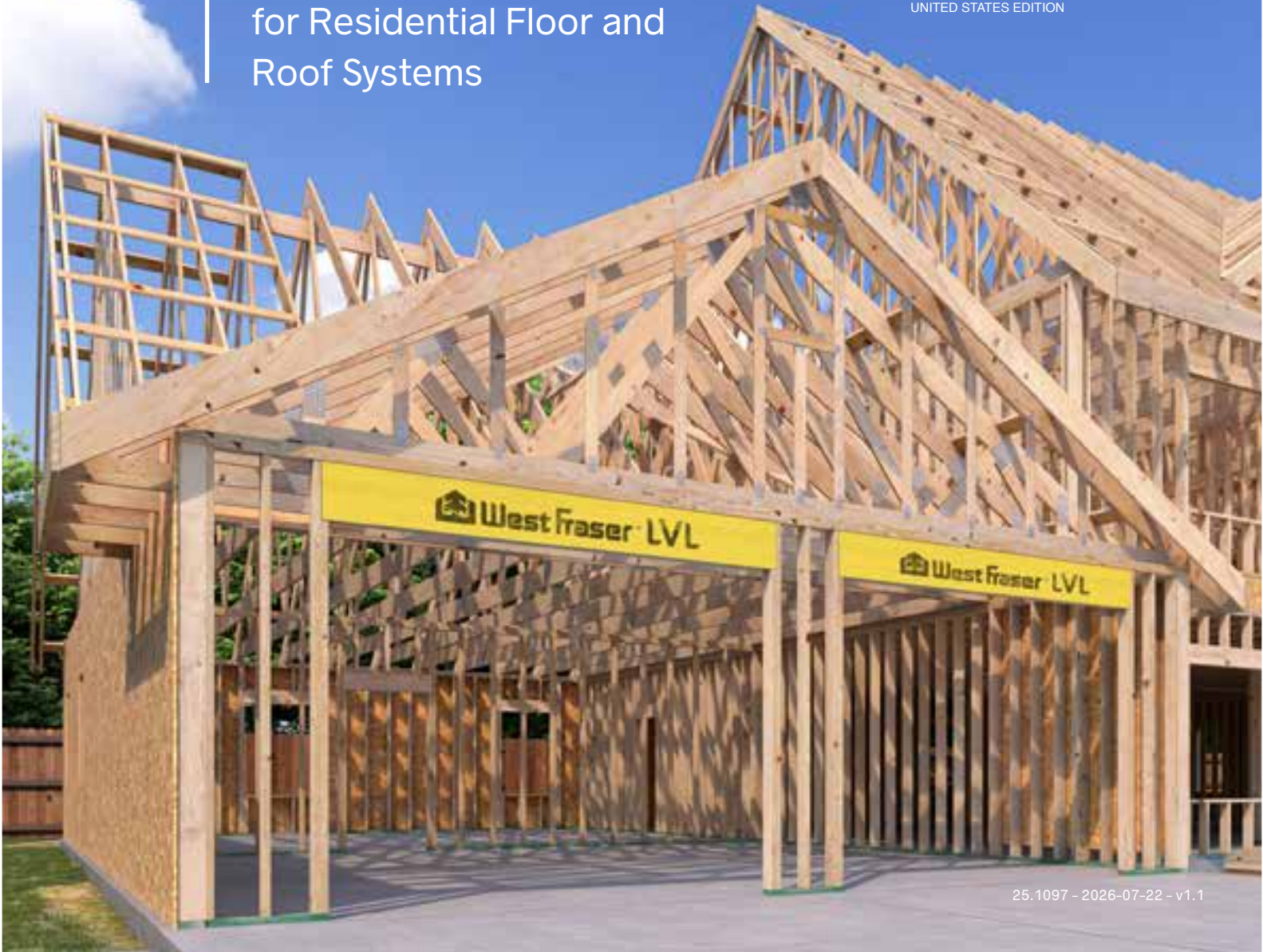




West FraserTM LVL

LVL USER'S GUIDE

Technical Data for LVL Headers,
Beams, Column Applications
for Residential Floor and
Roof Systems



A WORD ABOUT LVL GRADES

Did you know that...

If you are using 2.0E beams and headers exclusively in residential wood construction, you are leaving money on the table approximately 85% of the time.



When sizing beams and headers, you need to have sufficient moment capacity (F_b), sufficient shear capacity (F_v), sufficient stiffness (EI) to satisfy the live and total load deflection criteria and you need to have adequate bearing sizes (F_{ci}).

The industry markets LVL beams and headers based on the MOE value (modulus of elasticity = E) which along with the size of the beam (moment of inertia = I) determines the stiffness (EI) of the beam. The stiffness of a beam determines how much deflection a beam will experience under a given load. Deflection is a performance criteria established by building codes ($L/360$). Stiffness is not the same as strength!

Not all applications are controlled by stiffness, many are controlled by strength (F_b and F_v). In some applications, a 1.9E or 2.0E beam cannot be used as a substitute for a 1.8E beam that has superior strength properties (F_b and F_v).



A beam 16' long, carrying 300 PLF, with 1.9E material will deflect 0.0344 inches less ($1/32$ ") under total load compared to the same beam with 1.8E material. This is not much, especially when you consider the premium you pay for high MOE products.

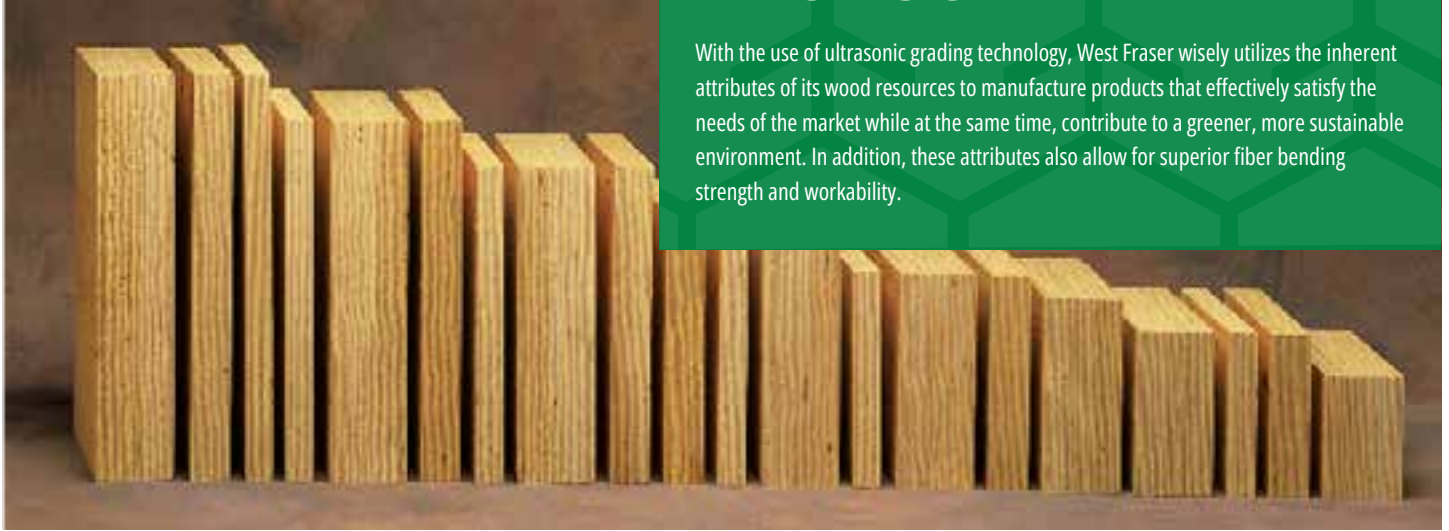


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PRODUCT LINE

With the use of ultrasonic grading technology, West Fraser wisely utilizes the inherent attributes of its wood resources to manufacture products that effectively satisfy the needs of the market while at the same time, contribute to a greener, more sustainable environment. In addition, these attributes also allow for superior fiber bending strength and workability.



West Fraser™ LVL 3100F_b-2.0E

1¾" and 3½" thick in I-Joist and lumber compatible depths to 24" deep.

West Fraser™ LVL 3000F_b-1.9E

1¾" thick in I-Joist and lumber compatible depths to 24" deep.

West Fraser™ LVL 3000F_b-1.8E

1½", 1¾" and 3½" thick in I-Joist and lumber compatible depths to 18" deep. 1¾" & 3½" to 24", 3½" thick in columns.

West Fraser™ LVL 2750F_b-1.7E

1¾" and 3½" thick in I-Joist and lumber compatible depths to 24" deep

All products have face, back and edges sealed for improved performance under normal construction exposure.

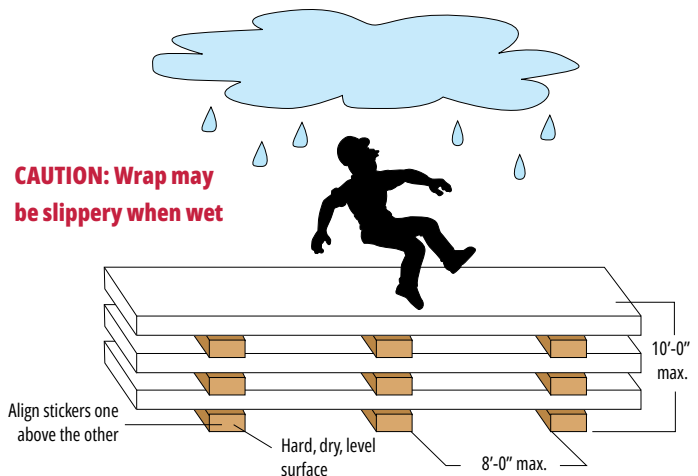
CODE EVALUATION REPORT NUMBERS: ICC ESR-1618, CITY OF LOS ANGELES – RR 25570

Check product availability with supplier prior to specifying LVL sizes. For seismic design, see California Building Code.

STORAGE, HANDLING & INSTALLATION

Failure to follow good procedures for installation, storage and handling could result in unsatisfactory performance and unsafe structures.

- West Fraser™ LVL should be **stored lying flat** and protected from the weather.
- Do not exceed a storage bundle height of 10'-0".
- Report all forklift damage prior to shipment.
- Place first set of stickers on hard, level dry surface.
- **Stickers to be aligned** one above the other and spaced no more than 8'-0" apart.
- Keep the material **above ground** to minimize the absorption of ground moisture and allow circulation of air.
- West Fraser™ LVL is for use in **covered, dry conditions only**. Protect from the weather on the job site both before and after installation.
- Except for cutting to length, West Fraser™ LVL shall **not be cut, drilled or notched**.
- Heel cuts may be possible. Contact your West Fraser representative.
- **Do not install any damaged LVL.**



NOTE: These are general recommendations and in some cases, additional precautions may be required.

3100F_b 2.0E WEST FRASER™ LVL

1³/₄" THICK HEADER & BEAMS

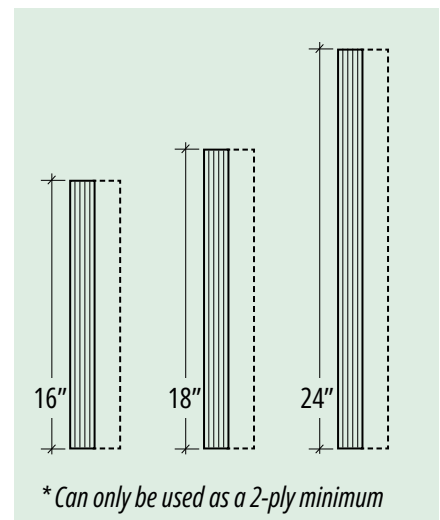
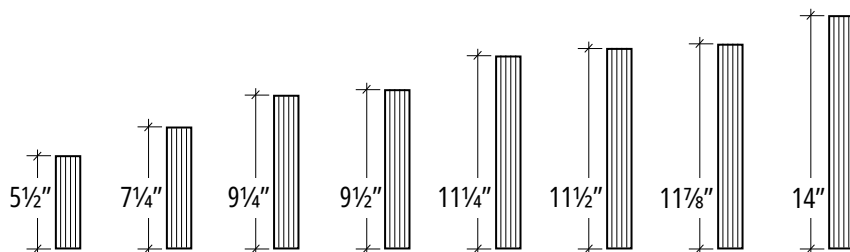
Design Properties

3100F_b 2.0E 1³/₄" WEST FRASER™ LVL Allowable design values

Design Property	Depth										
	5½"	7¼"	9¼"	9½"	11¼"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	2486	4189	6636	6979	9605	10012	10638	14517	18682	23337	40183
Shear (lbs.)	1925	2538	3238	3325	3938	4025	4156	4900	5600	6300	8400
Moment of Inertia (in ⁴)	24	56	115	125	208	222	244	400	597	851	2016
Weight (lbs./lin. Ft.)	2.7	3.6	4.6	4.7	5.6	5.7	5.9	7.0	8.0	9.0	12.0

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. All 16", 18" and 24" beam depths are to be used in multiple member units only.
4. Values are based on 100% load duration.

3100F_b 2.0E 1³/₄" WEST FRASER™ LVL Available sizes



3100F_b 2.0E WEST FRASER™ LVL Allowable design stresses

Modulus of Elasticity	E	=	2.0 x 10 ⁶ psi
Bending Stress	F _b	=	3100 psi
Shear (joist)	F _v	=	300 psi
Compression Perpendicular to Grain (joist)	F _{c(perp)}	=	750 psi
Compression Parallel to Grain	F _{c(para)}	=	3000 psi

1. F_b based on 12" depths. For others depths, multiply by (12/d)^(1/9).
2. Design stresses are based on 100% load duration.
3. F_{c(perp)} and E shall not be increased for duration of load.

3½" THICK HEADER & BEAMS

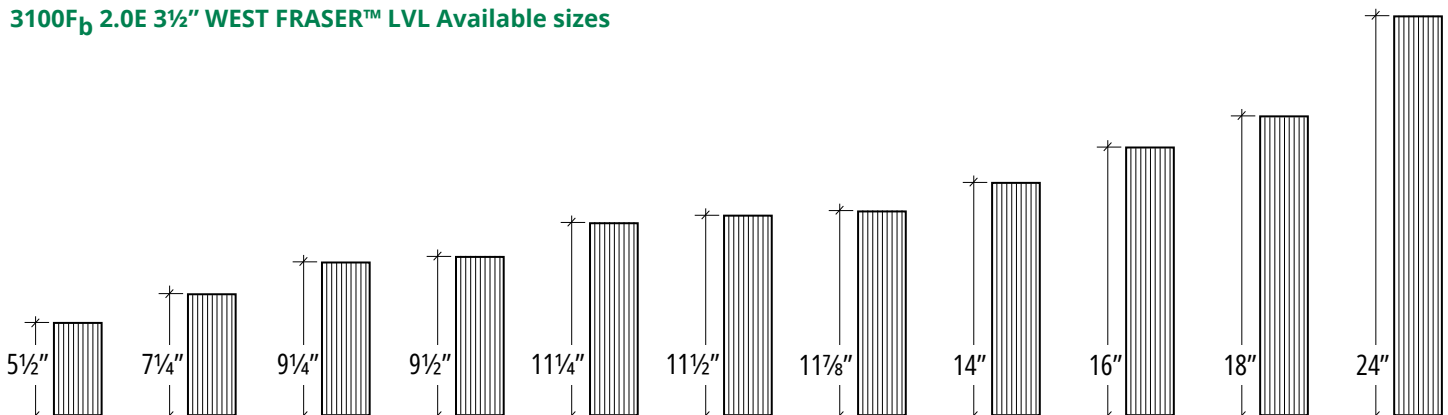
Design Properties

3100F_b 2.0E 3½" WEST FRASER™ LVL Allowable design values

Design Property	Depth										
	5½"	7¼"	9¼"	9½"	11¼"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	4971	8377	13272	13958	19210	20024	21275	29035	37364	46674	80366
Shear (lbs.)	3850	5076	6476	6650	7876	8050	8312	9800	11200	12600	16800
Moment of Inertia (in ⁴)	49	112	230	250	416	444	488	800	1194	1702	4032
Weight (lbs./lin. Ft.)	5.5	7.2	9.2	9.4	11.2	11.5	11.8	14.0	16.0	18.0	23.9

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. Values are based on 100% load duration.

3100F_b 2.0E 3½" WEST FRASER™ LVL Available sizes



Allowable Uniform Loads

Pounds per lineal foot

General Notes

- Tables are for one-ply 1¾" beams. When properly connected, double the values for two-ply beams, triple for three. Minimum bearing lengths shown for one-ply will be the same for two-ply and three-ply. See page 9 for multiple-ply connection details.
- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Tables are based on uniform loads and the most restrictive of simple or continuous spans under dryuse conditions. Refer to West Fraser sizing software for other loads or span configurations.
- Lateral support of beam compression edges is required at intervals of 24" o/c or closer.
- Lateral support of beams is required at bearing locations.
- WEST FRASER LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable building code, other deflection considerations, such as long term deflection under sustained loads (including creep), must be evaluated.
- All 16", 18" and 24" beam depths are to be used in multiple member units only.
- To size a member for a span not shown, use capacities for the next larger span shown.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 750 psi bearing stress for 2.0E Grade materials. Bearing stresses cannot be increased for duration of load. **Bearing length may need to be increased if support member's allowable bearing stress is less.**

Floor Beam Sizing

- To size a beam for use in a floor, it is necessary to check both live load and total load. Make sure the selected beam will work in both rows. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- For deflection limits of L/480 multiply loads shown in live load row by 0.75. The resulting live load shall not exceed the total load shown.

Floor 100% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/360)	305	600									
	TL (L/240)	455	803									
	BEARING	1.5/3.5	2.1/5.3	2.9/7.2	3.0/7.5	3.7/9.3	3.8/9.6	4.0/10.0	5.0/12.6	6.2/15.4	7.4/18.6	12.8/31.9
7	LL (L/360)	197	431	840	903							
	TL (L/240)	292	643	894	923	1140	1172	1222	1520	1833	2182	3525
	BEARING	1.5/3.5	1.7/4.3	2.8/7.0	2.9/7.2	3.5/8.9	3.7/9.1	3.8/9.5	4.7/11.8	5.7/14.3	6.8/17.0	11.0/27.4
8	LL (L/360)	134	296	585	629							
	TL (L/240)	198	440	761	785	964	990	1030	1271	1519	1791	2788
	BEARING	1.5/3.5	1.5/3.5	2.5/6.3	2.6/6.6	3.4/8.6	3.5/8.8	3.7/9.2	4.5/11.3	5.4/13.5	6.4/15.9	9.9/24.8
9	LL (L/360)	95	211	422	454	723	768	837				
	TL (L/240)	140	313	628	677	834	857	891	1092	1297	1518	2305
	BEARING	1.5/3.5	1.5/3.5	2.2/5.4	2.3/5.8	3.2/8.1	3.4/8.4	3.6/8.9	4.4/10.9	5.2/13.0	6.1/15.2	9.2/23.1
10	LL (L/360)	70	156	313	338	542	576	629				
	TL (L/240)	102	230	465	502	736	755	784	957	1131	1317	1965
	BEARING	1.5/3.5	1.5/3.5	1.8/4.4	1.9/4.8	2.9/7.3	3.0/7.6	3.2/8.0	4.3/10.6	5.0/12.6	5.9/14.6	8.7/21.8
11	LL (L/360)	53	118	239	258	416	442	484	760			
	TL (L/240)	76	174	345	382	618	656	697	851	1003	1163	1711
	BEARING	1.5/3.5	1.5/3.5	1.5/3.7	1.6/4.0	2.6/6.5	2.7/6.9	2.9/7.3	4.0/10.9	4.9/12.3	5.7/14.2	8.4/20.9
12	LL (L/360)		92	186	201	326	346	379	599	861		
	TL (L/240)		134	275	297	483	514	563	767	900	1041	1515
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.2/5.5	2.3/5.9	2.6/6.4	3.7/9.1	4.7/11.8	5.6/13.9	8.1/20.2
13	LL (L/360)		73	148	160	259	276	302	480	694		
	TL (L/240)		105	217	235	383	408	448	680	817	942	1359
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.0/5.1	2.2/5.5	3.4/8.4	4.3/10.8	5.4/13.6	7.9/19.7
14	LL (L/360)		58	119	129	210	223	245	390	566	781	
	TL (L/240)		84	174	188	309	329	361	579	747	860	1232
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.6/4.1	1.8/4.4	1.9/4.8	3.1/7.7	4.0/10.1	5.0/12.6	7.7/19.2
15	LL (L/360)			97	105	172	183	201	321	468	647	
	TL (L/240)			141	153	252	269	296	475	656	791	1127
	BEARING			1.5/3.5	1.5/3.5	1.5/3.6	1.5/3.8	1.7/4.2	2.7/6.8	3.7/9.4	4.7/11.7	7.5/18.8
16	LL (L/360)			81	87	143	152	167	268	390	542	
	TL (L/240)			116	126	208	222	244	394	576	720	1038
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.7	2.4/6.0	3.5/8.8	4.4/11.0	7.4/18.5
17	LL (L/360)			67	73	120	128	140	225	329	458	
	TL (L/240)			97	105	174	186	204	331	486	637	962
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.4	3.1/7.9	4.1/10.3	7.1/17.8
18	LL (L/360)			57	62	101	108	119	191	280	390	861
	TL (L/240)			81	88	146	156	172	279	412	567	896
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.8	2.8/7.1	3.9/9.7	6.7/16.8
19	LL (L/360)				53	86	92	101	163	240	335	744
	TL (L/240)				74	124	133	146	238	352	494	839
	BEARING				1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.4	3.6/8.9	6.4/15.9
20	LL (L/360)					74	79	87	141	207	290	647
	TL (L/240)					106	113	125	204	303	426	788
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.6/3.9	2.3/5.8	3.2/8.1	6.0/15.1
21	LL (L/360)					64	69	76	122	180	252	566
	TL (L/240)					91	97	107	176	262	370	717
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	3.0/7.4	5.7/14.3
22	LL (L/360)					56	60	66	107	157	221	498
	TL (L/240)					79	84	93	153	228	322	652
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.8	2.7/6.7	5.5/13.7
23	LL (L/360)							58	94	138	194	440
	TL (L/240)							81	134	200	283	596
	BEARING							1.5/3.5	1.5/3.5	1.8/4.4	2.5/6.2	5.2/13.1
24	LL (L/360)								83	122	172	390
	TL (L/240)								117	175	249	546
	BEARING								1.5/3.5	1.6/4.0	2.3/5.7	5.0/12.5
25	LL (L/360)								73	109	153	348
	TL (L/240)								103	155	220	502
	BEARING								1.5/3.5	1.5/3.7	2.1/5.2	4.8/12.0
26	LL (L/360)								65	97	136	312
	TL (L/240)								91	137	196	455
	BEARING								1.5/3.5	1.5/3.5	1.9/4.9	4.5/11.3
27	LL (L/360)								59	87	122	280
	TL (L/240)								81	122	174	408
	BEARING								1.5/3.5	1.5/3.5	1.8/4.5	4.2/10.5
28	LL (L/360)								53	78	110	252
	TL (L/240)								72	109	156	367
	BEARING								1.5/3.5	1.5/3.5	1.7/4.2	3.9/9.8
29	LL (L/360)									70	99	228
	TL (L/240)									97	140	330
	BEARING									1.5/3.5	1.5/3.9	3.6/9.1
30	LL (L/360)									64	90	207
	TL (L/240)									87	126	299
	BEARING									1.5/3.5	1.5/3.6	3.4/8.5
31	LL (L/360)									58	82	188
	TL (L/240)									79	114	271
	BEARING									1.5/3.5	1.5/3.5	3.2/8.0
32	LL (L/360)									53	74	172
	TL (L/240)									71	103	246
	BEARING									1.5/3.5	1.5/3.5	3.0/7.5

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18", and 24" beam depths are to be used in multiple member units only.

Roof Snow 115% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/240)	458								2657	3211	5508
	TL (L/180)	608	924	1245	1288	1604	1652	1726	2174	7.1/17.7	8.6/21.4	14.7/36.7
	BEARING	1.5/3.5	2.4/6.1	3.3/8.3	3.4/8.6	4.3/10.7	4.4/11.0	4.6/11.5	5.8/14.6			
7	LL (L/240)	295	646							2109	2511	4055
	TL (L/180)	391	770	1028	1062	1312	1349	1406	1749	6.6/16.4	7.8/19.5	12.6/31.6
	BEARING	1.5/3.5	2.1/5.2	3.2/8.0	3.3/8.3	4.1/10.2	4.2/10.5	4.4/10.9	5.4/13.6			
8	LL (L/240)	201	444							1748	2061	3208
	TL (L/180)	265	588	876	904	1109	1140	1186	1463	6.2/15.6	7.3/18.3	11.4/28.5
	BEARING	1.5/3.5	1.8/4.5	2.9/7.2	3.0/7.6	3.9/9.9	4.1/10.1	4.2/10.6	5.2/13.0			
9	LL (L/240)	142	317	632	681					1493	1747	2653
	TL (L/180)	187	419	749	786	960	986	1025	1257	6.0/14.9	7.0/17.5	10.6/26.5
	BEARING	1.5/3.5	1.5/3.6	2.6/6.4	2.7/6.8	3.7/9.3	3.9/9.7	4.1/10.3	5.0/12.6			
10	LL (L/240)	104	234	470	507	813	864			1302	1516	2261
	TL (L/180)	137	308	606	637	847	869	903	1102	5.8/14.5	6.7/16.9	10.1/25.1
	BEARING	1.5/3.5	1.5/3.5	2.3/5.8	2.4/6.1	3.3/8.4	3.5/8.7	3.7/9.3	4.9/12.2			
11	LL (L/240)		177	358	387	624	663	725		1154	1339	1970
	TL (L/180)		233	473	511	725	756	803	980	5.6/14.1	6.6/16.4	9.6/24.1
	BEARING		1.5/3.5	2.0/5.0	2.1/5.4	3.0/7.6	3.2/7.9	3.4/8.4	4.6/11.5			
12	LL (L/240)		138	279	301	488	520	569		1036	1199	1744
	TL (L/180)		180	368	397	608	634	674	883	5.4/13.6	6.4/16.0	9.3/23.3
	BEARING		1.5/3.5	1.7/4.2	1.8/4.5	2.8/6.9	2.9/7.2	3.1/7.7	4.2/10.5			
13	LL (L/240)		109	222	239	389	414	545	720	940	1085	1565
	TL (L/180)		141	291	253	513	539	573	783	5.0/13.6	6.2/15.6	9.1/22.6
	BEARING		1.5/3.5	1.5/3.6	1.5/3.5	2.5/6.4	2.7/6.7	2.8/7.1	3.9/9.7			
14	LL (L/240)		88	179	193	315	335	367	586	849		
	TL (L/180)		113	234	253	414	441	484	674	860	990	1419
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.2/5.5	2.4/5.9	2.6/6.5	3.6/9.0	4.6/11.6	5.8/14.5	8.8/22.1
15	LL (L/240)			146	158	258	275	301	482	701		
	TL (L/180)			190	206	338	361	396	587	756	911	1298
	BEARING			1.5/3.5	1.5/3.5	1.9/4.8	2.1/5.2	2.3/5.7	3.4/8.4	4.3/10.8	5.4/13.5	8.7/21.7
16	LL (L/240)			121	131	214	228	250	401	586	813	
	TL (L/180)			157	170	280	298	328	515	663	830	1196
	BEARING			1.5/3.5	1.5/3.5	1.7/4.3	1.8/4.5	2.0/5.0	3.1/7.8	4.0/10.1	5.1/12.6	8.5/21.3
17	LL (L/240)			101	109	179	191	210	338	494		
	TL (L/180)			130	141	234	249	274	443	587	734	1108
	BEARING			1.5/3.5	1.5/3.5	1.5/3.8	1.6/4.0	1.8/4.4	2.9/7.2	3.8/9.5	4.8/11.9	8.2/20.5
18	LL (L/240)			86	93	152	162	178	286	420	586	
	TL (L/180)			109	119	197	210	231	375	523	654	1032
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.4	3.6/9.0	4.5/11.2	7.7/19.4
19	LL (L/240)			79	130	138	152	152	245	360	503	
	TL (L/180)			100	167	179	197	197	320	468	585	966
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	2.3/5.8	3.4/8.5	4.2/10.6	7.3/18.3
20	LL (L/240)					112	119	131	211	311	435	
	TL (L/180)					143	153	168	275	406	528	908
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	3.1/7.7	4.0/10.1	6.9/17.4
21	LL (L/240)					97	103	113	183	270	379	
	TL (L/180)					123	132	145	237	352	478	826
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.8/7.0	3.8/9.6	6.6/16.5
22	LL (L/240)					84	90	99	160	236	331	747
	TL (L/180)					107	114	126	207	307	433	752
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.6/6.4	3.6/9.1	6.3/15.8
23	LL (L/240)							87	141	207	292	660
	TL (L/180)							110	181	269	380	687
	BEARING							1.5/3.5	1.6/4.0	2.4/5.9	3.3/8.3	6.0/15.0
24	LL (L/240)								124	183	258	586
	TL (L/180)								159	236	335	630
	BEARING								1.5/3.6	2.2/5.4	3.1/7.7	5.8/14.4
25	LL (L/240)								110	163	229	522
	TL (L/180)								140	209	297	580
	BEARING								1.5/3.5	2.0/5.0	2.8/7.1	5.5/13.8
26	LL (L/240)								98	145	205	467
	TL (L/180)								124	186	264	535
	BEARING								1.5/3.5	1.8/4.6	2.6/6.5	5.3/13.2
27	LL (L/240)								88	130	183	420
	TL (L/180)								110	165	236	495
	BEARING								1.5/3.5	1.7/4.2	2.4/6.1	5.1/12.7
28	LL (L/240)								79	117	165	379
	TL (L/180)								98	148	211	460
	BEARING								1.5/3.5	1.6/3.9	2.3/5.6	4.9/12.3
29	LL (L/240)									105	149	342
	TL (L/180)									133	190	428
	BEARING									1.5/3.7	2.1/5.2	4.7/11.8
30	LL (L/240)									95	135	311
	TL (L/180)									119	171	399
	BEARING									1.5/3.5	2.0/4.9	4.6/11.4
31	LL (L/240)									87	122	283
	TL (L/180)									108	154	365
	BEARING									1.5/3.5	1.8/4.5	4.3/10.8
32	LL (L/240)									79	112	258
	TL (L/180)									97	140	332
	BEARING									1.5/3.5	1.7/4.3	4.0/10.1

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18" and 24" beam depths are to be used in multiple member units only.

Roof Non-Snow 125% - 1³/₄" Width

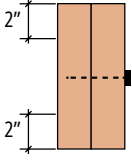
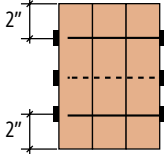
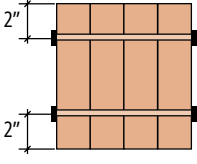
Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/240)	458	989			1744	1797	1876	2364	2889	3491	5988
	TL (L/180)	608	1005	1354	1400	1744	1797	1876	2364	2889	3491	5988
	BEARING	1.5/3.5	2.7/6.6	3.6/9.0	3.7/9.3	4.7/11.6	4.8/12.0	5.0/12.5	6.3/15.8	7.7/19.3	9.3/23.3	16.0/39.9
7	LL (L/240)	295	646			1426	1467	1529	1902	2293	2730	4409
	TL (L/180)	391	838	1118	1155	1426	1467	1529	1902	2293	2730	4409
	BEARING	1.5/3.5	2.3/5.7	3.5/8.7	3.6/9.0	4.4/11.1	4.6/11.4	4.8/11.9	5.9/14.8	7.1/17.8	8.5/21.2	13.7/34.3
8	LL (L/240)	201	444			1209	1239	1290	1591	1901	2241	3488
	TL (L/180)	265	588	952	983	1209	1239	1290	1591	1901	2241	3488
	BEARING	1.5/3.5	1.8/4.5	3.1/7.9	3.3/8.3	4.3/10.7	4.4/11.0	4.6/11.5	5.7/13.7	6.8/16.9	8.0/19.9	12.4/31.0
9	LL (L/240)	142	317			1044	1072	1115	1367	1623	1900	2885
	TL (L/180)	187	419	681	855	1044	1072	1115	1367	1623	1900	2885
	BEARING	1.5/3.5	1.5/3.6	2.8/7.0	2.9/7.3	4.0/10.1	4.2/10.5	4.5/11.2	5.5/13.3	6.5/16.9	7.6/19.0	11.5/28.9
10	LL (L/240)	104	234			813	864	943		1416	1649	2459
	TL (L/180)	137	308	622	671	813	864	943		1416	1649	2459
	BEARING	1.5/3.5	1.5/3.5	2.4/5.9	2.6/6.4	3.6/9.1	3.8/9.5	4.0/10.1	5.3/13.3	6.3/15.7	7.3/18.3	10.9/27.3
11	LL (L/240)		177			624	663	725		1255	1456	2142
	TL (L/180)		233	473	511	624	663	725		1255	1456	2142
	BEARING		1.5/3.5	2.0/5.0	2.1/5.4	3.3/8.3	3.4/8.6	3.7/9.1	5.0/12.5	6.1/15.4	7.1/17.8	10.5/26.2
12	LL (L/240)		138			488	520	569	899	1127	1304	1897
	TL (L/180)		180	368	397	488	520	569	899	1127	1304	1897
	BEARING		1.5/3.5	1.7/4.2	1.8/4.5	2.9/7.4	3.1/7.9	3.4/8.4	4.6/11.4	5.9/14.7	7.0/17.4	10.1/25.3
13	LL (L/240)		109			389	414	454	720	1023	1100	1702
	TL (L/180)		141	291	314	389	414	454	720	1023	1100	1702
	BEARING		1.5/3.5	1.5/3.6	1.6/3.9	2.5/6.4	2.7/6.8	3.0/7.4	4.2/10.5	5.4/13.6	6.8/17.0	9.8/24.6
14	LL (L/240)		88			315	335	367	586	849	1077	1544
	TL (L/180)		113	234	253	315	335	367	586	849	1077	1544
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.2/5.5	2.4/5.9	2.6/6.5	3.9/9.8	5.0/12.6	6.3/15.8	9.6/24.0
15	LL (L/240)					258	275	301	482	701	971	1412
	TL (L/180)			146	158	258	275	301	482	701	971	1412
	BEARING			1.5/3.5	1.5/3.5	1.9/4.8	2.1/5.2	2.3/5.7	3.6/9.1	4.7/11.7	5.9/14.7	9.4/23.6
16	LL (L/240)					214	228	250	401	586	813	1301
	TL (L/180)			121	131	214	228	250	401	586	813	1301
	BEARING			1.5/3.5	1.5/3.5	1.7/4.3	1.8/4.5	2.0/5.0	3.2/8.0	4.4/11.0	5.5/13.8	9.3/23.1
17	LL (L/240)					191	210	210	338	414	586	849
	TL (L/180)			101	109	191	210	210	338	414	586	849
	BEARING			1.5/3.5	1.5/3.5	1.5/3.8	1.6/4.0	1.8/4.4	2.9/7.2	4.1/10.3	5.2/12.9	8.9/22.3
18	LL (L/240)					152	162	178	286	420	586	849
	TL (L/180)			86	93	152	162	178	286	420	586	849
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.4	3.8/9.5	4.9/12.2	8.4/21.1
19	LL (L/240)					130	138	152	245	360	503	748
	TL (L/180)			79	100	130	138	152	245	360	503	748
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	2.3/5.8	3.4/8.5	4.6/11.5	8.0/19.9
20	LL (L/240)					112	119	131	211	311	435	660
	TL (L/180)					143	153	168	275	406	571	849
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	3.1/7.7	4.4/10.9	7.6/18.9
21	LL (L/240)					97	103	113	183	270	379	544
	TL (L/180)					123	132	145	237	352	496	717
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.8/7.0	4.0/9.9	7.2/18.0
22	LL (L/240)					84	90	99	160	236	331	477
	TL (L/180)					107	114	126	207	307	433	631
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.6/6.4	3.6/9.1	6.9/17.1
23	LL (L/240)							87	141	207	292	420
	TL (L/180)							110	181	269	380	544
	BEARING							1.5/3.5	1.6/4.0	2.4/5.9	3.3/8.3	6.6/16.4
24	LL (L/240)								124	183	258	386
	TL (L/180)								159	236	335	477
	BEARING								1.5/3.6	2.2/5.4	3.1/7.7	6.3/15.7
25	LL (L/240)								110	163	229	331
	TL (L/180)								140	209	297	420
	BEARING								1.5/3.5	2.0/5.0	2.8/7.1	6.0/15.0
26	LL (L/240)								98	145	205	292
	TL (L/180)								124	186	264	386
	BEARING								1.5/3.5	1.8/4.6	2.6/6.5	5.8/14.4
27	LL (L/240)								88	130	183	260
	TL (L/180)								110	165	236	331
	BEARING								1.5/3.5	1.7/4.2	2.4/6.1	5.5/13.1
28	LL (L/240)								79	117	165	231
	TL (L/180)								98	148	211	292
	BEARING								1.5/3.5	1.6/3.9	2.3/5.6	5.3/13.1
29	LL (L/240)									105	149	217
	TL (L/180)									133	190	277
	BEARING									1.5/3.7	2.1/5.2	4.9/12.3
30	LL (L/240)									95	135	192
	TL (L/180)									119	171	242
	BEARING									1.5/3.5	2.0/4.9	4.6/11.5
31	LL (L/240)									87	122	177
	TL (L/180)									108	154	223
	BEARING									1.5/3.5	1.8/4.5	4.3/10.8
32	LL (L/240)									79	112	160
	TL (L/180)									97	140	200
	BEARING									1.5/3.5	1.7/4.3	4.0/10.1

BEARING = Minimum End / Intermediate Bearing Length (inches)
 * All 16", 18" and 24" beam depths are to be used in multiple member units only.

Multiple Member Connections For Side-Loaded Beams

Verify adequacy of beam in uniform load tables prior to using values listed below.

3100F_b 2.0E 1¾" WEST FRASER™ LVL

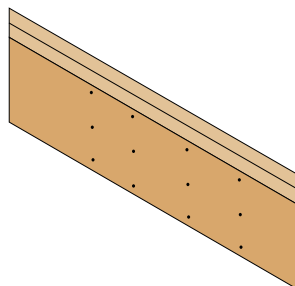
Maximum Uniform Load (PLF) Applied to Either Outside Member			 2-PLY LVL	 3-PLY LVL	 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
16d (3½") Common Wire Nails	12" o.c.	2 Rows 3 Rows	507 761	381 571	Not Applicable
	6" o.c.	2 Rows 3 Rows	1015 1522	761 1142	Not Applicable
	4" o.c.	2 Rows 3 Rows	1522 2283	1142 1712	Not Applicable
½" A307 Through Bolts	24" o.c.	2 Rows	410	308	273
	12" o.c.	2 Rows	820	615	547
	6" o.c.	2 Rows	1640	1230	1093

* 4-ply beams should only be side-loaded when loads are applied to both sides of the member.

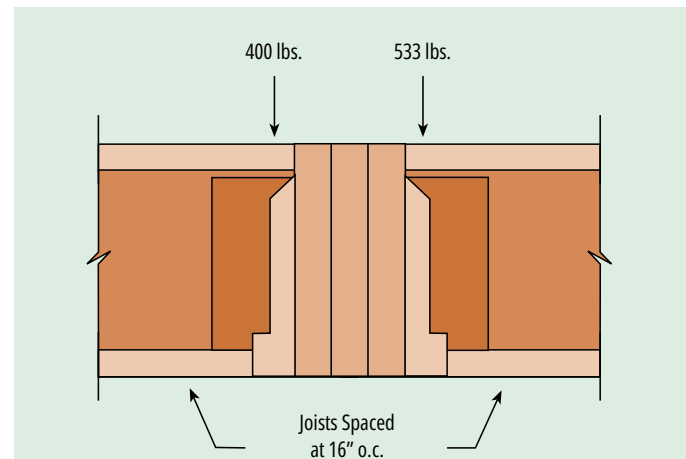
- Nails to be located a minimum of 2" from the top and bottom of the member with a minimum spacing of 2" between rows. Start all nails a minimum of 2½" in from ends.
- Bolts are to be material conforming to ANSI/ASME Standard B18.2.1-1981. Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut. Start all bolts a minimum of 2½" in from ends.
- Verify adequacy of beam in uniform load tables (pages 6-8).
- Values listed are for 100% stress level. Increase 15% for snow loaded roof conditions or 25% for non-snow roof conditions, where code allows.

Connection of Multiple Pieces for Top-Loading beams

2.0E (1¾" wide pieces)



- Minimum of 2 rows of 16d (3½") nails at 12" o.c. for 5½" through 11⅞" beams
- Minimum of 3 rows of 16d (3½") nails at 12" o.c. for 14", 16", 18" and 24" beams



Example

First, convert joist reactions to plf load on each side of the beam by taking the joist reactions (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check allowable load tables to verify that 3 pieces can carry the total load of 700 plf. The maximum load applied to either outside member is 400 plf.

For a 3-piece 1¾" multiple assembly, use 3 rows of 16d (3½") common wire nails at 12" o.c. (good for 571 plf).
Alternate: 2 rows of ½" bolts at 12" o.c.

3000F_b 1.9E WEST FRASER™ LVL

1³/₄" THICK HEADER & BEAMS

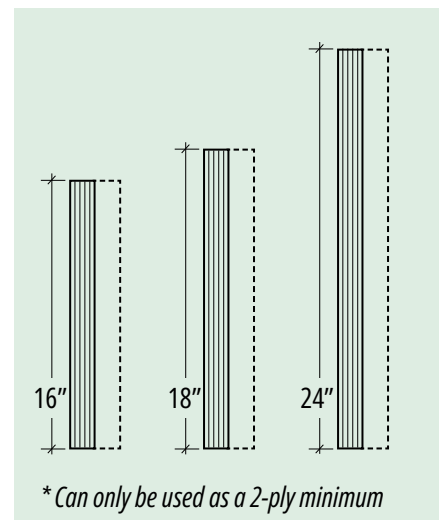
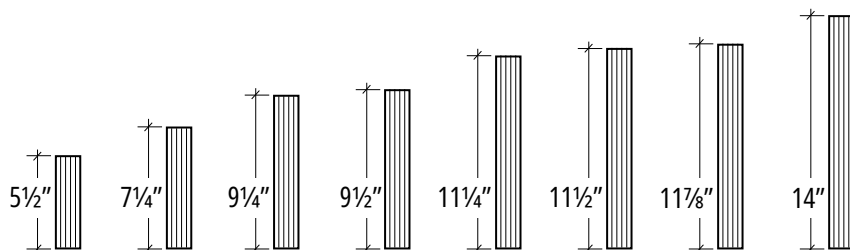
Design Properties

3000F_b 1.9E 1³/₄" WEST FRASER™ LVL Allowable design values

Design Property	Depth										
	5½"	7¼"	9¼"	9½"	11¼"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	2453	4105	6464	6793	9310	9699	10297	13995	17950	22357	38220
Shear (lbs.)	1925	2538	3328	3325	3938	4025	4156	4900	5600	6300	8400
Moment of Inertia (in ⁴)	24	56	115	125	208	222	244	400	597	851	2016
Weight (lbs./lin. Ft.)	2.7	3.6	4.6	4.7	5.6	5.7	5.9	7.0	8.0	8.1	12.0

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. All 16", 18" and 24" beam depths are to be used in multiple member units only.
4. Values are based on 100% load duration.

3000F_b 1.9E 1³/₄" WEST FRASER™ LVL Available sizes



3000F_b 1.9E WEST FRASER™ LVL Allowable design stresses

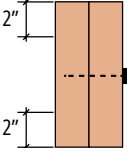
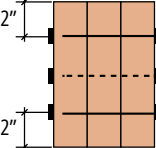
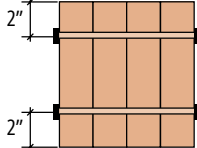
Modulus of Elasticity	E	=	1.9 x 10 ⁶ psi
Bending Stress	F _b	=	3000 psi
Shear (joist)	F _v	=	300 psi
Compression Perpendicular to Grain (joist)	F _{c(perp)}	=	750 psi
Compression Parallel to Grain	F _{c(para)}	=	3000 psi

1. F_b based on 12" depths. For others depths, multiply by (12/d)^(1/7.35).
2. Design stresses are based on 100% load duration.
3. F_{c(perp)} and E shall not be increased for duration of load.

Multiple Member Connections For Side-Loaded Beams

Verify adequacy of beam in uniform load tables prior to using values listed below.

3000F_b 1.9E 1¾" WEST FRASER™ LVL

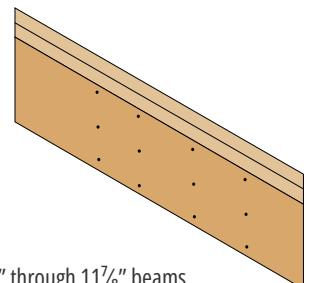
Maximum Uniform Load (PLF) Applied to Either Outside Member			 2-PLY LVL	 3-PLY LVL	 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
16d (3½") Common Wire Nails	12" o.c.	2 Rows 3 Rows	500 765	380 575	Not Applicable
	6" o.c.	2 Rows 3 Rows	1000 1530	760 1150	Not Applicable
	4" o.c.	2 Rows 3 Rows	1500 2295	1140 1725	Not Applicable
½" A307 Through Bolts	24" o.c.	2 Rows	410	308	273
	12" o.c.	2 Rows	820	615	547
	6" o.c.	2 Rows	1640	1230	1093

1. Nails to be located a minimum of 2" from the top and bottom of the member with a minimum spacing of 2" between rows. Start all nails a minimum of 2½" in from ends.
2. Bolts are to be material conforming to ANSI/ASME Standard B18.2.1-1981. Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut. Start all bolts a minimum of 2½" in from ends.
3. Verify adequacy of beam in uniform load tables (pages 12-13).
4. Values listed are for 100% stress level. Increase 15% for snow loaded roof conditions or 25% for non-snow roof conditions, where code allows.

Connection of Multiple Pieces for Top-Loading beams

1.9E (1¾" wide pieces)

- Minimum of 2 rows of 16d (3½") nails at 12" o.c. for 5½" through 11⅞" beams
- Minimum of 3 rows of 16d (3½") nails at 12" o.c. for 14", 16", 18" and 24" beams



Allowable Uniform Loads

Pounds per lineal foot

General Notes

- Tables are for one-ply 1¾" beams. When properly connected, double the values for two-ply beams, triple for three. Minimum bearing lengths shown for one-ply will be the same for two-ply and three-ply. See page 11 for multiple-ply connection details.
- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Tables are based on uniform loads and the most restrictive of simple or continuous spans under dryuse conditions. Refer to West Fraser sizing software for other loads or span configurations.
- Lateral support of beam compression edges is required at intervals of 24" o/c or closer.
- Lateral support of beams is required at bearing locations.
- WEST FRASER LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable building code, other deflection considerations, such as long term deflection under sustained loads (including creep), must be evaluated.
- All 16", 18" and 24" beam depths are to be used in multiple member units only.
- To size a member for a span not shown, use capacities for the next larger span shown.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 750 psi bearing stress for 1.9E Grade materials. Bearing stresses cannot be increased for duration of load. **Bearing length may need to be increased if support member's allowable bearing stress is less.**

Floor Beam Sizing

- To size a beam for use in a floor, it is necessary to check both live load and total load. Make sure the selected beam will work in both rows. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- For deflection limits of L/480 multiply loads shown in live load row by 0.75. The resulting live load shall not exceed the total load shown.

Roof Beam Sizing

- To size a beam for use in a roof, it is necessary to check both live load and total load. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- Roof must have positive slope to prevent ponding.
- Tables will accommodate beam slopes to a maximum of 2:12.

Floor 100% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/360)	290	627									
	TL (L/240)	433	803									
	BEARING	1.5/3.5	2.1/5.3	2.9/7.2	3.0/7.5	3.7/9.3	3.8/9.6	4.0/10.0	5.0/12.6	6.2/15.4	7.4/18.6	12.8/31.9
7	LL (L/360)	187	409	798	858							
	TL (L/240)	277	610	849	923	1140	1172	1222	1520	1833	2182	3525
	BEARING	1.5/3.5	1.6/4.1	2.8/7.0	2.9/7.2	3.5/8.9	3.7/9.1	3.8/9.5	4.7/11.8	5.7/14.3	6.8/17.0	11.0/27.4
8	LL (L/360)	127	281	555	598	943						
	TL (L/240)	188	418	761	785	964	990	1030	1271	1519	1791	2788
	BEARING	1.5/3.5	1.5/3.5	2.5/6.3	2.6/6.6	3.4/8.6	3.5/8.8	3.7/9.2	4.5/11.3	5.4/13.5	6.4/15.9	9.9/24.8
9	LL (L/360)	90	201	401	431	687	729	795				
	TL (L/240)	132	297	596	643	834	857	891	1092	1297	1518	2305
	BEARING	1.5/3.5	1.5/3.5	2.2/5.4	2.3/5.8	3.2/8.1	3.4/8.4	3.6/8.9	4.4/10.9	5.2/13.0	6.1/15.2	9.2/23.1
10	LL (L/360)	66	148	298	321	515	547	598	932			
	TL (L/240)	97	219	442	477	736	755	784	957	1131	1317	1965
	BEARING	1.5/3.5	1.5/3.5	1.7/4.2	1.8/4.5	2.8/7.0	2.9/7.3	3.1/7.8	4.2/10.6	5.0/12.6	5.9/14.6	8.7/21.8
11	LL (L/360)		112	227	245	395	420	459	722			
	TL (L/240)		165	336	363	587	624	675	851	1003	1163	1711
	BEARING		1.5/3.5	1.5/3.5	1.5/3.8	2.5/6.1	2.6/6.5	2.8/7.1	3.8/9.6	4.9/12.3	5.7/14.2	8.4/20.9
12	LL (L/360)		87	177	191	309	329	360	569			
	TL (L/240)		127	261	282	458	488	534	767	818	900	1515
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	2.2/5.6	2.4/6.1	3.5/8.8	4.5/11.3	5.6/13.9	8.1/20.2
13	LL (L/360)		69	140	152	246	262	287	456			
	TL (L/240)		100	206	223	364	388	425	656	659	905	1359
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.5	1.9/4.8	2.1/5.3	3.2/8.1	4.2/10.4	5.2/13.0	7.9/19.7
14	LL (L/360)		55	113	122	199	212	233	371			
	TL (L/240)		80	165	179	293	313	343	549	538	742	1232
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.6/3.9	1.7/4.2	1.8/4.6	2.9/7.3	3.9/9.7	4.8/12.1	7.7/19.2
15	LL (L/360)			93	100	163	174	191	305			
	TL (L/240)			134	145	239	255	280	451	444	615	1127
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.4	3.6/9.0	4.5/11.2	7.5/18.8
16	LL (L/360)			77	83	136	144	159	254			
	TL (L/240)			110	119	198	211	232	374	371	515	1038
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.3/5.7	3.3/8.4	4.2/10.5	7.4/18.0
17	LL (L/360)			64	69	114	121	133	214			
	TL (L/240)			92	99	165	176	194	314	313	435	953
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.1	3.0/7.5	4.0/9.9	6.8/16.9
18	LL (L/360)			54	59	96	103	113	181			
	TL (L/240)			77	83	139	148	163	265	266	371	818
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.5	2.7/6.7	3.7/9.3	6.4/16.0
19	LL (L/360)				50	82	88	96	155			
	TL (L/240)				70	118	126	138	226	228	319	707
	BEARING				1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.6/4.1	2.4/6.0	3.4/8.5	6.0/15.1
20	LL (L/360)					71	75	83	134			
	TL (L/240)					100	107	118	194	197	275	615
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.7	2.2/5.5	3.1/7.7	5.7/14.3
21	LL (L/360)					61	65	72	116			
	TL (L/240)					86	92	102	167	171	240	538
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.0	2.8/7.0	5.4/13.6
22	LL (L/360)					53	57	63	101			
	TL (L/240)					74	80	88	145	149	210	473
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.5	2.6/6.4	5.2/13.0
23	LL (L/360)							55	89			
	TL (L/240)							76	127	131	185	418
	BEARING							1.5/3.5	1.5/3.5	1.7/4.1	2.3/5.9	5.0/12.4
24	LL (L/360)								79			
	TL (L/240)								111	116	163	371
	BEARING								1.5/3.5	1.5/3.8	2.2/5.4	4.7/11.9
25	LL (L/360)								70			
	TL (L/240)								98	103	145	331
	BEARING								1.5/3.5	1.5/3.5	2.0/5.0	4.5/11.4
26	LL (L/360)								62			
	TL (L/240)								86	92	130	296
	BEARING								1.5/3.5	1.5/3.5	1.8/4.6	4.3/10.7
27	LL (L/360)								56			
	TL (L/240)								76	82	116	266
	BEARING								1.5/3.5	1.5/3.5	1.7/4.2	4.0/10.0
28	LL (L/360)								50			
	TL (L/240)								68	74	104	240
	BEARING								1.5/3.5	1.5/3.5	1.6/3.9	3.7/9.3
29	LL (L/360)											
	TL (L/240)									67	94	217
	BEARING									1.5/3.5	1.5/3.6	3.5/8.6
30	LL (L/360)											
	TL (L/240)									60	85	197
	BEARING									1.5/3.5	1.5/3.5	3.2/8.1
31	LL (L/360)											
	TL (L/240)									55	78	179
	BEARING									1.5/3.5	1.5/3.5	3.0/7.6
32	LL (L/360)											
	TL (L/240)									50	71	163
	BEARING									1.5/3.5	1.5/3.5	2.8/7.1

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18", and 24" beam depths are to be used in multiple member units only.

Roof Snow 115% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/240)	435								2657	3211	5508
	TL (L/180)	578	924	1245	1288	1604	1652	1726	2174	7.1/17.7	8.6/21.4	14.7/36.7
	BEARING	1.5/3.5	2.4/6.0	3.3/8.3	3.4/8.6	4.3/10.7	4.4/11.0	4.6/11.5	5.8/14.6			
7	LL (L/240)	280	614							2109	2511	4055
	TL (L/180)	371	767	1028	1062	1312	1349	1406	1749	6.6/16.4	7.8/19.5	12.6/31.6
	BEARING	1.5/3.5	2.0/5.1	3.2/8.0	3.3/8.3	4.1/10.2	4.2/10.5	4.4/10.9	5.4/13.6			
8	LL (L/240)	190	421	833	896					1748	2061	3208
	TL (L/180)	251	558	876	904	1109	1140	1186	1463	6.2/15.6	7.3/18.3	11.4/28.5
	BEARING	1.5/3.5	1.7/4.3	2.8/7.0	3.0/7.4	3.9/9.9	4.1/10.1	4.2/10.6	5.2/13.0			
9	LL (L/240)	135	301	601	647					1493	1747	2653
	TL (L/180)	177	398	730	767	960	986	1025	1257	6.0/14.9	7.0/17.5	10.6/26.5
	BEARING	1.5/3.5	1.5/3.5	2.5/6.3	2.6/6.6	3.6/9.0	3.8/9.4	4.0/10.0	5.0/12.6			
10	LL (L/240)	99	222	447	482	772	821			1302	1516	2261
	TL (L/180)	130	293	590	620	847	869	903	1102	5.8/14.5	6.7/16.9	10.1/25.1
	BEARING	1.5/3.5	1.5/3.5	2.2/5.6	2.4/5.9	3.2/8.1	3.4/8.4	3.6/9.0	4.9/12.2			
11	LL (L/240)		168	340	367	593	630	689		1154	1339	1970
	TL (L/180)		221	449	485	702	732	777	980	5.6/14.1	6.6/16.4	9.6/24.1
	BEARING		1.5/3.5	1.9/4.7	2.0/5.1	2.9/7.4	3.1/7.7	3.3/8.1	4.4/11.1			
12	LL (L/240)		131	265	286	464	494	540	854	1036	1199	1744
	TL (L/180)		171	349	377	589	614	652	883	5.2/13.0	6.4/16.0	9.3/23.3
	BEARING		1.5/3.5	1.6/4.0	1.7/4.3	2.7/6.7	2.8/7.0	3.0/7.5	4.1/10.1			
13	LL (L/240)		103	210	227	370	393	431	684	940	1085	1565
	TL (L/180)		134	276	298	487	539	555	755	4.8/12.0	6.0/15.0	9.1/22.6
	BEARING		1.5/3.5	1.5/3.5	1.5/3.7	2.4/6.0	2.6/6.4	2.7/6.9	3.7/9.3			
14	LL (L/240)		83	170	183	299	318	349	556	807		
	TL (L/180)		107	222	240	393	419	459	650	835	990	1419
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	2.2/5.6	2.4/6.1	3.5/8.7	4.5/11.1	5.5/13.9	8.8/22.1
15	LL (L/240)			139	150	245	261	286	458	666		
	TL (L/180)			180	195	321	342	376	565	726	605	1298
	BEARING			1.5/3.5	1.5/3.5	1.8/4.6	2.0/4.9	2.1/5.4	3.2/8.1	4.1/10.4	5.2/12.9	8.7/21.7
16	LL (L/240)			115	124	203	217	238	381	556	772	
	TL (L/180)			149	161	265	283	311	496	637	794	1196
	BEARING			1.5/3.5	1.5/3.5	1.6/4.0	1.7/4.3	1.9/4.7	3.0/7.6	3.9/9.7	4.8/12.1	8.3/20.8
17	LL (L/240)			96	104	170	182	199	321	469	653	
	TL (L/180)			124	134	222	237	260	421	563	703	1108
	BEARING			1.5/3.5	1.5/3.5	1.5/3.6	1.5/3.8	1.7/4.2	2.7/6.8	3.6/9.1	4.6/11.4	7.8/19.5
18	LL (L/240)			81	88	144	154	169	272	399	556	
	TL (L/180)			104	112	187	199	219	356	502	626	1032
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.8	2.4/6.1	3.4/8.6	4.3/10.7	7.4/18.4
19	LL (L/240)				75	123	131	144	233	342	478	
	TL (L/180)				95	159	169	187	303	448	561	962
	BEARING				1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.20/5.5	3.2/8.1	4.1/10.2	7.0/17.4
20	LL (L/240)					106	113	124	201	295	413	
	TL (L/180)					136	145	160	261	386	505	867
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.0	2.9/7.4	3.8/9.6	6.6/16.5
21	LL (L/240)					92	98	108	174	256	360	
	TL (L/180)					117	125	138	225	334	457	785
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.5	2.7/6.7	3.7/9.1	6.3/15.7
22	LL (L/240)					80	85	94	152	224	315	709
	TL (L/180)					101	108	119	196	291	411	715
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.6/4.1	2.4/6.1	3.4/8.6	6.0/15.0
23	LL (L/240)							82	134	197	277	627
	TL (L/180)							104	171	255	360	653
	BEARING							1.5/3.5	1.5/3.7	2.2/5.6	3.2/7.9	5.7/14.3
24	LL (L/240)								118	174	245	556
	TL (L/180)								150	224	318	598
	BEARING								1.5/3.5	2.0/5.1	2.9/7.3	5.5/13.7
25	LL (L/240)								105	155	218	496
	TL (L/180)								133	198	281	551
	BEARING								1.5/3.5	1.9/4.7	2.7/6.7	5.2/13.1
26	LL (L/240)								93	138	194	414
	TL (L/180)								117	176	250	508
	BEARING								1.5/3.5	1.7/4.4	2.5/6.2	5.0/12.6
27	LL (L/240)								83	124	174	399
	TL (L/180)								104	157	223	470
	BEARING								1.5/3.5	1.6/4.0	2.3/5.7	4.8/12.1
28	LL (L/240)								75	111	157	360
	TL (L/180)								93	140	200	437
	BEARING								1.5/3.5	1.5/3.7	2.1/5.3	4.7/11.7
29	LL (L/240)									100	141	325
	TL (L/180)									126	180	406
	BEARING									1.5/3.5	2.0/5.0	4.5/11.2
30	LL (L/240)									91	128	295
	TL (L/180)									113	162	379
	BEARING									1.5/3.5	1.9/4.6	4.3/10.8
31	LL (L/240)									82	116	269
	TL (L/180)									102	146	346
	BEARING									1.5/3.5	1.7/4.3	4.1/10.2
32	LL (L/240)									75	106	245
	TL (L/180)									92	132	315
	BEARING									1.5/3.5	1.6/4.0	3.8/9.6

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18" and 24" beam depths are to be used in multiple member units only.

3000F_b 1.8E WEST FRASER™ LVL

1½" THICK HEADER & BEAMS

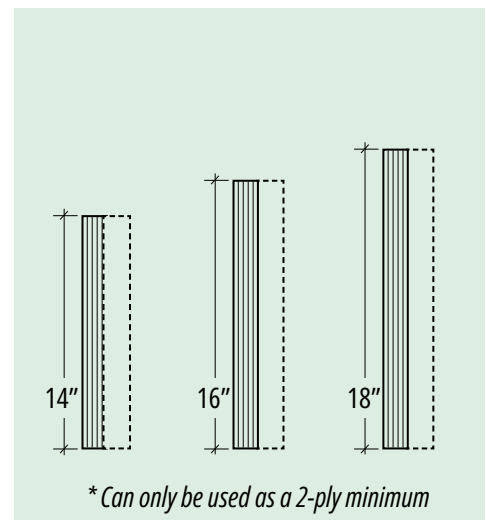
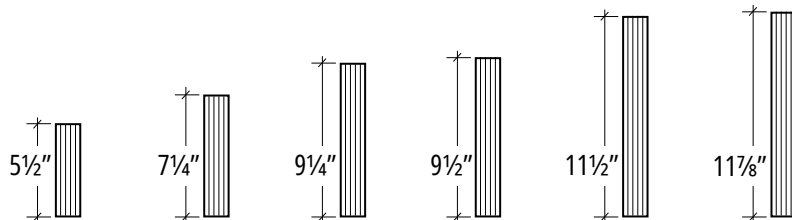
Design Properties

3000F_b 1.8E 1½" WEST FRASER™ LVL Allowable design values

Design Property	Depth								
	5½"	7¼"	9¼"	9½"	11½"	11⅞"	14"	16"	18"
Moment (ft. lbs.)	2102	3518	5540	5823	8314	8826	11996	15386	19163
Shear (lbs.)	1595	2103	2683	2755	3335	3444	4060	4640	5220
Moment of Inertia (in ⁴)	21	48	99	107	190	209	343	512	729
Weight (lbs./lin. Ft.)	2.1	2.8	3.6	3.7	4.4	4.6	5.4	6.2	6.9

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. All 14", 16" and 18" beam depths are to be used in multiple member units only.
4. Values are based on 100% load duration.

3000F_b 1.8E 1½" WEST FRASER™ LVL Available sizes



3000F_b 1.8E WEST FRASER™ LVL Allowable design stresses

Modulus of Elasticity	E	=	1.8 x 10 ⁶ psi
Bending Stress	F _b	=	3000 psi
Shear (joist)	F _v	=	290 psi
Compression Perpendicular to Grain (joist)	F _{c(perp)}	=	750 psi
Compression Parallel to Grain	F _{c(para)}	=	2350 psi

1. F_b based on 12" depths. For depths, d, between 3½" and 24", multiply by (12/d)^(1/7.35).
2. Design stresses are based on 100% load duration.
3. F_{c(perp)} and E shall not be increased for duration of load.

1¾" THICK HEADER & BEAMS

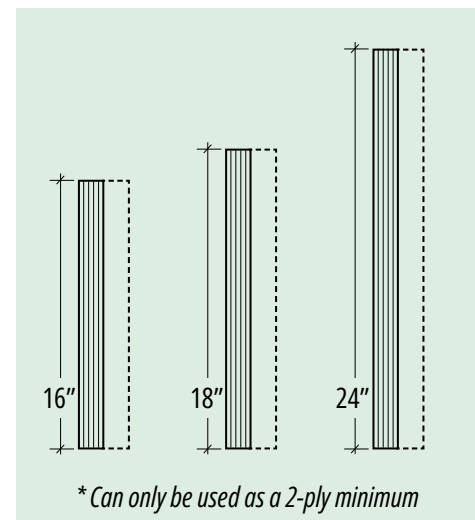
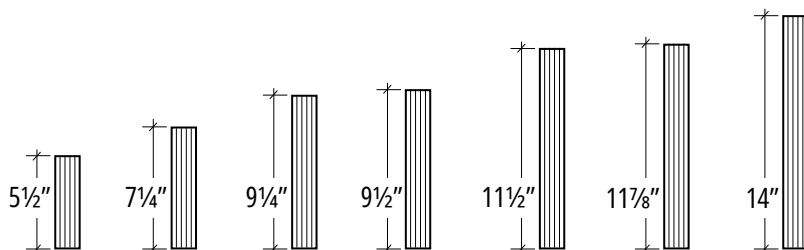
Design Properties

3000F_b 1.8E 1¾" WEST FRASER™ LVL Allowable design values

Design Property	Depth									
	5½"	7¼"	9¼"	9½"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	2453	4105	6464	6793	9699	10297	13995	17950	22357	38220
Shear (lbs.)	1861	2453	3130	3214	3891	4018	4735	5413	6090	8120
Moment of Inertia (in ⁴)	24	56	115	125	222	244	400	597	851	2016
Weight (lbs./lin. Ft.)	2.5	3.3	4.2	4.3	5.2	5.3	6.3	7.2	8.1	10.8

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. All 16", 18" and 24" beam depths are to be used in multiple member units only.
4. Values are based on 100% load duration.

3000F_b 1.8E 1¾" WEST FRASER™ LVL Available sizes





3½" THICK HEADER & BEAMS

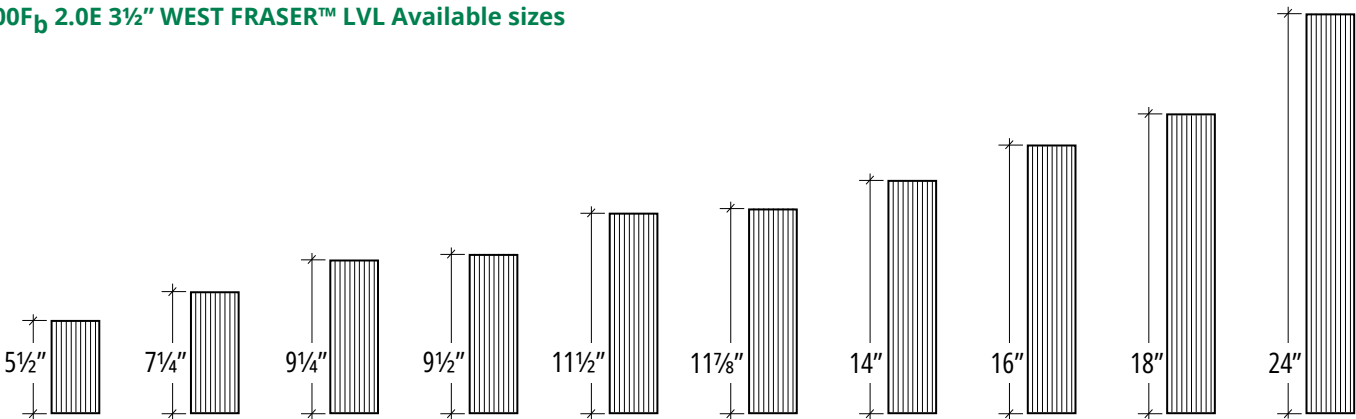
Design Properties

3000F_b 1.8E 3½" WEST FRASER™ LVL Allowable design values

Design Property	Depth									
	5½"	7¼"	9¼"	9½"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	4906	8209	12928	13587	19398	20594	27990	35900	44714	76440
Shear (lbs.)	3722	4906	6259	6428	7782	8035	9473	10827	12180	16240
Moment of Inertia (in^4)	49	111	231	250	444	488	800	1195	1701	4032
Weight (lbs./lin. Ft.)	4.9	6.5	8.3	8.5	10.3	10.7	12.6	14.4	16.2	21.6

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. Values are based on 100% load duration.

3100F_b 2.0E 3½" WEST FRASER™ LVL Available sizes



Allowable Uniform Loads

Pounds per lineal foot

Floor 100% – 1½" Width

General Notes

- Tables are for one-ply 1½" beams. When properly connected, double the values for two-ply beams, triple for three. Minimum bearing lengths shown for one-ply will be the same for two-ply and three-ply. See page 23 for multiple-ply connection details.
- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Tables are based on uniform loads and the most restrictive of simple or continuous spans under dryuse conditions. Refer to West Fraser sizing software for other loads or span configurations.
- Lateral support of beam compression edges is required at intervals of 24" o/c or closer.
- Lateral support of beams is required at bearing locations.
- WEST FRASER LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable building code, other deflection considerations, such as long term deflection under sustained loads (including creep), must be evaluated.
- All 14", 16" and 18" beam depths are to be used in multiple member units only.
- To size a member for a span not shown, use capacities for the next larger span shown.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 750 psi bearing stress for 1.8E Grade materials. Bearing stresses cannot be increased for duration of load. **Bearing length may need to be increased if support member's allowable bearing stress is less.**

Floor Beam Sizing

- To size a beam for use in a floor, it is necessary to check both live load and total load. Make sure the selected beam will work in both rows. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- For deflection limits of L/480 multiply loads shown in live load row by 0.75. The resulting live load shall not exceed the total load shown.

Roof Beam Sizing

- To size a beam for use in a roof, it is necessary to check both live load and total load. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- Roof must have positive slope to prevent ponding.
- Tables will accommodate beam slopes to a maximum of 2:12.

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11½"	11¾"	14"	16"	18"
6	LL (L/360)	236	509							
	TL (L/240)	351	666							
	BEARING	1.5/3.5	1.8/4.4	2.4/6.0	2.5/6.2	3.2/7.9	3.3/8.3	4.2/10.4	5.1/12.8	6.2/15.4
7	LL (L/360)	152	332	648	696					
	TL (L/240)	225	496	741	765	972	1013	1260	1519	1809
	BEARING	1.5/3.5	1.5/3.9	2.3/5.8	2.4/6.0	3.0/7.6	3.2/7.9	3.9/9.8	4.7/11.8	5.6/14.1
8	LL (L/360)	103	228	451	485	811				
	TL (L/240)	153	339	631	651	821	854	1054	1259	1484
	BEARING	1.5/3.5	1.5/3.5	2.2/5.6	2.3/5.8	2.9/7.3	3.0/7.6	3.7/9.4	4.5/11.2	5.3/13.2
9	LL (L/360)	73	163	325	350	592	646			
	TL (L/240)	108	242	484	522	710	738	905	1075	1259
	BEARING	1.5/3.5	1.5/3.5	1.9/4.8	2.1/5.2	2.8/7.1	3.0/7.4	3.6/9.1	4.3/10.8	5.0/12.6
10	LL (L/360)	54	120	242	261	444	485	757		
	TL (L/240)	78	178	359	387	626	650	793	938	1092
	BEARING	1.5/3.5	1.5/3.5	1.6/4.0	1.7/4.3	2.8/7.0	2.9/7.2	3.5/8.8	4.2/10.4	4.9/12.1
11	LL (L/360)		91	184	199	341	373	586		
	TL (L/240)		134	273	295	507	555	706	831	964
	BEARING		1.5/3.5	1.5/3.5	1.5/3.6	2.5/6.2	2.7/6.8	3.5/8.6	4.1/10.2	4.7/11.8
12	LL (L/360)		71	144	155	267	292	462	664	
	TL (L/240)		103	212	229	396	434	636	746	863
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.3	2.3/5.8	3.4/8.5	4.0/9.9	4.6/11.5
13	LL (L/360)		56	114	123	213	233	370	535	735
	TL (L/240)		81	167	181	315	345	550	677	781
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.6	2.0/5.0	3.2/7.9	3.9/9.8	4.5/11.3
14	LL (L/360)		45	92	99	172	189	301	437	602
	TL (L/240)		65	134	145	313	279	446	619	713
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.2	1.7/4.3	2.8/6.9	3.9/9.6	4.4/11.1
15	LL (L/360)			75	81	141	155	248	361	499
	TL (L/240)			109	118	208	228	367	535	656
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.8	2.4/6.1	3.6/8.9	4.4/10.9
16	LL (L/360)			62	67	117	129	206	301	418
	TL (L/240)			90	97	172	188	304	446	592
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.2/5.4	3.2/7.9	4.2/10.5
17	LL (L/360)			52	56	98	108	174	254	353
	TL (L/240)			75	81	143	157	255	375	523
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.8	2.8/7.1	4.0/9.9
18	LL (L/360)			44	48	83	91	147	216	301
	TL (L/240)			62	68	121	133	216	318	445
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.4	3.6/8.9
19	LL (L/360)					71	78	126	185	259
	TL (L/240)					102	113	184	271	381
	BEARING					1.5/3.5	1.5/3.5	1.6/3.9	2.3/5.7	3.2/8.0
20	LL (L/360)					61	67	109	160	224
	TL (L/240)					87	96	158	233	329
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	2.9/7.3
21	LL (L/360)					53	58	94	139	195
	TL (L/240)					75	83	136	202	285
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.7/6.7
22	LL (L/360)					46	51	82	121	170
	TL (L/240)					65	72	118	176	249
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.4/6.1
23	LL (L/360)						45	72	107	150
	TL (L/240)						62	103	154	218
	BEARING						1.5/3.5	1.5/3.5	1.6/3.9	2.2/5.6
24	LL (L/360)							64	94	133
	TL (L/240)							90	135	192
	BEARING							1.5/3.5	1.5/3.6	2.0/5.1
25	LL (L/360)							57	84	118
	TL (L/240)							80	119	170
	BEARING							1.5/3.5	1.5/3.5	1.7/4.4
26	LL (L/360)							50	75	105
	TL (L/240)							70	106	151
	BEARING							1.5/3.5	1.5/3.5	1.7/4.4
27	LL (L/360)							45	67	94
	TL (L/240)							62	94	135
	BEARING							1.5/3.5	1.5/3.5	1.6/4.1
28	LL (L/360)							60	85	
	TL (L/240)							84	120	
	BEARING							1.5/3.5	1.5/3.7	
29	LL (L/360)							54	77	
	TL (L/240)							75	108	
	BEARING							1.5/3.5	1.5/3.5	
30	LL (L/360)							49	69	
	TL (L/240)							67	97	
	BEARING							1.5/3.5	3.5/3.5	
31	LL (L/360)							45	63	
	TL (L/240)							61	88	
	BEARING							1.5/3.5	1.5/3.5	
32	LL (L/360)								57	
	TL (L/240)								79	
	BEARING								1.5/3.5	

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 14", 16", and 18" beam depths are to be used in multiple member units only.

Roof Snow 115% – 1½" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11½"	11¾"	14"	16"	18"
6	LL (L/240)	353	763							
	TL (L/180)	469	766							
	BEARING	1.5/3.5	2.0/5.1	1032	1067	1369	1430	1802	2202	2661
7	LL (L/240)	228	498							
	TL (L/180)	301	638							
	BEARING	1.5/3.5	2.0/5.0	852	881	1118	1165	1450	1748	2081
8	LL (L/240)	155	342							
	TL (L/180)	204	453							
	BEARING	1.5/3.5	1.6/4.0	676	726	944	983	1213	1449	1708
9	LL (L/240)	110	244							
	TL (L/180)	144	323							
	BEARING	1.5/3.5	1.5/3.6	488	526	817	850	1042	1237	1448
10	LL (L/240)	81	180							
	TL (L/180)	105	238							
	BEARING	1.5/3.5	1.5/3.5	626	652	850	878	1042	1237	1448
11	LL (L/240)		137							
	TL (L/180)		180							
	BEARING		1.5/3.5	215	233	401	439	693	859	994
12	LL (L/240)		106							
	TL (L/180)		139							
	BEARING		1.5/3.5	284	306	527	559	732	859	994
13	LL (L/240)		84							
	TL (L/180)		109							
	BEARING		1.5/3.5	171	185	319	350	556	780	899
14	LL (L/240)		68							
	TL (L/180)		87							
	BEARING		1.5/3.5	138	149	259	283	452	655	821
15	LL (L/240)									
	TL (L/180)									
	BEARING			113	122	212	233	372	541	749
16	LL (L/240)									
	TL (L/180)									
	BEARING			147	159	278	305	485	713	821
17	LL (L/240)									
	TL (L/180)									
	BEARING			93	101	176	193	310	452	627
18	LL (L/240)									
	TL (L/180)									
	BEARING			121	131	230	253	407	547	682
19	LL (L/240)									
	TL (L/180)									
	BEARING			78	84	148	162	260	381	530
20	LL (L/240)									
	TL (L/180)									
	BEARING			101	109	192	211	342	484	603
21	LL (L/240)									
	TL (L/180)									
	BEARING			66	71	125	137	221	324	452
22	LL (L/240)									
	TL (L/180)									
	BEARING			84	92	162	178	289	426	537
23	LL (L/240)									
	TL (L/180)									
	BEARING			107	117	207	228	372	541	749
24	LL (L/240)									
	TL (L/180)									
	BEARING			138	152	278	305	485	713	821
25	LL (L/240)									
	TL (L/180)									
	BEARING			153	167	298	326	521	759	921
26	LL (L/240)									
	TL (L/180)									
	BEARING			176	193	330	359	571	821	994
27	LL (L/240)									
	TL (L/180)									
	BEARING			199	219	372	403	627	901	1094
28	LL (L/240)									
	TL (L/180)									
	BEARING			221	243	407	441	681	971	1184
29	LL (L/240)									
	TL (L/180)									
	BEARING			243	267	441	481	721	1031	1254
30	LL (L/240)									
	TL (L/180)									
	BEARING			267	293	481	521	781	1131	1374
31	LL (L/240)									
	TL (L/180)									
	BEARING			293	321	521	561	841	1231	1524
32	LL (L/240)									
	TL (L/180)									
	BEARING			321	351	561	601	891	1311	1624

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 14", 16" and 18" beam depths are to be used in multiple member units only.

Roof Non-Snow 125% - 1½" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11½"	11¾"	14**	16**	18**
6	LL (L/240)	353	763					1959	2394	2893
	TL (L/180)	469	833	1122	1160	1489	1555	5.2/13.1	6.4/16.0	7.7/19.3
	BEARING	1.5/3.5	2.2/5.6	3.0/7.5	3.1/7.7	4.0/9.9	4.1/10.4			
7	LL (L/240)	228	498					1576	1901	2263
	TL (L/180)	301	662	927	957	1216	1267	4.9/12.3	5.9/14.8	7.0/17.6
	BEARING	1.5/3.5	2.1/5.1	2.9/7.2	3.0/7.4	3.8/9.5	3.9/9.9			
8	LL (L/240)	155	342	676	728			1319	1576	1857
	TL (L/180)	204	453	789	815	1027	1069	4.7/11.7	5.6/14.0	6.6/16.5
	BEARING	1.5/3.5	1.6/4.0	2.8/7.0	2.9/7.2	3.7/9.1	3.8/9.5			
9	LL (L/240)	110	244	488	526			1133	1345	1575
	TL (L/180)	144	323	647	697	888	924	4.5/11.3	5.4/13.5	6.3/15.8
	BEARING	1.5/3.5	1.5/3.5	2.6/6.5	2.8/7.0	3.6/8.9	3.7/9.2			
10	LL (L/240)	81	180	363	391	666	728	993	1173	1367
	TL (L/180)	105	238	480	518	783	814	4.4/11.0	5.2/13.0	6.1/15.2
	BEARING	1.5/3.5	1.5/3.5	2.1/5.8	2.3/5.8	3.5/8.7	3.6/9.0			
11	LL (L/240)		137	276	298	512	560	879		
	TL (L/180)		180	365	394	678	725	884	1040	1207
	BEARING		1.5/3.5	1.8/4.5	1.9/4.8	3.3/8.3	3.5/8.9	4.3/10.8	5.1/12.7	5.9/14.8
12	LL (L/240)		106	215	233	401	439	693		
	TL (L/180)		139	284	306	530	580	796	934	1081
	BEARING		1.5/3.5	1.5/3.8	1.6/4.1	2.8/7.1	3.1/7.7	4.2/10.6	5.0/12.5	5.8/14.4
13	LL (L/240)		84	171	185	319	350	556	803	
	TL (L/180)		109	224	242	422	462	704	848	978
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.4/6.1	2.7/6.7	4.1/10.2	4.9/12.2	5.7/14.1
14	LL (L/240)		68	138	149	259	283	452	655	
	TL (L/180)		87	180	195	340	373	597	776	893
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.3	2.3/5.8	3.7/9.3	4.8/12.1	5.6/13.9
15	LL (L/240)			113	122	212	233	372	541	749
	TL (L/180)			147	159	278	305	678	822	822
	BEARING			1.5/3.5	1.5/3.5	1.9/4.6	2.0/5.1	3.3/8.2	4.5/11.3	5.5/13.7
16	LL (L/240)			93	101	176	193	310	452	627
	TL (L/180)			121	131	230	253	407	595	742
	BEARING			1.5/3.5	1.5/3.5	1.6/4.1	1.8/4.5	2.9/7.2	4.2/10.6	5.3/13.2
17	LL (L/240)			78	84	148	162	260	381	530
	TL (L/180)			101	109	192	211	342	502	656
	BEARING			1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.5	3.8/9.5	5.0/12.4
18	LL (L/240)			66	71	125	137	221	324	452
	TL (L/180)			84	92	162	178	289	426	585
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	2.3/5.8	3.4/8.5	4.7/11.7
19	LL (L/240)					107	117	189	278	388
	TL (L/180)					138	152	247	364	510
	BEARING					1.5/3.5	1.5/3.5	2.1/5.2	3.1/7.7	4.3/10.8
20	LL (L/240)					92	101	163	240	336
	TL (L/180)					118	130	212	313	440
	BEARING					1.5/3.5	1.5/3.5	1.9/4.7	2.8/7.0	3.9/9.8
21	LL (L/240)					80	87	141	208	292
	TL (L/180)					102	112	183	271	382
	BEARING					1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.3	3.6/8.9
22	LL (L/240)					69	76	124	182	256
	TL (L/180)					88	97	159	237	334
	BEARING					1.5/3.5	1.5/3.5	1.6/3.9	2.3/5.8	3.3/8.2
23	LL (L/240)						67	108	160	225
	TL (L/180)						85	139	207	293
	BEARING						1.5/3.5	1.5/3.6	2.1/5.3	3.0/7.5
24	LL (L/240)							96	141	199
	TL (L/180)							122	182	258
	BEARING							1.5/3.5	1.9/4.9	2.8/6.9
25	LL (L/240)							85	126	177
	TL (L/180)							108	161	229
	BEARING							1.5/3.5	1.8/4.5	2.5/6.4
26	LL (L/240)							76	112	158
	TL (L/180)							96	143	204
	BEARING							1.5/3.5	1.7/6.5	2.4/5.9
27	LL (L/240)							68	100	141
	TL (L/180)							85	128	182
	BEARING							1.5/3.5	1.5/3.8	2.2/5.5
28	LL (L/240)								90	127
	TL (L/180)								114	163
	BEARING								1.5/3.5	2.0/5.1
29	LL (L/240)								81	115
	TL (L/180)								102	146
	BEARING								1.5/3.5	1.9/4.7
30	LL (L/240)								74	104
	TL (L/180)								92	132
	BEARING								1.5/3.5	1.8/4.4
31	LL (L/240)								67	94
	TL (L/180)								83	119
	BEARING								1.5/3.5	1.6/4.1
32	LL (L/240)									86
	TL (L/180)									108
	BEARING									1.5/3.8

BEARING = Minimum End / Intermediate Bearing Length (inches)
 * All 14", 16" and 18" beam depths are to be used in multiple member units only.

Allowable Uniform Loads

Pounds per lineal foot

General Notes

- Tables are for one-ply 1¾" beams. When properly connected, double the values for two-ply beams, triple for three. Minimum bearing lengths shown for one-ply will be the same for two-ply and three-ply. See page 24 for multiple-ply connection details.
- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Tables are based on uniform loads and the most restrictive of simple or continuous spans under dryuse conditions. Refer to West Fraser sizing software for other loads or span configurations.
- Lateral support of beam compression edges is required at intervals of 24" o/c or closer.
- Lateral support of beams is required at bearing locations.
- WEST FRASER LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable building code, other deflection considerations, such as long term deflection under sustained loads (including creep), must be evaluated.
- All 16", 18" and 24" beam depths are to be used in multiple member units only.
- To size a member for a span not shown, use capacities for the next larger span shown.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 750 psi bearing stress for 1.8E Grade materials. Bearing stresses cannot be increased for duration of load. **Bearing length may need to be increased if support member's allowable bearing stress is less.**

Floor Beam Sizing

- To size a beam for use in a floor, it is necessary to check both live load and total load. Make sure the selected beam will work in both rows. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- For deflection limits of L/480 multiply loads shown in live load row by 0.75. The resulting live load shall not exceed the total load shown.

Roof Beam Sizing

- To size a beam for use in a roof, it is necessary to check both live load and total load. When no live load is shown, total load will control. Spans shown are measured center-to-center of bearing.
- Check local code for other deflection criteria.
- Roof must have positive slope to prevent ponding.
- Tables will accommodate beam slopes to a maximum of 2:12.

Floor 100% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/360)	275	594									
	TL (L/240)	410	776									
	BEARING	1.5/3.5	1.8/4.4	2.4/6.0	2.5/6.2	3.1/7.7	3.2/7.9	3.3/8.3	4.2/10.4	5.1/12.8	6.2/15.4	10.6/26.5
7	LL (L/360)	177	388	756	812							
	TL (L/240)	263	578	864	893	1102	1134	1181	1470	1773	2110	3408
	BEARING	1.5/3.5	1.5/3.9	2.3/5.8	2.4/6.0	2.9/6.0	3.0/7.6	3.1/7.9	3.9/9.8	4.7/11.8	5.6/14.1	9.1/22.7
8	LL (L/360)	120	266	526	566	893	947					
	TL (L/240)	178	396	736	759	932	958	996	1229	1469	1732	2696
	BEARING	1.5/3.5	1.5/3.5	2.2/5.6	2.3/5.8	2.8/7.1	2.9/7.3	3.0/7.6	3.7/9.4	4.5/11.2	5.3/13.2	8.2/20.5
9	LL (L/360)	85	190	379	409	651	691	753				
	TL (L/240)	126	282	565	609	807	829	861	1056	1254	1468	2229
	BEARING	1.5/3.5	1.5/3.5	1.9/4.8	2.1/5.2	2.8/6.9	2.8/7.1	3.0/7.4	3.6/9.1	4.3/10.7	5.0/12.6	7.6/19.1
10	LL (L/360)	63	140	282	304	488	518	566	883			
	TL (L/240)	92	207	419	452	711	730	758	926	1094	1274	1900
	BEARING	1.5/3.5	1.5/3.5	1.6/4.0	1.7/4.3	2.7/6.8	2.8/7.0	2.9/7.2	3.5/8.8	4.2/10.4	4.9/12.1	7.2/18.1
11	LL (L/360)		106	215	232	374	398	435	684			
	TL (L/240)		156	318	344	556	592	647	823	970	1125	1655
	BEARING		1.5/3.5	1.5/3.5	1.5/3.6	2.3/3.8	2.5/6.2	2.7/6.8	3.4/8.6	4.1/10.2	4.7/11.8	6.9/17.3
12	LL (L/360)		83	168	181	293	312	341	539			
	TL (L/240)		121	247	267	434	462	506	742	871	1007	1466
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.0	2.1/5.3	2.1/5.3	3.4/8.5	4.0/10.0	4.6/11.5	6.7/16.8
13	LL (L/360)		65	133	144	233	248	272	432			
	TL (L/240)		95	195	211	345	368	403	642	624	857	1315
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	1.8/4.6	2.0/5.0	3.2/7.9	3.9/9.8	4.5/11.3	6.5/16.3
14	LL (L/360)		53	107	116	189	201	220	351			
	TL (L/240)		75	157	169	278	296	325	521	510	703	1192
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.7	1.6/3.9	1.7/4.3	2.8/6.9	3.9/9.6	4.4/11.1	6.4/15.9
15	LL (L/360)			88	95	155	165	181	289			
	TL (L/240)			127	138	227	242	266	428	421	583	1090
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.8	2.4/6.1	3.6/8.9	4.4/10.9	6.2/15.6
16	LL (L/360)			73	78	128	137	150	241			
	TL (L/240)			105	113	188	200	220	355	351	488	1004
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.2/5.4	3.2/7.9	4.2/10.5	6.1/15.3
17	LL (L/360)			61	66	108	115	126	203			
	TL (L/240)			87	94	156	167	184	298	296	412	902
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.8	2.8/7.1	4.0/9.9	6.0/15.1
18	LL (L/360)			51	56	91	97	107	172			
	TL (L/240)			73	79	132	141	155	252	252	351	775
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.4	3.6/8.9	5.9/14.0
19	LL (L/360)				47	78	83	91	147			
	TL (L/240)				67	112	119	131	214	216	302	670
	BEARING				1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.9	2.3/5.7	3.2/8.1	5.9/14.7
20	LL (L/360)					67	71	78	127			
	TL (L/240)					95	102	112	184	186	261	583
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	2.9/7.3	5.7/14.4
21	LL (L/360)					58	62	68	110			
	TL (L/240)					82	88	97	159	162	227	510
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.7/6.7	5.5/13.7
22	LL (L/360)					51	54	59	96			
	TL (L/240)					71	76	84	138	142	199	448
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.4/6.1	5.2/13.0
23	LL (L/360)							52	84			
	TL (L/240)							73	120	124	175	396
	BEARING							1.5/3.5	1.5/3.5	1.6/3.9	2.2/5.6	5.0/12.4
24	LL (L/360)								74			
	TL (L/240)								105	110	155	351
	BEARING								1.5/3.5	1.5/3.6	2.0/5.1	4.7/11.8
25	LL (L/360)								66			
	TL (L/240)								93	98	138	313
	BEARING								1.5/3.5	1.5/3.5	1.9/4.7	4.4/10.9
26	LL (L/360)								59			
	TL (L/240)								82	87	123	280
	BEARING								1.5/3.5	1.5/3.5	1.7/4.4	4.1/10.2
27	LL (L/360)								53			
	TL (L/240)								73	78	110	252
	BEARING								1.5/3.5	1.5/3.5	1.6/4.0	3.8/9.4
28	LL (L/360)								47			
	TL (L/240)								65	70	99	227
	BEARING								1.5/3.5	1.5/3.5	1.5/3.7	3.5/8.8
29	LL (L/360)									63		
	TL (L/240)									88	89	205
	BEARING									1.5/3.5	1.5/3.5	3.3/8.2
30	LL (L/360)									57		
	TL (L/240)									79	81	186
	BEARING									1.5/3.5	1.5/3.5	3.1/7.7
31	LL (L/360)									52		
	TL (L/240)									71	73	170
	BEARING									1.5/3.5	1.5/3.5	2.9/7.2
32	LL (L/360)									47		
	TL (L/240)									64	67	155
	BEARING									1.5/3.5	1.5/3.5	2.7/6.7

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18", and 24" beam depths are to be used in multiple member units only.

Roof Snow 115% – 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/240)	412	890							2569	3105	5325
	TL (L/180)	547	893	1204	1245	1551	1598	1668	2102	5.9/14.7	7.1/17.7	12.2/30.4
	BEARING	1.5/3.5	2.0/5.1	2.8/6.9	2.8/7.1	3.5/8.9	3.7/9.1	3.8/9.5	4.8/12.0			
7	LL (L/240)	265	582							2039	2428	3921
	TL (L/180)	351	745	994	1027	1268	1304	1359	1692	5.4/13.6	6.5/16.2	10.5/26.1
	BEARING	1.5/3.5	2.0/5.0	2.7/6.6	2.7/6.8	3.4/8.5	3.5/8.7	3.6/9.1	4.5/11.3			
8	LL (L/240)	180	399	789	849					1691	1993	3102
	TL (L/180)	238	529	847	874	1072	1102	1147	1415	5.2/12.9	6.1/15.2	9.5/23.6
	BEARING	1.5/3.5	1.6/4.0	2.6/6.5	2.7/6.7	3.3/8.2	3.4/8.4	3.5/8.7	4.3/10.8			
9	LL (L/240)	128	285	569	613					1443	1690	2565
	TL (L/180)	168	377	730	760	929	954	991	1215	4.9/12.4	5.8/14.5	8.8/22.0
	BEARING	1.5/3.5	1.5/3.5	2.5/6.3	2.6/6.5	3.2/8.0	3.3/8.2	3.4/8.5	4.2/10.4			
10	LL (L/240)	94	210	423	456	732	777	849		1259	1466	2186
	TL (L/180)	123	277	590	604	819	840	873	1065	4.8/12.0	5.6/14.0	8.3/20.8
	BEARING	1.5/3.5	1.5/3.5	2.1/5.3	2.3/5.8	2.3/5.8	3.2/8.0	3.3/8.3	4.1/10.1			
11	LL (L/240)		160	323	348	561	597	653		1116	1295	1905
	TL (L/180)		210	426	460	703	732	778	948	4.7/11.7	5.4/13.6	8.0/20.0
	BEARING		1.5/3.5	1.8/4.5	1.9/4.8	2.9/7.4	3.1/7.7	3.3/8.2	4.0/9.9			
12	LL (L/240)		124	251	271	439	468	512	809	1002	1159	1687
	TL (L/180)		162	331	357	581	615	653	854	4.6/11.5	5.3/13.2	7.7/19.3
	BEARING		1.5/3.5	1.5/3.8	1.6/4.1	2.7/6.6	2.8/7.0	3.0/7.5	3.9/9.8			
13	LL (L/240)		98	199	215	350	373	408	648	909	1049	1514
	TL (L/180)		127	262	283	462	492	539	756	4.5/11.3	5.2/13.0	7.5/18.7
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.3/5.7	2.4/6.1	2.7/6.7	3.7/9.4			
14	LL (L/240)		79	161	174	283	302	331	527	764		
	TL (L/180)		102	210	227	373	397	435	651	832	958	1373
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.0	2.1/5.3	2.3/5.8	3.5/8.7	4.4/11.1	5.1/12.8	7.3/18.3
15	LL (L/240)			131	142	232	247	271	434	631	874	
	TL (L/180)			171	185	304	325	356	566	727	881	1255
	BEARING			1.5/3.5	1.5/3.5	1.7/4.3	1.9/4.6	2.0/5.1	3.2/8.1	4.2/10.4	5.0/12.6	7.2/17.9
16	LL (L/240)			109	118	193	205	225	361	527	732	
	TL (L/180)			141	153	252	269	295	475	638	795	1156
	BEARING			1.5/3.5	1.5/3.5	1.5/3.8	1.6/4.1	1.8/4.5	2.9/7.2	3.9/9.7	4.8/12.1	7.0/17.6
17	LL (L/240)			91	99	162	172	189	304	444	618	
	TL (L/180)			117	127	210	224	247	399	564	704	1072
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.5	3.7/9.1	4.6/11.4	6.9/17.4
18	LL (L/240)			77	83	137	146	160	258	378	527	
	TL (L/180)			99	107	177	189	208	337	497	627	999
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	2.3/5.8	3.4/8.5	4.3/10.7	6.9/17.1
19	LL (L/240)				71	117	124	137	221	324	453	
	TL (L/180)				90	151	161	177	288	425	562	935
	BEARING				1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	3.1/7.7	4.1/10.2	6.8/16.9
20	LL (L/240)					100	107	118	190	280	391	
	TL (L/180)					129	138	152	247	366	506	868
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.8/7.0	3.9/9.6	6.6/16.5
21	LL (L/240)					87	93	102	165	243	341	764
	TL (L/180)					111	119	131	214	317	446	787
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.3	3.6/8.9	6.3/15.7
22	LL (L/240)					76	81	89	144	212	298	672
	TL (L/180)					96	103	113	186	276	390	716
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.6/3.9	2.3/5.8	3.3/8.2	6.0/15.0
23	LL (L/240)							78	127	187	262	594
	TL (L/180)							99	162	242	342	654
	BEARING							1.5/3.5	1.5/3.7	2.1/5.3	3.0/7.5	5.7/14.3
24	LL (L/240)								112	165	232	527
	TL (L/180)								143	213	301	600
	BEARING								1.5/3.5	1.9/4.9	2.8/6.9	5.5/13.7
25	LL (L/240)								99	147	206	470
	TL (L/180)								126	188	267	552
	BEARING								1.5/3.5	1.8/4.5	2.5/6.4	5.3/13.1
26	LL (L/240)								88	131	184	421
	TL (L/180)								111	167	237	509
	BEARING								1.5/3.5	1.7/4.1	2.3/5.9	5.0/12.6
27	LL (L/240)								79	117	165	378
	TL (L/180)								99	149	212	472
	BEARING								1.5/3.5	1.5/3.8	2.2/5.5	4.9/12.1
28	LL (L/240)								71	105	148	341
	TL (L/180)								88	133	190	438
	BEARING								1.5/3.5	1.5/3.5	2.0/5.1	4.7/11.7
29	LL (L/240)									95	134	3.8
	TL (L/180)									119	171	400
	BEARING									1.5/3.5	1.9/4.7	4.4/11.0
30	LL (L/240)									86	121	280
	TL (L/180)									107	154	362
	BEARING									1.5/3.5	1.8/4.4	4.1/10.3
31	LL (L/240)									78	110	254
	TL (L/180)									97	139	328
	BEARING									1.5/3.5	1.6/4.1	3.9/9.7
32	LL (L/240)									71	100	232
	TL (L/180)									88	126	299
	BEARING									1.5/3.5	1.5/3.8	3.6/9.1

BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18" and 24" beam depths are to be used in multiple member units only.

Roof Non-Snow 125% - 1¾" Width

Span(ft)	Condition	5½"	7¼"	9¼"	9½"	11¼"	11½"	11¾"	14"	16"	18"	24"
6	LL (L/240)	412	890							2793	3375	5789
	TL (L/180)	547	971	1309	1354	1687	1737	1814	2286			
	BEARING	1.5/3.5	2.2/5.5	3.0/7.5	3.1/7.7	3.9/9.6	4.0/9.9	4.1/10.4	5.2/13.1	6.4/16.0	7.7/19.3	13.2/33.1
7	LL (L/240)	265	582							2217	2640	4263
	TL (L/180)	351	772	1081	1117	1379	1418	1478	1839			
	BEARING	1.5/3.5	2.1/5.1	2.9/7.2	3.0/7.4	3.7/9.2	3.8/9.5	3.9/9.9	4.9/12.3	5.9/14.8	7.0/17.6	11.4/28.4
8	LL (L/240)	180	399	789	849					1838	2167	3373
	TL (L/180)	238	529	921	950	1166	1198	1247	1538			
	BEARING	1.5/3.5	1.6/4.0	2.8/7.0	2.9/7.2	3.6/8.9	3.7/9.1	3.8/9.5	4.7/11.7	5.6/14.0	6.6/16.5	10.3/25.7
9	LL (L/240)	128	285	569	613	977	1032			1570	1837	2789
	TL (L/180)	168	377	755	813	1010	1037	1078	1322			
	BEARING	1.5/3.5	1.5/3.5	2.6/6.5	2.8/7.0	3.5/8.7	3.6/8.9	3.7/9.2	4.5/11.3	5.4/13.5	6.3/15.7	9.6/23.9
10	LL (L/240)	94	210	423	456	732	777	849		1369	1595	2377
	TL (L/180)	123	277	560	604	891	914	949	1158			
	BEARING	1.5/3.5	1.5/3.5	2.1/5.3	2.1/5.3	3.4/8.5	3.5/8.7	3.6/9.0	4.4/11.0	5.2/13.0	6.1/15.2	9.1/22.6
11	LL (L/240)		160	323	348	561	597	653	1025			
	TL (L/180)		210	426	460	743	791	846	1031	1214	1408	2071
	BEARING		1.5/3.5	1.8/4.5	1.9/4.8	3.1/7.8	3.3/8.3	3.5/8.9	4.3/10.8	5.1/12.7	5.9/14.8	8.7/21.7
12	LL (L/240)		124	251	271	439	468	512	809			
	TL (L/180)		162	331	357	581	618	677	929	1090	1261	1835
	BEARING		1.5/3.5	1.5/3.8	1.6/4.1	2.7/6.6	2.8/7.1	3.1/7.7	4.2/10.6	5.0/12.5	5.8/14.4	8.4/21.0
13	LL (L/240)		98	199	215	350	373	408	648			
	TL (L/180)		127	262	283	462	492	539	822	936	1141	1646
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.3/5.7	2.4/6.1	2.7/6.7	4.1/10.2	4.9/12.2	5.7/14.1	8.2/20.4
14	LL (L/240)		79	161	174	283	302	331	527			
	TL (L/180)		102	210	227	373	397	435	697	764	1042	1493
	BEARING		1.5/3.5	1.5/3.5	1.5/3.5	2.0/5.0	2.1/5.3	2.3/5.8	3.7/9.3	4.8/12.1	5.6/13.9	8.0/19.9
15	LL (L/240)			131	142	232	247	271	434			
	TL (L/180)			171	185	304	325	356	572	631	874	1365
	BEARING			1.5/3.5	1.5/3.5	1.7/4.3	1.9/4.6	2.0/5.1	3.3/8.2	4.5/11.3	5.5/13.7	7.8/19.5
16	LL (L/240)			109	118	193	205	225	361			
	TL (L/180)			141	153	252	269	295	475	527	732	1258
	BEARING			1.5/3.5	1.5/3.5	1.5/3.8	1.6/4.1	1.8/4.5	2.9/7.2	4.2/10.6	5.3/13.2	7.7/19.2
17	LL (L/240)			91	99	162	172	189	304			
	TL (L/180)			117	127	210	224	247	399	444	618	1166
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	1.6/4.0	2.6/6.5	3.8/9.5	5.0/12.4	7.6/18.9
18	LL (L/240)			77	83	137	146	160	258			
	TL (L/180)			99	107	177	189	208	337	378	527	1087
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.6	2.3/5.8	3.4/8.5	4.7/11.7	7.5/18.6
19	LL (L/240)			71	117	124	137	177	288			
	TL (L/180)			90	151	161	177	288	425	324	453	1005
	BEARING			1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	2.1/5.2	3.1/7.7	4.3/10.8	7.4/18.4
20	LL (L/240)					100	107	118	190			
	TL (L/180)					129	138	152	247	280	391	874
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.9/4.7	2.8/7.0	3.9/9.8	7.2/18.0
21	LL (L/240)					87	93	102	165			
	TL (L/180)					111	119	131	214	243	341	764
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	2.5/6.3	3.6/8.9	6.8/17.1
22	LL (L/240)					76	81	89	144			
	TL (L/180)					96	103	113	186	212	298	642
	BEARING					1.5/3.5	1.5/3.5	1.5/3.5	1.6/3.9	2.3/5.8	3.3/8.2	6.5/16.3
23	LL (L/240)							78	127			
	TL (L/180)							99	162	187	262	594
	BEARING							1.5/3.5	1.5/3.5	2.1/5.3	3.0/7.5	6.5/15.6
24	LL (L/240)								112			
	TL (L/180)								143	165	232	527
	BEARING								1.5/3.5	1.9/4.9	2.8/6.9	6.0/14.9
25	LL (L/240)								99			
	TL (L/180)								126	147	206	470
	BEARING								1.5/3.5	1.8/4.5	2.5/6.4	5.7/14.3
26	LL (L/240)								88			
	TL (L/180)								111	131	184	421
	BEARING								1.5/3.5	1.7/4.1	2.3/5.9	5.4/13.6
27	LL (L/240)								79			
	TL (L/180)								99	117	165	378
	BEARING								1.5/3.5	1.5/3.8	2.2/5.5	5.1/12.7
28	LL (L/240)								71			
	TL (L/180)								88	105	148	341
	BEARING								1.5/3.5	1.5/3.5	2.0/5.1	4.7/11.8
29	LL (L/240)											
	TL (L/180)									95	134	308
	BEARING									1.5/3.7	1.9/4.7	4.4/11.0
30	LL (L/240)											
	TL (L/180)									86	121	280
	BEARING									1.5/3.5	1.8/4.4	4.1/10.3
31	LL (L/240)											
	TL (L/180)									78	110	254
	BEARING									1.5/3.5	1.6/4.1	3.9/9.7
32	LL (L/240)											
	TL (L/180)									71	100	232
	BEARING									1.5/3.5	1.5/3.8	3.6/9.1

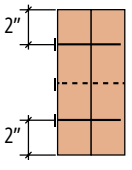
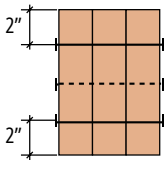
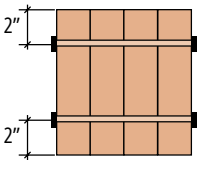
BEARING = Minimum End / Intermediate Bearing Length (inches)

* All 16", 18" and 24" beam depths are to be used in multiple member units only.

Multiple Member Connections For Side-Loaded Beams

Verify adequacy of beam in uniform load tables prior to using values listed below.

3000F_b 1.8E 1½" WEST FRASER™ LVL

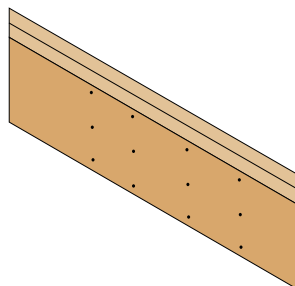
Maximum Uniform Load (PLF) Applied to Either Outside Member			 2-PLY LVL	 3-PLY LVL	 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
10d (3") Common Wire Nails	12" o.c.	2 Rows 3 Rows	414 633	315 476	Not Applicable
	6" o.c.	2 Rows 3 Rows	828 1266	629 952	Not Applicable
	4" o.c.	2 Rows 3 Rows	1241 1899	944 1428	Not Applicable
½" A307 Through Bolts	24" o.c.	2 Rows	351	264	234
	12" o.c.	2 Rows	703	527	469
	6" o.c.	2 Rows	1406	1054	937

* 4-ply beams should only be side-loaded when loads are applied to both sides of the member.

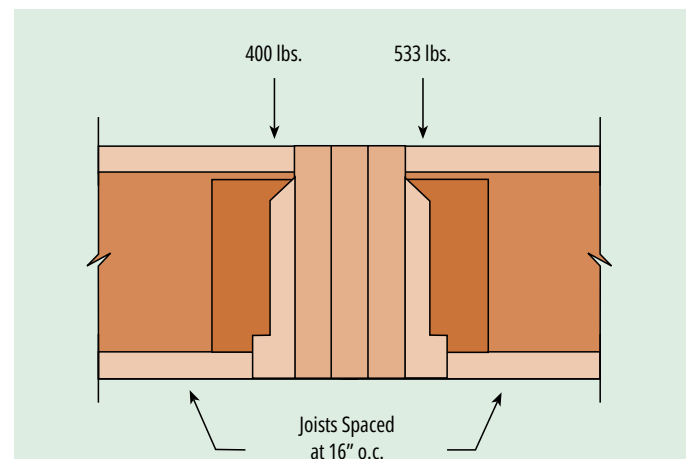
- Nails to be located a minimum of 2" from the top and bottom of the member with a minimum spacing of 2" between rows. Start all nails a minimum of 2½" in from ends.
- Bolts are to be material conforming to ANSI/ASME Standard B18.2.1-1981. Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut. Start all bolts a minimum of 2½" in from ends.
- Verify adequacy of beam in uniform load tables (pages 18-19).
- Values listed are for 100% stress level. Increase 15% for snow loaded roof conditions or 25% for non-snow roof conditions, where code allows.

Connection of Multiple Pieces for Top-Loading beams

1.8E (1½" wide pieces)



- Minimum of 2 rows of 10d (3") nails at 12" o.c. for depths up to and including 11⅞"
- Minimum of 3 rows of 10d (3") nails at 12" o.c. for depths greater than 11⅞"



Example

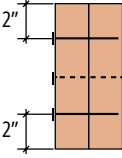
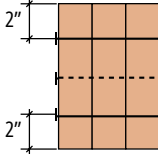
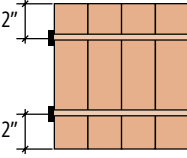
First, convert joist reactions to plf load on each side of the beam by taking the joist reactions (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check allowable load tables to verify that 3 pieces can carry the total load of 700 plf. The maximum load applied to either outside member is 400 plf.

For a 3-piece 1½" multiple assembly, 2 rows of 10d (3") common wire nails at 12" o.c. is good for only 315 plf. Therefore, use 3 rows of 10d (3") common wirenails (good for 476 plf). Alternate: 2 rows of ½" bolts at 12" o.c.

Multiple Member Connections For Side-Loaded Beams

Verify adequacy of beam in uniform load tables prior to using values listed below.

3000F_b 1.8E 1¾" WEST FRASER™ LVL

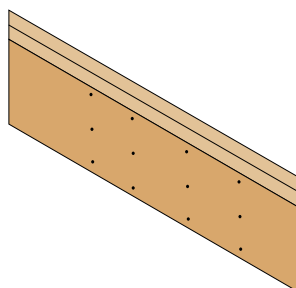
Maximum Uniform Load (PLF) Applied to Either Outside Member			 2-PLY LVL	 3-PLY LVL	 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
16d (3½") Common Wire Nails	12" o.c.	2 Rows 3 Rows	500 765	380 575	Not Applicable
	6" o.c.	2 Rows 3 Rows	1000 1530	760 1150	Not Applicable
	4" o.c.	2 Rows 3 Rows	1500 2295	1140 1725	Not Applicable
½" A307 Through Bolts	24" o.c.	2 Rows	410	308	273
	12" o.c.	2 Rows	820	615	547
	6" o.c.	2 Rows	1640	1230	1093

* 4-ply beams should only be side-loaded when loads are applied to both sides of the member.

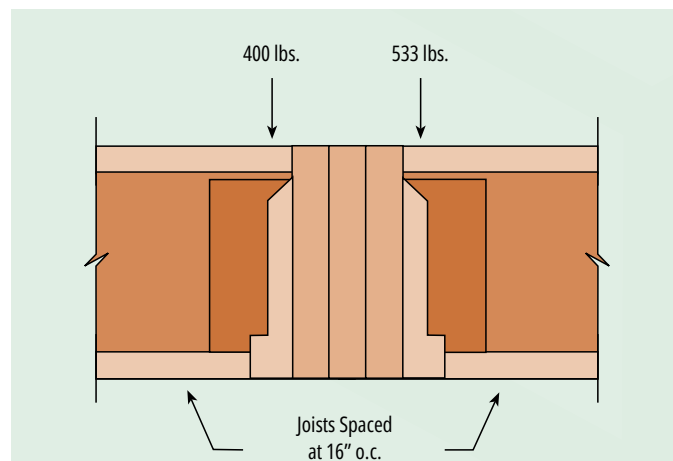
1. Nails to be located a minimum of 2" from the top and bottom of the member with a minimum spacing of 2" between rows. Start all nails a minimum of 2½" in from ends.
2. Bolts are to be material conforming to ANSI/ASME Standard B18.2.1-1981. Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut. Start all bolts a minimum of 2½" in from ends.
3. Verify adequacy of beam in uniform load tables (pages 20-22).
4. Values listed are for 100% stress level. Increase 15% for snow loaded roof conditions or 25% for non-snow roof conditions, where code allows.

Connection of Multiple Pieces for Top-Loading beams

1.8E (1¾" wide pieces)



- Minimum of 2 rows of 16d (3½") nails at 12" o.c. for 5½" through 11⅞" beams
- Minimum of 3 rows of 16d (3½") nails at 12" o.c. for 14", 16", 18" and 24" beams



Example

First, convert joist reactions to plf load on each side of the beam by taking the joist reactions (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check allowable load tables to verify that 3 pieces can carry the total load of 700 plf. The maximum load applied to either outside member is 400 plf.

For a 3-piece 1¾" multiple assembly, 2 rows of 16d (3½") common wire nails at 12" o.c. is good for only 380 plf. Therefore, use 3 rows of 16d (3½") common wirenails (good for 575 plf). Alternate: 2 rows of ½" bolts at 12" o.c.

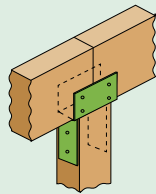
Columns: 3000f_b 1.8E

Allowable Axial Loads (LBS)

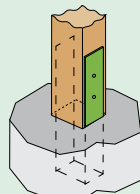
1. Loads are based on the allowable crushing of the LVL material, i.e., steel bearing connections.

Column Length (ft)	3½" x 3½"			3½" x 4¾"			3½" x 5½"			3½" x 7¼"			3½" x 8½"		
	100%	115%	125%	100%	115%	125%	100%	115%	125%	100%	115%	125%	100%	115%	125%
3	12091	13622	14602	15343	17334	18620	19443	21984	23639	25705	29105	31313	30550	34625	37251
4	10866	12042	12777	13965	15542	16522	17826	19866	21137	23675	26441	28141	28195	31516	33569
5	9482	10315	10817	12327	13460	14133	15824	17287	18172	21112	23091	24259	25176	27561	28980
6	8097	8673	9016	10612	11393	11852	13668	14669	15265	18245	19590	20376	21795	23395	24331
7	6872	7289	7522	9050	9601	9923	11646	12359	12763	15555	16494	17052	18596	19712	20346
8	5856	6162	6333	7718	8116	8345	9933	10453	10742	13271	13931	14337	15848	16633	17086
9	5023	5243	5378	6630	6921	7090	8528	8894	9105	11368	11850	12129	13554	14158	14490
10	4337	4520	4618	5727	5957	6079	7354	7642	7796	9795	10175	10378	11683	12135	12377
12	3320	3430	3491	4379	4517	4594	5602	5775	5871	7460	7663	7790	8875	9147	9298
14	2609	2683	2720	3430	3522	3568	4389	4485	4562	5811	5963	6039	6943	7094	7185

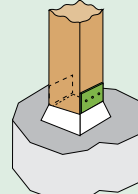
Column Details



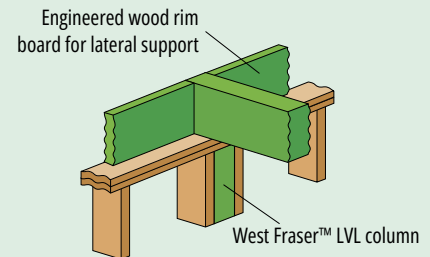
BEAM ON COLUMN CAP



COLUMN BASE



ELEVATED COLUMN BASE



BEAM ON COLUMN

Allowable Axial Loads (LBS) - Wood Plate Bearing Connections (F_{c⊥} = 400 PSI)

Column Length (ft)	3½" x 3½"			3½" x 4¾"			3½" x 5½"			3½" x 7¼"			3½" x 8½"		
	100%	115%	125%	100%	115%	125%	100%	115%	125%	100%	115%	125%	100%	115%	125%
3-7	5425	5425	5425	6650	6650	6650	8225	8225	8225	10675	10675	10675	12600	12600	12600
8	5425	5425	5425	6650	6650	6650	8225	8225	8225	10675	10675	10675	12600	12600	12600
9	5023	5243	5378	6630	6650	6650	8225	8225	8225	10675	10675	10675	12600	12600	12600
10	4337	4520	4618	5727	5957	6079	7354	7642	7796	9795	10175	10378	11683	12135	12377
12	3320	3530	3491	4379	4517	4594	5602	5775	5871	7460	7663	7790	8875	9147	9298
14	2609	2683	2720	3430	3522	3568	4389	4485	4562	5811	5963	6039	6943	7094	7185

General Notes:

- Tables apply to solid, one -piece members only.
- Column members to be used in dry service conditions only
- Tables include an eccentricity equal to 1/6 of the larger column dimension (thickness or width).
- Loads are based on simple axial loaded columns. For side loads or other combined bending and axial loads, see the provisions of NDS, 2005 Edition.
- Tables assume that columns are unbraced, except at column ends.
- Column length is the distance between the centers of the restraining members.

2750F_b 1.7E WEST FRASER™ LVL

1³/₄" THICK HEADER & BEAMS

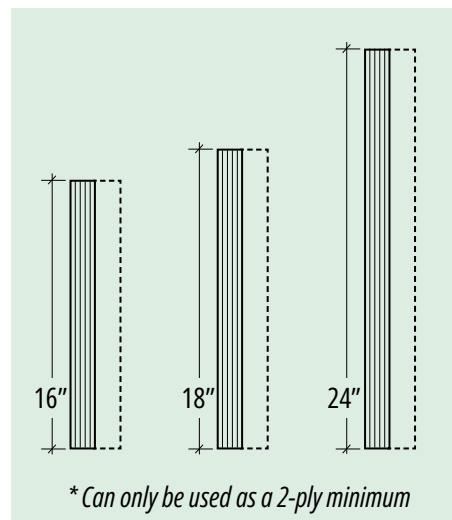
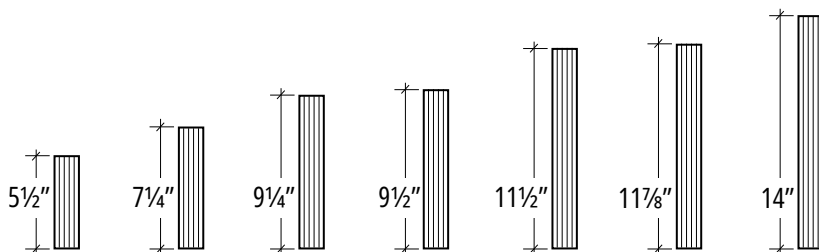
Design Properties

2750F_b 1.7E 1³/₄" WEST FRASER™ LVL Allowable design values

Design Property	Depth									
	5½"	7¼"	9¼"	9½"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	2205	3716	5887	6191	8882	9436	12878	16573	20702	35646
Shear (lbs.)	1861	2453	3130	3214	3891	4018	4737	5413	6090	8120
Moment of Inertia (in ⁴)	24	56	115	125	222	244	400	597	851	2016
Weight (lbs./lin. Ft.)	2.5	3.3	4.2	4.3	5.2	5.3	6.3	7.2	8.1	10.8

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. All 16", 18" and 24" beam depths are to be used in multiple member units only.
4. Values are based on 100% load duration.

2750F_b 1.7E 1³/₄" WEST FRASER™ LVL Available sizes





3½" THICK HEADER & BEAMS

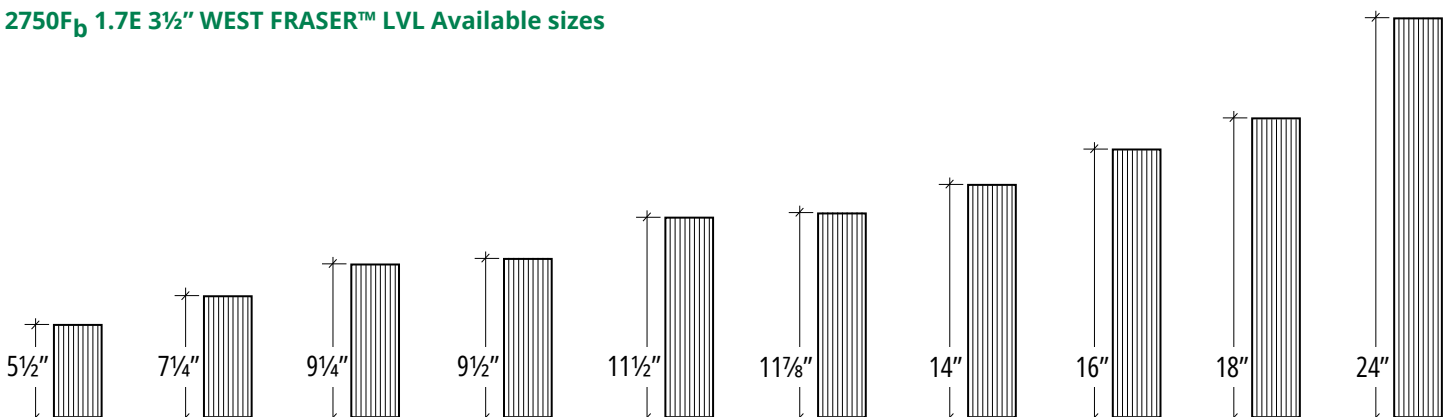
Design Properties

2750F_b 1.7E 3½" WEST FRASER™ LVL Allowable design values

Design Property	Depth									
	5½"	7¼"	9¼"	9½"	11½"	11⅞"	14"	16"	18"	24"
Moment (ft. lbs.)	4410	7431	11774	12382	17763	18873	25756	33146	41405	71292
Shear (lbs.)	3722	4906	6259	6428	7782	8035	9473	10827	12180	16240
Moment of Inertia (in ⁴)	49	112	231	250	444	488	800	1195	1701	4032
Weight (lbs./lin. Ft.)	4.9	6.5	8.3	8.5	10.3	10.7	12.6	14.4	16.2	21.6

1. Lateral support of beam compression edge is required at intervals of 24" o/c or closer.
2. Lateral support of beam is required at bearing locations.
3. Values are based on 100% load duration.

2750F_b 1.7E 3½" WEST FRASER™ LVL Available sizes

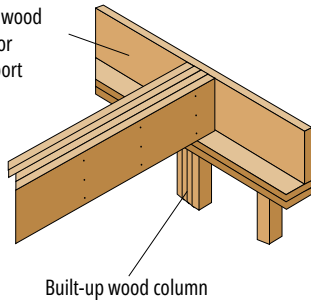


MISC DETAILS & SOFTWARE INFORMATION

Bearing Details

B1 BEARING AT WALL

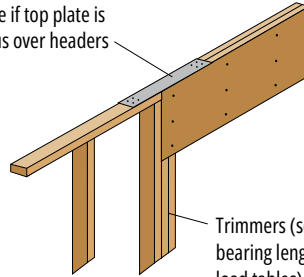
Engineered wood rim board for lateral support



Built-up wood column

B2 BEARING FOR DOOR OR WINDOW HEADER

Strap per code if top plate is not continuous over headers

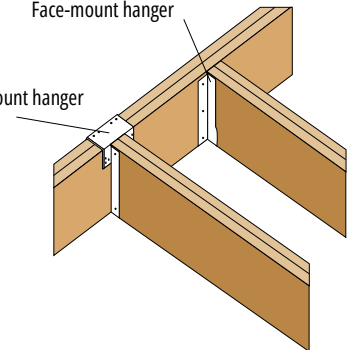


Trimmers (see minimum bearing lengths from uniform load tables)

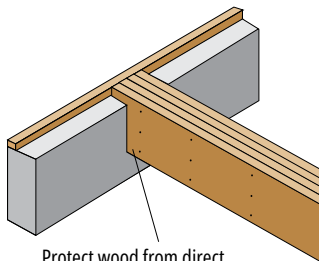
B3 BEAM-TO-BEAM CONNECTION

Face-mount hanger

Top-mount hanger



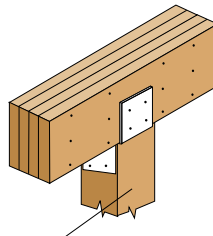
B4 BEARING AT CONCRETE WALL



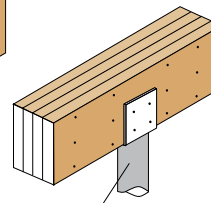
Protect wood from direct contact with concrete

B5 BEARING AT WOOD OR STEEL COLUMN

Verify column capacity and bearing length.



Wood column with column cap



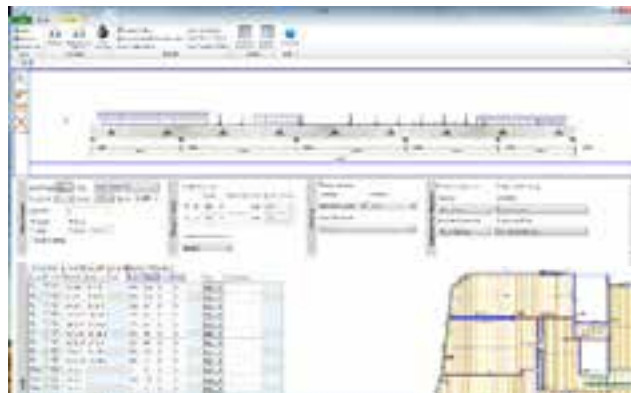
Steel column with column cap

Bearing length is extremely critical and must be considered for each application.

Multiple pieces of West Fraser™ LVL can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 5 inches for 1¼" wide pieces and 7 inches for 1¾" wide pieces. See pages 10, 15, 25 and 26 for details.

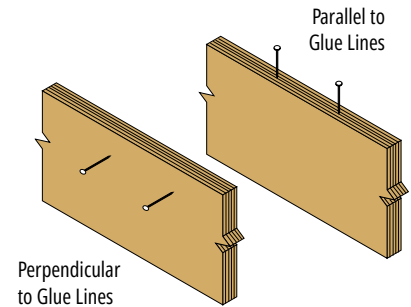
Our Software

West Fraser provides its LVL customers with quality design software. Using the latest technology it's fast and reliable, providing you with an easy to understand output. Our software will enhance your in-house design capabilities and productivity.



Minimum Nail Spacing

Connector	Nailing Parallel to Glue Line	Nailing Perpendicular to Glue Line
8d Box	3"	2"
8d Common	3"	2"
10d and 12d Box	4"	2"
10d and 12d Common	4"	3"
16d Common	8"*	3"



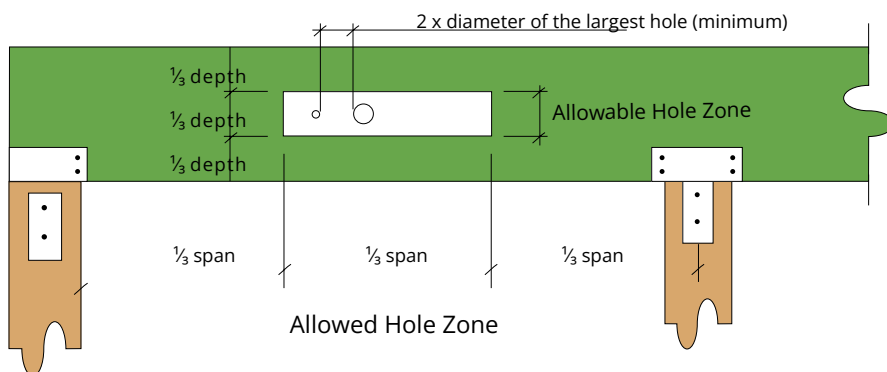
Our Weather Resistant Coating



Photo shows example of the beading that occurs because of our coating process.

One of the inherent problems with LVL is its inability to resist the effects of moisture. West Fraser addresses this problem by coating all our LVL beams and headers with a protective sealer. This sealer gives our LVL superior resistance to warping, cupping, and swelling compared to other unprotected competitive products. While this coating is not intended to provide long-term protection, it does improve protection against the moisture associated with the construction process.

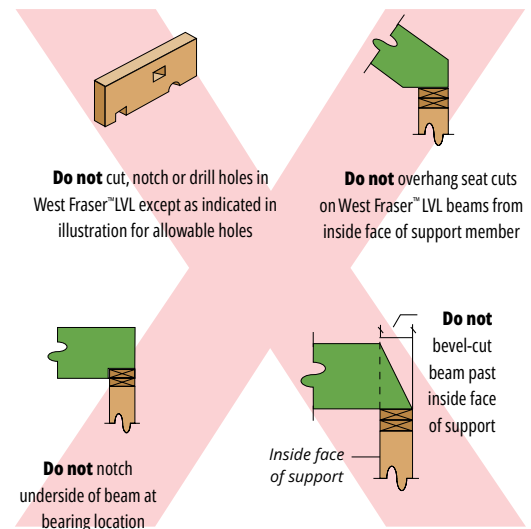
Allowable Holes



General Notes:

The Allowed Hole Zone in this chart is suitable for **Uniformly loaded beams** using maximum loads for any tables listed. For other load conditions or hole configurations, please contact West Fraser.

If more than one hole is to be cut in the beam, the length of the uncut beam between holes must be a minimum of twice the diameter of the largest hole.



Rectangular holes are not allowed. Holes in cantilevers require additional analysis.

For beam depths of 3½", 5½" and 7¼", the maximum hole diameter is ¾", 1⅛" and 1½" respectively. For deeper beams, the maximum hole diameter is 2".

The maximum number of holes for each span is limited to 3.



West FraserTM LVL

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WWW.WESTFRASER.COM/LVL



UNITED STATES EDITION

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