	5699	4878	4220	3685	3245	2878	2569	2306	2082	1888	1720	1573	1444	1329	1228			

**The design value $F_v = 265$ psi as established by AITC 117-2004 is for straight prismatic members without notches and members not subject to cyclic or impact loading and members that do not transfer shear at connections by mechanical fasteners. For these other cases F_v must be multiplied by 0.72 per AITC 117-2004 Standard Specification for Structural Glued Laminated Timber and table values must be adjusted accordingly.

TABLE SPECIFICATIONS: This table applies to straight, simply supported glued laminated timber beams under dry conditions of use. Beams must be laterally supported at the top along the length of the beam and at the top and bottom at the ends. The load carrying capacities tabulated are for total load including the weight of the member. BEAM WEIGHT: 35.0 pounds per cubic foot was used to determine beam weight per lineal foot shown in the table.

STRUCTURAL LAMINATED DOUG FIR/LARCH ROOF BEAMS – CONSTRUCTION LOAD

C_D = Load duration factor increased for 7 days
1.25 construction or non-snow load

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																	
WIDTH b, in.	DEPTH d, in.		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
3½	4½	3.4																				
	6	4.6																				
	7½	5.7																				
	9	6.8																				
	10½	8.0																				
	12	9.1																				
	13½	10.3	115	104	95																	
	15	11.4	157	143	130	119	109	100	93													
	16½	12.5	209	190	174	159	146	134	123	114	105	97	91									
18	13.7	272	247	225	206	189	174	160	148	137	127	118	109	102	95	89						
5½	10½	13.1																				
	12	14.9																				
	13½	16.8	188	171	156																	
	15	18.7	258	235	214	196	179	165	152													
	16½	20.6	343	312	285	260	239	219	202	186	172	160	148									
	18	22.4	446	405	370	338	310	285	262	242	224	208	193	179	167	156	146					
	19½	24.3	567	515	470	430	394	362	333	308	285	264	245	228	212	198	185	174	163	153		
	21	26.2	708	644	587	537	492	452	416	384	356	330	306	285	265	248	231	217	203	191	179	169
	22½	28.0	813	760	713	660	605	556	512	473	437	405	376	350	326	305	285	267	250	235	221	208
	24	29.9	919	860	806	757	712	671	622	574	531	492	457	425	396	370	346	323	303	285	268	252
	25½	31.8	1031	965	904	849	799	753	711	672	637	590	548	510	475	443	414	388	364	342	321	302
	27	33.6	1149	1075	1008	947	891	840	793	749	710	673	639	605	564	526	492	461	432	405	381	359
28½	35.5	1274	1192	1117	1049	987	930	878	831	786	746	708	673	641	610	579	542	508	477	448	422	
30	37.4	1404	1313	1231	1156	1088	1026	968	916	867	822	781	742	706	673	642	613	586	556	523	492	
6¾	15	24.6	340	309	282	258	236	217	200													
	16½	27.1	452	411	375	343	314	289	266	246	227	211	196									
	18	29.5	587	534	487	445	408	375	345	319	295	273	254	236	220	205	192					
	19½	32.0	747	679	619	566	519	477	439	405	375	348	323	300	280	261	244	229	214	201		
	21	34.5	914	848	773	707	648	595	548	506	468	434	403	375	349	326	305	285	268	251	236	222
	22½	36.9	1041	974	913	858	797	732	675	623	576	534	496	461	430	401	375	351	329	309	290	273
	24	39.4	1177	1101	1032	970	912	860	812	756	699	648	602	560	522	487	455	426	399	375	353	332
	25½	41.8	1321	1236	1159	1088	1024	965	911	861	816	774	722	671	626	584	546	511	479	450	423	398
	27	44.3	1473	1378	1291	1213	1141	1076	1016	960	909	862	819	778	741	693	648	607	569	534	502	472
	28½	46.8	1632	1527	1431	1344	1265	1192	1125	1064	1008	956	907	862	821	782	746	712	669	628	590	556
	30	49.2	1799	1683	1578	1482	1394	1314	1241	1173	1111	1053	1000	951	905	862	823	785	751	718	688	648
	31½	51.7	1974	1846	1731	1626	1530	1442	1361	1287	1219	1156	1097	1043	993	946	902	862	824	788	755	723
	33	54.1	2156	2017	1891	1776	1671	1575	1487	1406	1331	1262	1199	1140	1085	1033	986	941	900	861	824	790
	34½	56.6	2346	2195	2057	1932	1818	1714	1618	1530	1449	1374	1304	1240	1180	1125	1073	1024	979	937	897	860
	36	59.1	2544	2380	2231	2095	1971	1858	1754	1659	1571	1489	1414	1344	1280	1219	1163	1111	1062	1016	973	932
37½	61.5	2749	2572	2411	2264	2130	2008	1896	1793	1697	1610	1528	1453	1383	1318	1257	1200	1147	1098	1051	1007	
8¾	15	31.9	441	401	365	334	306	281	259													
	16½	35.1	586	533	486	444	407	374	345	318	294	273	253									
	18	38.3	761	692	631	577	529	486	448	413	382	354	329	306	285	266	249					
	19½	41.5	968	880	802	734	673	618	569	526	486	451	418	389	363	339	316	296	278	261		
	21	44.7	1154	1079	1002	916	840	772	711	656	607	563	523	486	453	423	395	370	347	326	306	288
	22½	47.9	1315	1231	1154	1084	1020	949	875	807	747	692	643	598	557	520	486	455	427	401	377	354
	24	51.0	1487	1391	1304	1225	1153	1086	1026	970	906	840	780	726	676	631	590	552	518	486	457	430
	25½	54.2	1669	1561	1463	1374	1293	1219	1151	1088	1030	977	928	870	811	757	708	662	621	583	548	516
	27	57.4	1860	1740	1631	1532	1442	1359	1283	1213	1149	1089	1034	983	936	892	840	786	737	692	651	612
	28½	60.6	2061	1928	1808	1698	1598	1506	1422	1344	1273	1207	1146	1089	1037	988	942	900	860	814	765	720
	30	63.8	2272	2126	1993	1872	1761	1660	1567	1482	1403	1330	1263	1201	1143	1089	1039	992	948	907	869	833
	31½	67.0	2493	2332	2186	2053	1932	1821	1719	1626	1539	1460	1386	1318	1254	1195	1140	1088	1040	995	953	914
33	70.2	2723	2548	2388	2243	2111	1989	1878	1776	1682	1595	1514	1439	1370	1305	1245	1189	1136	1087	1041	998	
34½	73.4	2963	2772	2599	2441	2297	2165	2044	1932	1830	1735	1647	1566	1491	1420	1355	1294	1237	1183	1133	1086	
10¾	19½	51	1189	1081	986	901	826	759	699	646	597	554	514	478	446	416	389	364	341	320		
	21	54.9	1389	1299	1218	1126	1032	948	874	806	746	691	642	597	557	519	486	455	426	400	376	354
	22½	58.8	1583	1481	1388	1304	1227	1157	1074	992	917	850	790	735	684	639	597	559	524	492	463	435
	24	62.7	1790	1674	1570	1474	1387	1307	1234	1167	1105	1032	958	891	831	775	725	679	636	597	561	528
	25½	66.6	2008	1879	1761	1654	1556	1467	1385	1310	1240	1176	1116	1061	996	930	869	814	763	716	673	634
	27	70.5	2239	2094	1963	1844	1735	1635	1544	1460	1382	1311	1245	1183	1126	1073	1024	966	906	850	799	752
	28½	74.5	2481	2321	2176	2043	1923	1812	1711	1618	1532	1453	1379	1311	1248	1189	1134	1083	1035	990	940	885
	30	78.4	2735	2558	2398	2253	2120	1998	1886	1783	1689	1601	1520	1445	1376	1311	1250	1194	1141	1092	1046	1002
	31½	82.3	3000	2807	2631	2471	2325	2192	2069	1957	1853	1757	16									

STRUCTURAL LAMINATED DOUG FIR/LARCH FLOOR BEAMS – FLOOR LIVE LOAD

			Indicates loads controlled by deflection																			F _b	F _v	E	Deflection Limit					
			Indicates loads controlled by bending																			2400	**265	1.8x10 ⁶	Span / 360					
			Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible																			psi	psi	psi	for TOTAL LOAD					
BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																									
WIDTH b, in.	DEPTH d, in.		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
3½	4½	3.4	79	59																										
	6	4.6	187	141	109	85	68	56																						
	7½	5.7	366	275	212	167	133	109	89	75	63																			
	9	6.8	633	475	366	288	231	187	154	129	109	92	79	68	59															
	10½	8.0	919	755	582	457	366	298	245	205	172	147	126	109	94	83	73	64	57											
	12	9.1	1200	992	833	683	547	444	366	305	257	219	187	162	141	123	109	96	85	76	68	62	56							
	13½	10.3	1519	1255	1055	899	775	633	521	435	366	311	267	231	201	176	154	137	122	109	97	88	79							
	15	11.4	1875	1550	1302	1109	957	833	715	596	502	427	366	316	275	241	212	187	167	149	133	120	109							
	16½	12.5	2269	1875	1576	1342	1158	1008	886	785	669	569	487	421	366	320	282	250	222	198	178	160	144							
18	13.7	2700	2231	1875	1598	1378	1200	1055	934	833	738	633	547	475	416	366	324	288	257	231	208	187								
5½	10½	13.1	1507	1238	954	750	601	488	402	335	283	240	206	178	155	135	119	105	94											
	12	14.9	1968	1626	1367	1120	896	729	601	501	422	359	307	266	231	202	178	157	140	125	112	101	91							
	13½	16.8	2491	2058	1730	1474	1271	1038	855	713	601	511	438	378	329	288	253	224	199	178	160	144	130							
	15	18.7	3705	2541	2135	1820	1569	1367	1173	978	824	700	601	519	451	395	348	307	273	244	219	197	178							
	16½	20.6	3721	3075	2584	2202	1898	1654	1447	1274	1097	932	799	691	601	526	463	409	364	325	291	262	237							
	18	22.4	4428	3660	3075	2620	2259	1954	1707	1503	1333	1190	1038	896	780	682	601	531	472	422	378	340	307							
	19½	24.3	5197	4295	3609	3073	2630	2275	1987	1750	1552	1385	1244	1123	991	868	764	676	601	536	481	433	391							
	21	26.2	5850	4981	4185	3538	3028	2620	2288	2014	1786	1595	1432	1292	1172	1068	954	844	750	670	601	541	488							
	22½	28.0	6000*	5620	4772	4033	3452	2986	2608	2296	2036	1818	1632	1473	1336	1217	1113	1022	923	824	739	665	601							
	24	29.9	6000*	6000*	5394	4560	3902	3376	2948	2596	2302	2055	1845	1665	1510	1376	1258	1155	1064	983	896	807	729							
	25½	31.8	6000*	6000*	5958	5116	4379	3788	3308	2913	2583	2306	2070	1869	1695	1544	1412	1296	1193	1102	1021	949	874							
	27	33.6	6000*	6000*	6000*	5703	4881	4223	3688	3247	2880	2570	2308	2083	1889	1721	1574	1445	1330	1229	1139	1058	985							
	28½	35.5	6000*	6000*	6000*	6000*	5409	4680	4087	3598	3191	2849	2558	2309	2094	1907	1744	1601	1474	1362	1262	1172	1092							
30	37.4	6000*	6000*	6000*	6000*	5963	5159	4505	3966	3518	3140	2819	2545	2308	2102	1923	1765	1625	1501	1391	1292	1203								
6¾	15	24.6	4050	3347	2813	2392	2047	1771	1545	1288	1085	923	791	683	594	520	458	405	360	321	288	259	234							
	16½	27.1	4901	4050	3391	2867	2454	2123	1854	1632	1444	1228	1053	909	791	692	609	539	479	428	384	345	312							
	18	29.5	5832	4803	4001	3382	2895	2504	2187	1925	1708	1524	1367	1181	1027	899	791	700	622	556	498	448	405							
	19½	32.0	6832	5592	4658	3938	3370	2916	2546	2242	1988	1775	1594	1438	1304	1143	1006	890	791	706	633	570	515							
	21	34.5	7705	6438	5363	4533	3880	3356	2931	2581	2289	2043	1834	1656	1502	1368	1251	1111	988	882	791	712	643							
	22½	36.9	8586	7340	6114	5168	4423	3827	3342	2942	2609	2329	2091	1888	1712	1559	1426	1309	1205	1085	973	876	791							
	24	39.4	9000*	8177	6911	5842	5000	4326	3777	3326	2950	2633	2364	2134	1935	1763	1612	1480	1363	1259	1166	1063	960							
	25½	41.8	9000*	9000*	7755	6555	5611	4854	4239	3732	3310	2955	2653	2395	2172	1978	1809	1660	1529	1413	1309	1216	1132							
	27	44.3	9000*	9000*	8586	7307	6254	5411	4725	4160	3690	3294	2957	2669	2421	2205	2017	1851	1705	1575	1459	1355	1262							
	28½	46.8	9000*	9000*	9000*	8098	6931	5996	5236	4610	4089	3650	3277	2958	2683	2444	2235	2051	1889	1745	1617	1502	1399							
	30	49.2	9000*	9000*	9000*	8927	7640	6610	5772	5082	4507	4023	3613	3261	2957	2694	2463	2261	2082	1924	1782	1656	1542							
	31½	51.7	9000*	9000*	9000*	9000*	8382	7252	6333	5576	4945	4414	3963	3578	3245	2955	2703	2481	2285	2110	1955	1816	1692							
	33	54.1	9000*	9000*	9000*	9000*	9000*	7922	6918	6091	5402	4822	4330	3908	3544	3228	2952	2710	2496	2305	2136	1984	1848							
34½	56.6	9000*	9000*	9000*	9000*	9000*	8620	7528	6628	5878	5247	4711	4253	3857	3513	3213	2949	2716	2509	2324	2159	2011								
36	59.1	9000*	9000*	9000*	9000*	9000*	9000*	8162	7186	6373	5689	5108	4611	4182	3809	3483	3197	2944	2720	2520	2341	2180								
37½	61.5	9000*	9000*	9000*	9000*	9000*	9000*	8820	7765	6887	6148	5520	4983	4519	4116	3764	3455	3182	2939	2723	2530	2356								
8¾	15	31.9	5242	4291	3574	3021	2586	2237	1953	1670	1407	1196	1025	886	770	674	593	525	467	417	374	336	304							
	16½	35.1	6282	5143	4284	3621	3099	2681	2341	2061	1828	1592	1365	1179	1025	897	790	699	621	555	497	448	404							
	18	38.3	7411	6067	5054	4272	3656	3163	2762	2432	2157	1925	1729	1531	1331	1165	1025	907	806	720	646	581	525							
	19½	41.5	8629	7064	5884	4974	4257	3683	3216	2831	2511	2242	2013	1817	1648	1481	1304	1153	1025	916	821	739	667							
	21	44.7	9933	8132	6772	5726	4900	4239	3702	3260	2891	2581	2317	2091	1897	1728	1580	1441	1281	1144	1025	923	834							
	22½	47.9	11130	9271	7724	6528	5587	4833	4221	3716	3296	2942	2642	2384	2162	1970	1801	1653	1523	1407	1261	1135	1025							
	24	51.0	12000*	10480	8730	7379	6316	5464	4771	4201	3726	3326	2986	2695	2445	2227	2036	1869	1721	1590	1473	1369	1244							
	25½	54.2	12000*	11680	9796	8280	7087	6131	5354	4714	4181	3732	3351	3024	2743	2499	2285	2097	1931	1784	1653	1536	1430							
	27	57.4	12000*	12000*	10919	9230	7900	6834	5968	5255	4660	4160	3735	3371	3058	2785	2547	2338	2153	1989	1843	1712	1594							
	28½	60.6	12000*	12000*	12000*	10228	8754	7574	6614	5823	5164	4610	4139	3736	3388	3086	2823	2591	2386	2204	2042	1897	1767							

STRUCTURAL LAMINATED DOUG FIR/LARCH FLOOR BEAMS – FLOOR LIVE LOAD

C_D = Load duration factor of 1.00 for
1.00 floor loading applies to F_b and F_v

FLOOR LOAD FACTOR = 0.80

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																	
WIDTH b, in.	DEPTH d, in.		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
3½	4½	3.4																				
	6	4.6																				
	7½	5.7																				
	9	6.8																				
	10½	8.0																				
	12	9.1																				
	13½	10.3	72	65	59																	
	15	11.4	98	89	82	75	68	63	58													
	16½	12.5	131	119	109	99	91	84	77	71	66	61	57									
18	13.7	170	154	141	129	118	109	100	92	85	79	73	68	64	59	56						
5½	10½	13.1																				
	12	14.9																				
	13½	16.8	118	107	97																	
	15	18.7	161	147	134	122	112	103	95													
	16½	20.6	215	195	178	163	149	137	126	117	108	100	93									
	18	22.4	279	253	231	211	194	178	164	151	140	130	120	112	104	97	91					
	19½	24.3	354	322	294	269	246	226	208	192	178	165	153	142	133	124	116	108	102	95		
	21	26.2	443	402	367	335	307	283	260	240	222	206	191	178	166	155	145	135	127	119	112	105
	22½	28.0	544	495	451	413	378	348	320	296	273	253	235	219	204	190	178	167	156	147	138	130
	24	29.9	661	601	548	501	459	422	389	359	332	307	286	266	248	231	216	202	190	178	167	157
	25½	31.8	792	720	657	601	551	506	466	430	398	369	342	319	297	277	259	243	227	213	201	189
	27	33.6	919	855	780	713	654	601	553	511	472	438	407	378	352	329	307	288	270	253	238	224
28½	35.5	1019	953	894	838	769	706	651	601	556	515	478	445	414	387	362	339	317	298	280	264	
30	37.4	1123	1051	985	925	871	821	759	700	648	601	558	519	483	451	422	395	370	348	327	307	
6¾	15	24.6	212	193	176	161	148	136	125													
	16½	27.1	283	257	234	214	196	181	166	153	142	132	122									
	18	29.5	367	334	304	278	255	234	216	199	184	171	159	148	138	128	120					
	19½	32.0	467	424	387	354	324	298	274	253	234	217	202	188	175	163	153	143	134	126		
	21	34.5	583	530	483	442	405	372	343	316	293	271	252	234	218	204	191	178	167	157	148	139
	22½	36.9	717	652	594	543	498	458	422	389	360	334	310	288	269	251	234	219	206	193	182	171
	24	39.4	870	791	721	659	605	556	512	472	437	405	376	350	326	304	284	266	250	234	220	207
	25½	41.8	1044	949	865	791	725	666	614	567	524	486	451	420	391	365	341	319	299	281	264	249
	27	44.3	1178	1102	1027	939	861	791	729	673	622	577	535	498	464	433	405	379	355	334	314	295
	28½	46.8	1306	1221	1145	1075	1012	930	857	791	732	678	630	586	546	510	476	446	418	392	369	347
	30	49.2	1439	1346	1262	1185	1115	1051	993	923	853	791	735	683	637	594	556	520	488	458	430	405
	31½	51.7	1579	1477	1385	1301	1224	1153	1089	1030	975	916	850	791	737	688	643	602	564	530	498	469
	33	54.1	1725	1614	1513	1421	1337	1260	1190	1125	1065	1010	959	909	847	791	739	692	649	609	573	539
	34½	56.6	1877	1756	1646	1546	1455	1371	1294	1224	1159	1099	1043	992	944	900	845	791	742	696	654	616
	36	59.1	2035	1904	1785	1676	1577	1487	1403	1327	1257	1192	1131	1075	1024	975	930	888	843	791	744	700
37½	61.5	2199	2057	1929	1811	1704	1606	1517	1434	1358	1288	1223	1162	1106	1054	1005	960	918	878	840	791	
8¾	15	31.9	275	250	228	209	191	176	162													
	16½	35.1	366	333	304	278	255	234	216	199	184	171	158									
	18	38.3	476	433	394	361	331	304	280	258	239	221	206	191	178	166	156					
	19½	41.5	605	550	501	459	420	386	356	328	304	282	261	243	227	212	198	185	174	163		
	21	44.7	756	687	626	573	525	482	444	410	379	352	327	304	283	264	247	231	217	204	191	180
	22½	47.9	929	845	770	704	646	593	547	505	467	433	402	374	348	325	304	284	267	250	235	221
	24	51.0	1128	1025	935	855	784	720	663	612	566	525	488	454	423	394	369	345	324	304	286	269
	25½	54.2	1335	1230	1121	1025	940	864	796	734	679	630	585	544	507	473	442	414	388	364	343	322
	27	57.4	1488	1392	1305	1217	1116	1025	944	872	806	748	694	646	602	562	525	491	461	433	407	383
	28½	60.6	1649	1543	1446	1358	1278	1205	1111	1025	949	879	816	759	708	661	617	578	542	509	478	450
	30	63.8	1818	1701	1594	1497	1409	1328	1254	1185	1106	1025	952	886	825	770	720	674	632	593	558	525
	31½	67.0	1994	1866	1749	1643	1546	1457	1375	1301	1232	1168	1102	1025	955	892	834	780	732	687	646	608
	33	70.2	2179	2038	1911	1795	1689	1592	1503	1421	1345	1276	1211	1151	1096	1025	959	897	841	790	742	699
34½	73.4	2371	2218	2079	1953	1837	1732	1635	1546	1464	1388	1318	1253	1192	1136	1084	1025	961	902	848	798	
10¾	19½	51	743	676	616	563	516	475	437	404	373	346	321	299	278	260	243	227	213	200		
	21	54.9	928	844	770	704	645	593	546	504	466	432	401	373	348	325	303	284	266	250	235	221
	22½	58.8	1142	1038	946	865	793	729	671	620	573	531	494	459	428	399	373	349	328	308	289	272
	24	62.7	1386	1260	1149	1050	963	885	815	752	696	645	599	557	519	485	453	424	398	373	351	330
	25½	66.6	1607	1503	1378	1260	1155	1061	978	902	835	774	718	668	623	581	543	509	477	448	421	396
	27	70.5	1791	1675	1571	1475	1371	1260	1160	1071	991	918	853	793	739	690	645	604	566	531	500	470
	28½	74.5	1985	1857	1740	1635	1538	1450	1365	1260	1165	1080	1003	933	869	811	759	710	666	625	588	553
	30	78.4	2188	2047	1919	1802	1696	1598	1509	1427	1351	1260	1170	1088	1014	946	885	828	777	729	685	645
	31½	82.3	2400	2246	2105	1977	1860	1753	1655	1565	1482	1405	1334	1260	1174	1096	1024	959	899	844	793	747
	33	86.2	2622	2453	2300	2160	2032	1916	1808	1710	1619	1535	1458	1386	1319	125						

STRUCTURAL LAMINATED DOUG FIR/LARCH FLOOR BEAMS – SNOW LOAD

Indicates loads controlled by deflection														F _b	F _v	E	Deflection Limit						
Indicates loads controlled by bending														2400	**265	1.8x10 ⁶	Span / 180						
Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible														psi	psi	psi	for TOTAL LOAD						
BEAM SIZE		BEAM	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																		
WIDTH b, in.	DEPTH d, in.	WEIGHT plf	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
3½	4½	3.4	127	95																			
	6	4.6	300	225	174	137	109	89															
	7½	5.7	539	440	339	267	214	174	143	119	100												
	9	6.8	776	642	539	459	369	300	247	206	174	148	127	109	95								
	10½	8.0	1057	873	734	625	539	470	393	327	276	234	201	174	151	132	116	103	91				
	12	9.1	1380	1140	958	817	704	613	539	478	412	350	300	259	225	197	174	154	137	122	109	98	89
	13½	10.3	1747	1443	1213	1033	891	776	682	604	539	484	427	369	321	281	247	219	194	174	156	140	127
	15	11.4	2156	1782	1497	1276	1100	958	842	746	666	597	539	489	440	385	339	300	267	238	214	192	174
	16½	12.5	2609	2156	1812	1544	1331	1160	1019	903	805	723	652	592	539	493	451	399	355	317	284	256	231
18	13.7	3000*	2566	2156	1837	1584	1380	1213	1074	958	860	776	704	642	587	537	493	454	412	369	332	300	
5½	10½	13.1	1733	1432	1203	1025	884	770	644	537	452	384	330	285	248	217	191	169	150				
	12	14.9	2263	1870	1572	1339	1155	1006	884	783	675	574	492	425	370	323	285	252	224	200	179	161	146
	13½	16.8	2864	2367	1989	1695	1461	1273	1119	991	884	792	701	605	526	461	405	359	319	285	255	230	208
	15	18.7	3536	2923	2456	2092	1804	1572	1381	1222	1084	968	869	784	711	632	556	492	437	391	350	315	285
	16½	20.6	4279	3536	2971	2532	2183	1902	1664	1465	1299	1160	1041	940	852	776	710	652	582	520	466	420	379
	18	22.4	5092	4208	3536	3013	2598	2248	1963	1728	1533	1368	1228	1109	1006	916	838	769	708	654	605	545	492
	19½	24.3	5976	4939	4150	3534	3025	2617	2285	2012	1784	1593	1430	1291	1171	1066	975	895	824	762	706	655	610
	21	26.2	6000*	5728	4813	4069	3482	3012	2631	2316	2054	1834	1646	1486	1348	1228	1123	1030	949	877	812	755	703
	22½	28.0	6000*	6000*	5487	4638	3970	3434	2999	2641	2342	2091	1877	1694	1537	1400	1280	1175	1082	1000	926	860	801
	24	29.9	6000*	6000*	6000*	5243	4488	3882	3390	2985	2647	2363	2122	1915	1737	1582	1447	1328	1223	1130	1047	972	906
	25½	31.8	6000*	6000*	6000*	5884	5036	4356	3804	3350	2971	2652	2381	2149	1949	1775	1624	1490	1372	1268	1175	1091	1016
	27	33.6	6000*	6000*	6000*	6000*	5613	4856	4241	3734	3311	2956	2654	2396	2173	1979	1810	1661	1530	1413	1309	1216	1133
	28½	35.5	6000*	6000*	6000*	6000*	6000*	5382	4700	4138	3670	3276	2941	2655	2408	2193	2006	1841	1695	1566	1451	1348	1255
	30	37.4	6000*	6000*	6000*	6000*	6000*	5933	5181	4561	4045	3611	3242	2927	2654	2418	2211	2029	1869	1727	1600	1486	1384
6¾	15	24.6	4658	3849	3234	2751	2354	2037	1779	1566	1389	1240	1113	1005	911	830	732	648	576	514	461	415	375
	16½	27.1	5636	4658	3900	3297	2822	2441	2132	1877	1665	1486	1334	1204	1092	995	910	835	767	685	614	553	499
	18	29.5	6707	5524	4601	3889	3329	2880	2515	2214	1964	1753	1574	1421	1288	1174	1073	985	907	838	776	717	648
	19½	32.0	7856	6431	5357	4528	3876	3353	2928	2578	2286	2041	1833	1654	1500	1366	1250	1147	1056	976	904	840	782
	21	34.5	8861	7404	6167	5213	4462	3860	3371	2968	2632	2350	2110	1904	1727	1573	1439	1320	1216	1123	1041	967	900
	22½	36.9	9000*	8441	7031	5943	5087	4401	3843	3383	3001	2679	2405	2171	1969	1793	1640	1505	1386	1281	1186	1102	1026
	24	39.4	9000*	9000*	7948	6718	5750	4975	4344	3825	3392	3028	2719	2454	2226	2027	1854	1702	1567	1448	1341	1246	1160
	25½	41.8	9000*	9000*	8919	7539	6452	5582	4874	4292	3806	3398	3051	2754	2497	2275	2080	1909	1758	1624	1505	1398	1302
	27	44.3	9000*	9000*	9000*	8403	7192	6222	5434	4784	4243	3788	3401	3070	2784	2536	2319	2128	1960	1811	1678	1558	1451
	28½	46.8	9000*	9000*	9000*	9000*	7971	6895	6021	5302	4702	4197	3769	3402	3085	2810	2570	2359	2172	2007	1859	1727	1608
	30	49.2	9000*	9000*	9000*	9000*	8786	7601	6638	5844	5183	4627	4154	3750	3401	3098	2833	2600	2395	2212	2050	1904	1773
	31½	51.7	9000*	9000*	9000*	9000*	9000*	8340	7283	6412	5687	5076	4558	4114	3731	3399	3108	2853	2627	2427	2249	2089	1945
	33	54.1	9000*	9000*	9000*	9000*	9000*	9000*	7956	7005	6212	5546	4979	4494	4076	3713	3395	3116	2870	2651	2456	2282	2125
	34½	56.6	9000*	9000*	9000*	9000*	9000*	9000*	8657	7622	6760	6034	5418	4890	4435	4040	3695	3391	3123	2885	2673	2483	2312
36	59.1	9000*	9000*	9000*	9000*	9000*	9000*	9000*	8264	7329	6542	5874	5302	4809	4380	4006	3677	3386	3128	2898	2692	2507	
37½	61.5	9000*	9000*	9000*	9000*	9000*	9000*	9000*	8930	7920	7070	6348	5730	5197	4733	4329	3973	3659	3380	3132	2909	2709	
8¾	15	31.9	6028	4934	4110	3474	2974	2573	2246	1978	1754	1566	1406	1269	1151	1048	949	840	747	667	598	538	486
	16½	35.1	7224	5914	4926	4164	3564	3083	2692	2371	2102	1877	1685	1521	1379	1257	1149	1055	971	888	796	716	647
	18	38.3	8523	6977	5812	4913	4205	3638	3177	2797	2480	2214	1988	1794	1627	1482	1356	1244	1146	1059	981	911	840
	19½	41.5	9923	8123	6767	5720	4895	4235	3698	3256	2888	2578	2315	2089	1895	1726	1578	1449	1334	1232	1142	1061	988
	21	44.7	11424	9351	7790	6584	5635	4875	4257	3748	3325	2968	2665	2405	2181	1987	1817	1668	1536	1419	1315	1221	1137
	22½	47.9	12000*	10661	8881	7507	6425	5558	4854	4274	3790	3338	3038	2742	2487	2265	2072	1901	1751	1618	1499	1392	1297
	24	51.0	12000*	12000*	10039	8486	7263	6283	5487	4831	4285	3825	3434	3100	2811	2561	2342	2149	1979	1829	1694	1574	1466
	25½	54.2	12000*	12000*	11265	9522	8150	7050	6157	5421	4808	4292	3853	3478	3154	2873	2628	2412	2221	2052	1901	1766	1645
	27	57.4	12000*	12000*	12000*	10614	9085	7859	6863	6043	5359	4784	4295	3877	3516	3203	2929	2688	2476	2287	2119	1969	1833
	28½	60.6	12000*	12000*	12000*	11763	10067	8710	7606	6696	5939	5302	4760	4297	3897	3549	3246	2979	2744	2535	2348	2181	2032
	30	63.8	12000*	12000*	12000*	12000*	11098	9601	8384	7382	6547	5844	5247	4736	4296	3913	3578	3284	3025	2794	2589	2405	2240
	31½	67.0	12000*	12000*	12000*	12000*	12000*	10534	9199	8099	7183	6412	5757	5197	4713	4293	3926	3603	3318	3066	2840	2638	2457
	33	70.2	12000*	12000*	12000*	12000*	12000*	11507	10049	8847	7847	7005	6289	5677	5148	4690	4289	3936	3625	3349	3103	2882	2684
	34½	73.4	12000*	12000*	12000*	12000*	12000*	12000*	10934	9627	8538	7622	6843	6177	5602	5103	4667	4283	3945	3644	3376	3136	2921
10¾	19½	51	11943	9777	8144	6884	5892	5097	4451	3919	3476	3103	2786	2514	2280	2077	1900	1744	1606	1483	1374	1277	1189
	21	54.9	13749	11255	9375	7925	6783	5868	5124	4511	4001	3572	3207	2895	2625	2391	2187	2007	1848	1708	1582	1470	1369
	22½	58.8	15000*	12831	10688	9035	7733	6690	5842	5143	4562	4072	3656	3300	2993	2726	2493	2288	2107	1947	1804	1676	1560
	24	62.7	15000*	14505	12083	10213	8741	7562	6604	5814	5157	4603	4133	3731	3383	3082	2818	2587	2382	2201	2039	1894	1764
	25½	66.6	15000*	15000*	13558	11460	9808	8486	7410	6524	5786	5165	4638	4186	3796	3458	3162	2903	2673	2469	2288	2125	1979
	27	70.5	15000*	15000*	15000*	12775	10934																

**The design value $F_v = 265$ psi as established by AITC 117-2004 is for straight prismatic members without notches and members not subject to cyclic or impact loading and members that do not transfer shear at connections by mechanical fasteners. For these other cases F_v must be multiplied by 0.72 per AITC 117-2004 Standard Specification for Structural Glued Laminated Timber and table values must be adjusted accordingly.

TABLE SPECIFICATIONS: This table applies to straight, simply supported glued laminated timber beams under dry conditions of use. Beams must be laterally supported at the top along the length of the beam and at the top and bottom at the ends. The load carrying capacities tabulated are for total load including the weight of the member. BEAM WEIGHT: 35.0 pounds per cubic foot was used to determine beam weight per lineal foot shown in the table.

STRUCTURAL LAMINATED DOUG FIR/LARCH FLOOR BEAMS – SNOW LOAD

C_D = Load duration factor for 2 months of snow
1.15

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																	
WIDTH b, in.	DEPTH d, in.		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
3½	4½	3.4																				
	6	4.6																				
	7½	5.7																				
	9	6.8																				
	10½	8.0																				
	12	9.1																				
	13½	10.3	115	104	95																	
	15	11.4	157	143	130	119	109	100	93													
	16½	12.5	209	190	174	159	146	134	123	114	105	97	91									
18	13.7	272	247	225	206	189	174	160	148	137	127	118	109	102	95	89						
5½	10½	13.1																				
	12	14.9																				
	13½	16.8	188	171	156																	
	15	18.7	258	235	214	196	179	165	152													
	16½	20.6	343	312	285	260	239	219	202	186	172	160	148									
	18	22.4	446	405	370	338	310	285	262	242	224	208	193	179	167	156	146					
	19½	24.3	567	515	470	430	394	362	333	308	285	264	245	228	212	198	185	174	163	153		
	21	26.2	656	614	575	537	492	452	416	384	356	330	306	285	265	248	231	217	203	191	179	169
	22½	28.0	748	700	656	616	580	546	512	473	437	405	376	350	326	305	285	267	250	235	221	208
	24	29.9	845	791	741	696	655	618	583	551	522	492	457	425	396	370	346	323	303	285	268	252
	25½	31.8	949	887	832	781	735	693	654	619	586	555	527	501	475	443	414	388	364	342	321	302
	27	33.6	1057	989	927	871	819	772	729	690	653	619	588	559	532	507	483	461	432	405	381	359
28½	35.5	1172	1096	1028	965	908	856	808	764	724	686	651	619	589	562	536	512	489	468	448	422	
30	37.4	1292	1208	1133	1064	1001	944	891	842	798	756	718	683	650	619	591	564	539	516	494	473	
6¾	15	24.6	340	309	282	258	236	217	200													
	16½	27.1	452	411	375	343	314	289	266	246	227	211	196									
	18	29.5	587	534	487	445	408	375	345	319	295	273	254	236	220	205	192					
	19½	32.0	730	679	619	566	519	477	439	405	375	348	323	300	280	261	244	229	214	201		
	21	34.5	840	786	737	692	648	595	548	506	468	434	403	375	349	326	305	285	268	251	236	222
	22½	36.9	958	896	840	789	743	700	661	623	576	534	496	461	430	401	375	351	329	309	290	273
	24	39.4	1083	1013	950	892	839	791	747	706	669	634	602	560	522	487	455	426	399	375	353	332
	25½	41.8	1215	1137	1066	1001	942	888	838	793	750	712	676	642	611	583	546	511	479	450	423	398
	27	44.3	1355	1267	1188	1116	1050	990	934	883	837	793	753	716	681	649	619	591	565	534	502	472
	28½	46.8	1501	1405	1317	1237	1164	1097	1035	979	927	879	835	793	755	720	686	655	627	599	574	550
	30	49.2	1655	1548	1451	1363	1283	1209	1141	1079	1022	969	920	875	833	793	757	723	691	661	633	607
	31½	51.7	1816	1699	1592	1496	1407	1326	1252	1184	1121	1063	1009	960	913	870	830	793	758	725	694	665
	33	54.1	1984	1856	1740	1634	1537	1449	1368	1294	1225	1161	1103	1048	998	951	907	866	828	792	758	727
	34½	56.6	2158	2019	1893	1778	1673	1577	1489	1408	1333	1264	1200	1141	1086	1035	987	942	901	862	825	791
	36	59.1	2340	2189	2052	1928	1814	1710	1614	1526	1445	1370	1301	1237	1177	1122	1070	1022	977	934	895	858
37½	61.5	2529	2366	2218	2083	1960	1847	1744	1649	1562	1481	1406	1337	1272	1212	1156	1104	1055	1010	967	927	
8¾	15	31.9	441	401	365	334	306	281	259													
	16½	35.1	586	533	486	444	407	374	345	318	294	273	253									
	18	38.3	761	692	631	577	529	486	448	413	382	354	329	306	285	266	249					
	19½	41.5	922	863	802	734	673	618	569	526	486	451	418	389	363	339	316	296	278	261		
	21	44.7	1062	993	931	874	823	772	711	656	607	563	523	486	453	423	395	370	347	326	306	288
	22½	47.9	1210	1132	1061	997	938	884	835	789	747	692	643	598	557	520	486	455	427	401	377	354
	24	51.0	1368	1280	1200	1127	1060	999	944	892	845	801	761	723	676	631	590	552	518	486	457	430
	25½	54.2	1535	1436	1346	1264	1190	1121	1059	1001	948	899	853	811	772	736	702	662	621	583	548	516
	27	57.4	1711	1601	1501	1410	1326	1250	1180	1116	1057	1002	951	904	861	820	782	747	714	683	651	612
	28½	60.6	1896	1774	1663	1562	1470	1385	1308	1237	1171	1110	1054	1002	954	909	867	828	791	757	725	695
	30	63.8	2091	1956	1833	1722	1620	1527	1442	1363	1291	1224	1162	1105	1052	1002	956	913	872	835	799	766
	31½	67.0	2294	2146	2011	1889	1778	1675	1582	1496	1416	1343	1275	1212	1154	1099	1049	1001	957	916	877	840
	33	70.2	2506	2344	2197	2064	1942	1830	1728	1634	1547	1467	1393	1324	1260	1201	1146	1094	1046	1000	958	918
34½	73.4	2726	2550	2391	2246	2113	1992	1880	1778	1683	1596	1516	1441	1371	1307	1247	1190	1138	1089	1042	999	
10¾	19½	51	1110	1038	973	901	826	759	699	646	597	554	514	478	446	416	389	364	341	320		
	21	54.9	1278	1195	1120	1052	990	933	874	806	746	691	642	597	557	519	486	455	426	400	376	354
	22½	58.8	1457	1363	1277	1200	1129	1064	1005	950	899	850	790	735	684	639	597	559	524	492	463	435
	24	62.7	1647	1540	1444	1356	1276	1203	1136	1074	1017	964	915	870	828	775	725	679	636	597	561	528
	25½	66.6	1848	1728	1620	1522	1432	1350	1274	1205	1141	1082	1027	976	929	886	845	807	763	716	673	634
	27	70.5	2060	1927	1806	1696	1596	1505	1420	1343	1272	1206	1145	1088	1036	987	942	899	859	822	787	752
	28½	74.5	2282	2135	2002	1880	1769	1667	1574	1488	1409	1336	1269	1206	1148	1094	1044	996	952	911	873	836
	30	78.4	2516	2354	2206	2072	1950	1838	1735	1641	1554	1473	1399	1330	1266	1206	1150	1098	1050	1005	962	922
	31½	82.3	2760	2582	2421	2274	2139	2017	1904	1800	1705	1616	1535	1459	1389	1323	1262	1				

STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – CONSTRUCTION LOAD

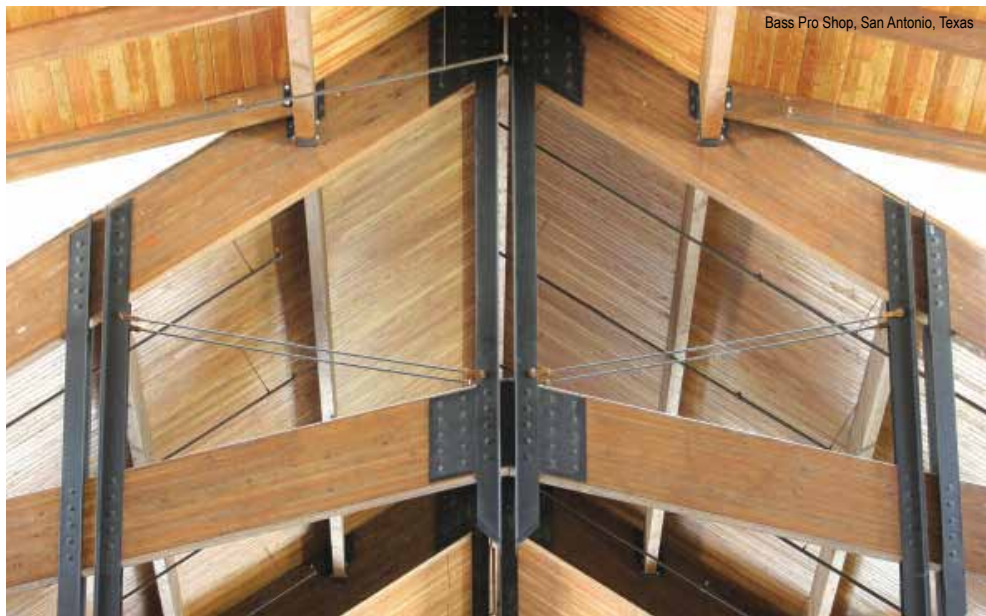
Indicates loads controlled by deflection																				F _b	F _v	E	Deflection Limit			
Indicates loads controlled by bending																				2000	**240	1.5x10 ⁶	Span / 180			
Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible																				psi	psi	psi	for TOTAL LOAD			
BEAM SIZE		BEAM	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																					
WIDTH b, in.	DEPTH d, in.	WEIGHT plf	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24							
3½	6	4.6	488	343	250	188	145	114	91	74																
	7½	5.7	763	603	488	367	283	222	178	145	119	99	84													
	9	6.8	1099	868	703	581	488	384	307	250	206	172	145	123	105	91	79									
	10½	8.0	1495	1182	957	791	665	566	488	397	327	273	230	195	167	145	126	110	97							
	12	9.1	1953	1543	1250	1033	868	740	638	556	488	407	343	292	250	216	188	164	145							
	13½	10.3	2472	1953	1582	1307	1099	936	807	703	618	547	488	415	356	307	267	234	206							
	15	11.4	3000 *	2411	1953	1614	1356	1156	996	868	763	676	603	541	488	422	367	321	283							
	16½	12.5	3000 *	2918	2363	1953	1641	1398	1206	1050	923	818	729	655	591	536	488	427	376							
	18	13.7	3000 *	3000 *	2813	2324	1953	1664	1435	1250	1099	973	868	779	703	638	581	532	486							
19½	14.8	3000 *	3000 *	3000 *	2728	2292	1953	1684	1467	1289	1142	1019	914	825	748	679	619	566								
5½	7½	9.3	1251	989	801	602	463	364	292	237	196	163	137													
	9	11.2	1802	1424	1153	953	801	630	504	410	338	282	237	202	173	149	130		159							
	10½	13.1	2452	1938	1570	1297	1090	929	801	651	536	447	377	320	275	237	206	181	237							
	12	14.9	3203	2531	2050	1694	1424	1213	1046	911	801	668	562	478	410	354	308	270	338							
	13½	16.8	4054	3203	2595	2144	1802	1535	1324	1153	1013	898	801	681	584	504	439	384	463							
	15	18.7	5005	3954	3203	2647	2224	1895	1634	1424	1251	1107	982	876	787	692	602	527	617							
	16½	20.6	6000 *	4785	3876	3203	2692	2293	1977	1723	1507	1327	1177	1050	943	851	772	701	759							
	18	22.4	6000 *	5694	4613	3812	3203	2729	2353	2036	1778	1565	1388	1239	1113	1004	911	830	883							
	19½	24.3	6000 *	6000 *	5413	4474	3759	3201	2740	2370	2070	1822	1616	1443	1295	1169	1060	966	1017							
	21	26.2	6000 *	6000 *	6000 *	5189	4360	3685	3154	2729	2383	2098	1861	1661	1491	1346	1221	1112	1159							
	22½	28.0	6000 *	6000 *	6000 *	5956	4970	4201	3596	3111	2717	2392	2121	1894	1700	1535	1392	1268	1311							
	24	29.9	6000 *	6000 *	6000 *	6000 *	5619	4750	4065	3517	3071	2704	2398	2141	1922	1735	1573	1433	1471							
	25½	31.8	6000 *	6000 *	6000 *	6000 *	6000 *	5329	4561	3946	3446	3034	2691	2402	2157	1947	1766	1608	1639							
27	33.6	6000 *	6000 *	6000 *	6000 *	6000 *	5941	5085	4399	3841	3382	3000	2678	2404	2170	1968	1793									
6¾	7½	12.3	1648	1302	1055	792	610	480	384	312	257	215	181													
	9	14.8	2373	1875	1519	1255	1055	830	664	540	445	371	312	266	228	197	171		209							
	10½	17.2	3230	2552	2067	1708	1436	1223	1055	857	707	589	496	422	362	312	272	238	312							
	12	19.7	4219	3333	2700	2231	1875	1598	1378	1200	1054	879	741	630	540	466	406	355	445							
	13½	22.1	5339	4219	3417	2824	2373	2022	1743	1510	1319	1161	1030	897	769	664	578	506	610							
	15	24.6	6592	5208	4219	3487	2930	2492	2132	1845	1611	1418	1258	1123	1008	910	792	693	812							
	16½	27.1	7976	6302	5105	4219	3533	2986	2556	2211	1931	1700	1508	1346	1208	1091	989	901	972							
	18	29.5	8000 *	7500	6075	5003	4168	3523	3015	2609	2278	2006	1779	1588	1426	1287	1167	1063	1132							
	19½	32.0	8000 *	8000 *	7116	5825	4852	4102	3511	3037	2652	2335	2071	1849	1660	1498	1359	1238	1303							
	21	34.5	8000 *	8000 *	8000 *	6706	5586	4722	4041	3496	3053	2688	2384	2128	1911	1725	1564	1425	1486							
	22½	36.9	8000 *	8000 *	8000 *	7645	6369	5383	4607	3986	3481	3065	2718	2426	2179	1966	1783	1624	1679							
	24	39.4	8000 *	8000 *	8000 *	8000 *	7199	6086	5209	4506	3935	3464	3073	2743	2463	2223	2016	1836	1884							
	25½	41.8	8000 *	8000 *	8000 *	8000 *	8000 *	6829	5844	5056	4415	3887	3448	3078	2763	2494	2262	2061	2101							
	27	44.3	8000 *	8000 *	8000 *	8000 *	8000 *	7612	6515	5636	4922	4333	3843	3431	3080	2780	2522	2297	2328							
	28½	46.8	8000 *	8000 *	8000 *	8000 *	8000 *	8000 *	7220	6246	5454	4802	4259	3802	3414	3081	2794	2545	2566							
	30	49.2	8000 *	8000 *	8000 *	8000 *	8000 *	8000 *	7959	6885	6013	5294	4695	4191	3763	3397	3081	2806								

STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – CONSTRUCTION LOAD

C_D = Load duration factor increased for 7 days
1.25 construction or non-snow load

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT													
WIDTH b, in.	DEPTH d, in.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3 1/8	6	4.6																
	7 1/2	5.7																
	9	6.8																
	10 1/2	8.0	86	76														
	12	9.1	128	114	102	91	82	74										
	13 1/2	10.3	182	162	145	130	117	105	96	87	79							
	15	11.4	250	222	198	178	160	145	131	119	109	99	91	84	77			
	16 1/2	12.5	333	296	264	237	213	193	175	159	145	132	121	111	103	95	88	81
	18	13.7	432	384	343	307	277	250	227	206	188	172	157	145	133	123	114	105
5 1/8	19 1/2	14.8	519	478	436	391	352	318	288	262	239	218	200	184	169	156	145	134
	7 1/2	9.3																
	9	11.2																
	10 1/2	13.1	141	125														
	12	14.9	210	187	167	149	134	121										
	13 1/2	16.8	299	266	237	213	191	173	157	143	130							
	15	18.7	410	364	325	292	263	237	215	196	178	163	149	137	126			
	16 1/2	20.6	546	485	433	388	350	316	286	260	237	217	199	183	168	155	144	133
	18	22.4	696	630	562	504	454	410	372	338	308	282	258	237	219	202	187	173
	19 1/2	24.3	811	747	690	639	577	521	472	430	392	358	328	302	278	256	237	220
	21	26.2	933	860	794	736	683	636	590	536	489	447	410	377	347	320	296	275
	22 1/2	28.0	1064	980	905	839	779	726	677	634	594	550	504	463	427	394	364	338
	24	29.9	1203	1108	1023	948	881	820	766	716	672	631	593	559	518	478	442	410
6 3/4	25 1/2	31.8	1350	1243	1148	1064	988	920	859	804	753	708	666	628	593	560	531	492
	27	33.6	1505	1386	1280	1186	1102	1026	958	896	840	789	742	700	661	625	591	561
	7 1/2	12.3																
	9	14.8																
	10 1/2	17.2	185	165														
	12	19.7	276	246	219	197	177	160										
	13 1/2	22.1	394	350	312	280	252	228	206	188	171							
	15	24.6	540	480	429	384	346	312	283	257	235	215	197	181	167			
	16 1/2	27.1	719	639	571	512	460	416	377	343	312	286	262	241	222	205	189	175
	18	29.5	892	822	741	664	598	540	489	445	406	371	340	312	288	266	246	228
	19 1/2	32.0	1039	957	884	819	760	687	622	566	516	472	432	397	366	338	312	290
	21	34.5	1196	1101	1017	943	876	816	761	707	644	589	540	496	457	422	390	362
	22 1/2	36.9	1363	1256	1160	1075	998	930	868	812	761	715	664	610	562	519	480	445
	24	39.4	1541	1420	1311	1215	1129	1051	981	918	860	808	760	717	677	630	583	540
	25 1/2	41.8	1730	1593	1471	1363	1266	1179	1101	1030	965	907	853	804	759	718	680	645
	27	44.3	1928	1776	1640	1520	1412	1315	1227	1148	1076	1011	951	896	846	800	758	719
	28 1/2	46.8	2137	1968	1818	1684	1564	1457	1360	1272	1193	1120	1054	993	938	887	840	796
	30	49.2	2355	2169	2004	1856	1725	1606	1499	1402	1315	1235	1162	1095	1034	978	926	878



Bass Pro Shop, San Antonio, Texas

STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – LIVE LOAD

Indicates loads controlled by deflection												F _b		F _v		E		Deflection Limit			
Indicates loads controlled by bending												2000		240		1.5x10 ⁶		Span / 360			
Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible												psi		psi		psi		for LIVE LOAD			
BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																
WIDTH b, in.	DEPTH d, in.		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
3½	6	4.6	305	214	156	117	90	71	57	46											
	7½	5.7	596	419	305	229	177	139	111	90		75	62	52							
	9	6.8	879	694	527	396	305	240	192	156	129	107	90	77	66	57	50				
	10½	8.0	1196	945	766	629	485	381	305	248	204	170	144	122	105	90	79	69	61		
	12	9.1	1563	1235	1000	826	694	569	456	370	305	254	214	182	156	135	117	103	90		
	13½	10.3	1978	1563	1266	1046	879	749	646	527	435	362	305	259	222	192	167	146	129		
	15	11.4	2441	1929	1563	1291	1085	925	797	694	596	497	419	356	305	264	229	201	177		
	16½	12.5	2954	2334	1891	1563	1313	1119	965	840	739	654	557	474	406	351	305	267	235		
	18	13.7	3000 *	2778	2250	1860	1563	1331	1148	1000	879	779	694	615	527	456	396	347	305		
19½	14.8	3000 *	3000 *	2641	2182	1834	1563	1347	1174	1031	914	815	731	660	579	504	441	388			
5½	7½	9.3	978	687	500	376	290	228	182	148	122	102	86								
	9	11.2	1441	1139	865	650	500	394	315	256	211	176	148	126	108	93	81				
	10½	13.1	1962	1550	1256	1032	795	625	500	407	335	280	235	200	172	148	129	113	99		
	12	14.9	2563	2025	1640	1355	1139	933	747	607	500	417	352	299	256	221	193	168	148		
	13½	16.8	3243	2563	2076	1715	1441	1228	1059	865	713	594	500	426	365	315	274	240	211		
	15	18.7	4004	3164	2563	2118	1780	1516	1307	1139	978	815	687	584	500	432	376	329	290		
	16½	20.6	4845	3828	3101	2563	2153	1835	1582	1378	1206	1061	914	777	666	575	500	438	385		
	18	22.4	5766	4556	3690	3050	2563	2183	1883	1629	1422	1252	1111	991	865	747	650	569	500		
	19½	24.3	6000 *	5346	4331	3579	3007	2561	2192	1896	1656	1458	1293	1154	1036	935	826	723	636		
	21	26.2	6000 *	6000 *	5023	4151	3488	2948	2523	2183	1906	1678	1489	1329	1193	1077	977	890	795		
	22½	28.0	6000 *	6000 *	5766	4765	3976	3361	2877	2489	2173	1913	1697	1515	1360	1228	1113	1014	928		
	24	29.9	6000 *	6000 *	6000 *	5396	4495	3800	3252	2813	2457	2163	1918	1713	1538	1388	1259	1147	1049		
	25½	31.8	6000 *	6000 *	6000 *	6000 *	5044	4264	3649	3157	2757	2427	2153	1922	1725	1557	1412	1287	1177		
27	33.6	6000 *	6000 *	6000 *	6000 *	5623	4753	4068	3519	3073	2706	2400	2142	1923	1736	1574	1434	1312			
6¾	7½	12.3	1287	904	659	495	381	300	240	195	161	134	113								
	9	14.8	1898	1500	1139	856	659	518	415	337	278	232	195	166	142	123	107				
	10½	17.2	2584	2042	1654	1359	1047	823	659	536	442	368	310	264	226	195	170	149	131		
	12	19.7	3375	2667	2160	1785	1500	1229	984	800	659	550	463	394	337	292	254	222	195		
	13½	22.1	4271	3375	2734	2259	1898	1618	1395	1139	939	782	659	560	481	415	361	316	278		
	15	24.6	5273	4167	3375	2789	2344	1993	1706	1476	1287	1073	904	769	659	569	495	433	381		
	16½	27.1	6381	5042	4084	3375	2826	2389	2045	1769	1545	1360	1204	1023	877	758	659	577	508		
	18	29.5	7594	6000	4860	4003	3334	2818	2412	2087	1822	1605	1423	1270	1139	984	856	749	659		
	19½	32.0	8000 *	7042	5693	4660	3882	3281	2808	2430	2122	1868	1657	1479	1328	1199	1087	952	838		
	21	34.5	8000 *	8000 *	6554	5365	4469	3778	3233	2797	2443	2151	1907	1703	1529	1380	1251	1140	1042		
	22½	36.9	8000 *	8000 *	7472	6116	5095	4307	3686	3189	2785	2452	2174	1941	1743	1573	1427	1300	1188		
	24	39.4	8000 *	8000 *	8000 *	6914	5760	4868	4167	3605	3148	2772	2458	2194	1970	1778	1613	1469	1343		
	25½	41.8	8000 *	8000 *	8000 *	7758	6463	5463	4675	4045	3532	3110	2758	2462	2211	1995	1810	1648	1507		
	27	44.3	8000 *	8000 *	8000 *	8000 *	8000 *	7204	6089	5212	4509	3937	3467	3075	2745	2464	2224	2017	1838	1680	
	28½	46.8	8000 *	8000 *	8000 *	8000 *	8000 *	7984	6748	5776	4997	4363	3842	3407	3042	2731	2465	2236	2036	1862	
	30	49.2	8000 *	8000 *	8000 *	8000 *	8000 *	8000 *	7439	6367	5508	4810	4235	3756	3353	3010	2717	2464	2245	2053	

TABLE SPECIFICATIONS: This table applies to straight, simply supported glued laminated timber beams under dry conditions of use. Beams must be laterally supported at the top along the length of the beam and at the top and bottom at the ends. The load carrying capacities tabulated are for total load including the weight of the member.

BEAM WEIGHT: 35.0 pounds per cubic foot was used to determine beam weight per lineal foot shown in the table.

DESIGN VALUE MODIFICATIONS: The allowable stress in bending, F_b , has been adjusted by the AITC volume factor, C_V .

For determination of load carrying capacities governed by shear, loads within a distance "d" (the depth of the beam) from the ends have been neglected.

DEFLECTION LIMITS: For roof beams, deflection is limited to $\text{span} / 180$ for total load.

SPAN: Span is defined as the length from centerline to centerline of bearing. This span is the length used in standard engineering equations to calculate deflection, bending and shear.

* The values have been limited to reasonable capacities. Engineering calculations may allow for greater capacities.

While these capacity tables have been prepared in accordance with recognized engineering principles and are based on the most accurate and reliable technical data available, these tables should not be used or relied upon for any general or specific application without competent professional examination and verification of their accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect.

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STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – LIVE LOAD

C_D = Load duration factor of 1.00 for
1.00 floor loading applies to F_b and F_v

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT													
WIDTH b, in.	DEPTH d, in.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3 1/8	6	4.6																
	7 1/2	5.7																
	9	6.8																
	10 1/2	8.0	54	48														
	12	9.1	80	71	64	57	51	46										
	13 1/2	10.3	114	101	90	81	73	66	60	54	50							
	15	11.4	156	139	124	111	100	90	82	75	68	62	57	52	48			
	16 1/2	12.5	208	185	165	148	133	120	109	99	90	83	76	70	64	59	55	51
	18	13.7	270	240	214	192	173	156	142	129	117	107	98	90	83	77	71	66
5 1/8	19 1/2	14.8	343	305	273	244	220	199	180	164	149	136	125	115	106	98	90	84
	7 1/2	9.3																
	9	11.2																
	10 1/2	13.1	88	78														
	12	14.9	131	117	104	93	84	76										
	13 1/2	16.8	187	166	148	133	120	108	98	89	81							
	15	18.7	256	228	203	182	164	148	134	122	111	102	93	86	79			
	16 1/2	20.6	341	303	271	243	219	197	179	163	148	136	124	114	105	97	90	83
	18	22.4	443	394	352	315	284	256	232	211	193	176	161	148	137	126	117	108
	19 1/2	24.3	563	500	447	401	361	326	295	268	245	224	205	189	174	160	148	137
	21	26.2	703	625	558	500	450	407	369	335	306	280	256	235	217	200	185	172
	22 1/2	28.0	851	769	687	616	554	500	454	412	376	344	315	290	267	246	228	211
	24	29.9	962	886	819	747	672	607	550	500	456	417	383	352	324	299	276	256
6 3/4	25 1/2	31.8	1080	994	919	851	791	729	660	600	547	500	459	422	388	358	332	307
	27	33.6	1204	1109	1024	949	881	821	766	713	650	594	545	500	461	426	394	365
	7 1/2	12.3																
	9	14.8																
	10 1/2	17.2	116	103														
	12	19.7	173	154	137	123	111	100										
	13 1/2	22.1	246	219	195	175	158	142	129	117	107							
	15	24.6	337	300	268	240	216	195	177	161	147	134	123	113	104			
	16 1/2	27.1	449	399	357	320	288	260	236	214	195	179	164	150	139	128	118	110
	18	29.5	583	518	463	415	374	337	306	278	254	232	213	195	180	166	154	142
	19 1/2	32.0	741	659	589	528	475	429	389	354	322	295	270	248	229	211	195	181
	21	34.5	926	823	735	659	593	536	486	442	403	368	337	310	286	264	244	226
	22 1/2	36.9	1091	1005	904	811	730	659	597	543	495	453	415	381	351	324	300	278
	24	39.4	1233	1136	1049	972	886	800	725	659	601	550	504	463	426	394	364	337
	25 1/2	41.8	1384	1274	1177	1091	1013	944	870	791	721	659	604	555	511	472	437	405
	27	44.3	1542	1420	1312	1216	1129	1052	982	918	856	782	717	659	607	560	518	481
	28 1/2	46.8	1709	1574	1454	1347	1252	1166	1088	1018	954	896	843	775	714	659	610	565
	30	49.2	1884	1735	1603	1485	1380	1285	1199	1122	1052	988	930	876	827	769	711	659



Bass Pro Shop, San Antonio, Texas

STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – SNOW LOAD

			Indicates loads controlled by deflection										F _b 2000 psi		F _v 240 psi		E 1.5x10 ⁶ psi		Deflection Limit Span / 180 for TOTAL LOAD			
			Indicates loads controlled by bending																			
			Indicates loads controlled by shear or reasonable maximum set by AITC; in some cases higher loads may be possible																			
BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT																	
WIDTH b, in.	DEPTH d, in.		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
3½	6	4.6	449	343	250	188	145	114	91	74												
	7½	5.7	702	555	449	367	283	222	178	145		119	99	84								
	9	6.8	1011	799	647	535	449	383	307	250	206	172	145	123	105	91	79					
	10½	8.0	1376	1087	880	728	611	521	449	391	327	273	230	195	167	145	126	110	97			
	12	9.1	1797	1420	1150	950	799	680	587	511	449	398	343	292	250	216	188	164	145			
	13½	10.3	2274	1797	1455	1203	1011	861	743	647	569	504	449	403	356	307	267	234	206			
	15	11.4	2808	2218	1797	1485	1248	1063	917	799	702	622	555	498	449	407	367	321	283			
	16½	12.5	3000 *	2684	2174	1797	1510	1287	1109	966	849	752	671	602	544	493	449	411	376			
	18	13.7	3000 *	3000 *	2588	2138	1797	1531	1320	1150	1011	895	799	717	647	587	535	489	447			
19½	14.8	3000 *	3000 *	3000 *	2510	2109	1797	1549	1350	1186	1051	937	841	759	689	625	569	521				
5½	7½	9.3	1151	910	737	602	463	364	292	237	196	163	137									
	9	11.2	1658	1310	1061	877	737	628	504	410	338	282	237	202	173	149	130					
	10½	13.1	2256	1783	1444	1193	1003	854	737	642	536	447	377	320	275	237	206	181	159			
	12	14.9	2947	2328	1886	1559	1310	1116	962	838	737	653	562	478	410	354	308	270	237			
	13½	16.8	3730	2947	2387	1973	1658	1412	1218	1061	932	826	737	660	584	504	439	384	338			
	15	18.7	4604	3638	2947	2435	2046	1744	1504	1310	1151	1018	903	806	724	653	593	527	463			
	16½	20.6	5571	4402	3566	2947	2476	2110	1819	1585	1386	1221	1083	966	868	783	710	647	592			
	18	22.4	6000 *	5239	4244	3507	2947	2511	2165	1873	1636	1440	1277	1140	1024	924	838	763	698			
	19½	24.3	6000 *	6000 *	4980	4116	3458	2945	2521	2181	1904	1677	1487	1327	1192	1076	976	889	813			
	21	26.2	6000 *	6000 *	5776	4773	4011	3390	2902	2510	2192	1930	1712	1528	1372	1238	1123	1023	936			
	22½	28.0	6000 *	6000 *	6000 *	5480	4573	3865	3308	2862	2499	2201	1952	1742	1564	1412	1280	1166	1067			
	24	29.9	6000 *	6000 *	6000 *	6000 *	5169	4370	3740	3235	2825	2488	2206	1969	1768	1596	1448	1319	1206			
	25½	31.8	6000 *	6000 *	6000 *	6000 *	5800	4903	4196	3630	3170	2791	2476	2210	1984	1791	1624	1480	1353			
	27	33.6	6000 *	6000 *	6000 *	6000 *	6000 *	5465	4678	4047	3534	3111	2760	2463	2212	1996	1811	1649	1508			
6¾	7½	12.3	1516	1198	970	792	610	480	384	312	257	215	181									
	9	14.8	2183	1725	1397	1155	970	827	664	540	445	371	312	266	228	197	171					
	10½	17.2	2972	2348	1902	1572	1321	1125	970	845	707	589	496	422	362	312	272	238	209			
	12	19.7	3881	3067	2484	2053	1725	1470	1267	1104	970	854	741	630	540	466	406	355	312			
	13½	22.1	4912	3881	3144	2598	2183	1860	1604	1389	1213	1068	947	846	759	664	578	506	445			
	15	24.6	6064	4792	3881	3208	2695	2292	1962	1697	1482	1305	1157	1033	928	837	759	692	610			
	16½	27.1	7338	5798	4696	3881	3250	2747	2351	2034	1776	1564	1387	1238	1112	1004	910	829	758			
	18	29.5	8000 *	6900	5589	4603	3834	3241	2774	2400	2096	1845	1636	1461	1312	1184	1074	978	894			
	19½	32.0	8000 *	8000 *	6547	5359	4464	3774	3230	2794	2440	2148	1905	1701	1527	1378	1250	1139	1041			
	21	34.5	8000 *	8000 *	7537	6170	5139	4344	3718	3217	2809	2473	2193	1958	1758	1587	1439	1311	1199			
	22½	36.9	8000 *	8000 *	8000 *	7034	5859	4953	4239	3667	3202	2820	2501	2232	2004	1809	1641	1494	1367			
	24	39.4	8000 *	8000 *	8000 *	7951	6624	5599	4792	4146	3620	3187	2827	2523	2266	2045	1855	1689	1545			
	25½	41.8	8000 *	8000 *	8000 *	8000 *	7432	6282	5377	4652	4062	3576	3172	2831	2542	2295	2081	1896	1734			
	27	44.3	8000 *	8000 *	8000 *	8000 *	8000 *	7003	5994	5185	4528	3987	3536	3156	2834	2558	2320	2113	1932			
	28½	46.8	8000 *	8000 *	8000 *	8000 *	8000 *	7761	6642	5746	5018	4418	3918	3498	3141	2835	2571	2342	2142			
	30	49.2	8000 *	8000 *	8000 *	8000 *	8000 *	8000 *	8000 *	7322	6334	5532	4870	4319	3856	3462	3125	2834	2581	2361		

TABLE SPECIFICATIONS: This table applies to straight, simply supported glued laminated timber beams under dry conditions of use. Beams must be laterally supported at the top along the length of the beam and at the top and bottom at the ends. The load carrying capacities tabulated are for total load including the weight of the member.

BEAM WEIGHT: 35.0 pounds per cubic foot was used to determine beam weight per lineal foot shown in the table.

DESIGN VALUE MODIFICATIONS: The allowable stress in bending, F_b , has been adjusted by the AITC volume factor, C_V .

For determination of load carrying capacities governed by shear, loads within a distance "d" (the depth of the beam) from the ends have been neglected.

DEFLECTION LIMITS: For roof beams, deflection is limited to span /180 for total load.

SPAN: Span is defined as the length from centerline to centerline of bearing. This span is the length used in standard engineering equations to calculate deflection, bending and shear.

* The values have been limited to reasonable capacities. Engineering calculations may allow for greater capacities.

While these capacity tables have been prepared in accordance with recognized engineering principles and are based on the most accurate and reliable technical data available, these tables should not be used or relied upon for any general or specific application without competent professional examination and verification of their accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect.

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STRUCTURAL LAMINATED ALASKAN YELLOW CEDAR ROOF BEAMS – SNOW LOAD

C_D = Load duration factor for 2 months of snow
1.15

SIMPLE SPAN BEAMS • FOR PRELIMINARY DESIGN PURPOSES • LAMINATED THICKNESS: 1.5 in.

BEAM SIZE		BEAM WEIGHT plf	SPAN FT.		BEAM CAPACITY, UNIFORM LOAD w, POUNDS PER LINEAL FOOT														
WIDTH b, in.	DEPTH d, in.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
3⅝	6	4.6																	
	7½	5.7																	
	9	6.8																	
	10½	8.0	86	76															
	12	9.1	128	114	102	91	82	74											
	13½	10.3	182	162	145	130	117	105	96	87	79								
	15	11.4	250	222	198	178	160	145	131	119	109	99	91	84	77				
	16½	12.5	333	296	264	237	213	193	175	159	145	132	121	111	103	95	88	81	
	18	13.7	410	378	343	307	277	250	227	206	188	172	157	145	133	123	114	105	
19½	14.8	478	440	407	377	350	318	288	262	239	218	200	184	169	156	145	134		
5⅝	7½	9.3																	
	9	11.2																	
	10½	13.1	141	125															
	12	14.9	210	187	167	149	134	121											
	13½	16.8	299	266	237	213	191	173	157	143	130								
	15	18.7	410	364	325	292	263	237	215	196	178	163	149	137	126				
	16½	20.6	543	485	433	388	350	316	286	260	237	217	199	183	168	155	144	133	
	18	22.4	641	590	545	504	454	410	372	338	308	282	258	237	219	202	187	173	
	19½	24.3	746	687	635	588	546	509	472	430	392	358	328	302	278	256	237	220	
	21	26.2	859	791	731	677	629	586	547	511	479	447	410	377	347	320	296	275	
	22½	28.0	979	902	833	772	717	668	623	583	546	513	483	455	427	394	364	338	
	24	29.9	1107	1019	942	872	810	755	704	659	618	580	546	515	486	459	435	410	
	25½	31.8	1242	1144	1057	979	909	847	790	739	693	651	613	577	545	515	488	463	
27	33.6	1384	1275	1178	1091	1014	944	881	824	773	726	683	644	608	575	544	516		
6¾	7½	12.3																	
	9	14.8																	
	10½	17.2	185	165															
	12	19.7	276	246	219	197	177	160											
	13½	22.1	394	350	312	280	252	228	206	188	171								
	15	24.6	540	480	429	384	346	312	283	257	235	215	197	181	167				
	16½	27.1	696	639	571	512	460	416	377	343	312	286	262	241	222	205	189	175	
	18	29.5	821	756	698	647	598	540	489	445	406	371	340	312	288	266	246	228	
	19½	32.0	956	880	813	753	700	652	608	566	516	472	432	397	366	338	312	290	
	21	34.5	1100	1013	936	867	806	750	700	655	614	577	540	496	457	422	390	362	
	22½	36.9	1254	1155	1067	989	918	855	798	747	700	658	619	583	551	519	480	445	
	24	39.4	1418	1306	1206	1118	1038	967	903	844	792	743	700	659	623	589	557	528	
	25½	41.8	1591	1465	1354	1254	1165	1085	1013	948	888	834	785	740	699	660	625	593	
	27	44.3	1774	1633	1509	1398	1299	1209	1129	1056	990	930	875	825	779	736	697	661	
	28½	46.8	1966	1810	1672	1549	1439	1340	1251	1170	1097	1031	970	914	863	816	773	733	
30	49.2	2167	1996	1843	1708	1587	1478	1379	1290	1210	1136	1069	1008	951	899	852	808		



Bass Pro Shop, San Antonio, Texas

NOTES:

Other Glulam sizes and design values available in the Filler King™ IJC guide.

SERVICE & SHIPMENT

Wood roof decking can be factory pre-finished with a choice of Olympic, acrylic, or other proprietary stains to enhance the wood grain characteristics. All Filler King™ laminated decking is subject to strict quality controls. Most orders will be shipped direct to the job site or to distribution yard facilities.

For the name of your nearest beam and decking distributor, contact the sales department at:



P.O. BOX 185
4318 Pioneer Rd.
Homedale, ID 83628
TEL 208.337.3134
FAX 208.337.3139
800.237.4013
www.fillerking.com

STRUCTURAL WOODS



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