

Uest Fraser LVL

LVL User's Guide Technical Data for LVL Headers, Beams, Column Applications for Residential Floor and Roof Systems



CANADIAN VERSION

Quality Products – Committed Service

OUR HISTORY

In 1955, three Ketcham brothers, Henry Jr., William, and Samuel, started West Fraser by acquiring a small lumber planing mill in Quesnel, BC. Throughout the years, they continued to make various sawmill acquisitions in the interior of British Columbia, which included the associated timber rights. In 1979, West Fraser entered the pulp industry, constructing a joint venture mill in Quesnel. West Fraser's expansion continued into Alberta in 1989 when they entered into a joint venture newsprint mill in Whitecourt. the Company's growth continued in Alberta with the acquisition of a sawmill, MDF plant, and pulp mill in 1995 and a plywood mill, stud mill and veneer mill in 1999. In 2000, West Fraser entered the United States by

OUR ENVIRONMENTAL STEWARDSHIP

West Fraser Timber Co. Ltd. is committed to responsible stewardship of the environment. A philosophy of continual improvement of our forest practices and manufacturing procedures has been adopted to optimize the use of resources and minimize or eliminate the impact of our operations on the environment.

West Fraser recognizes that environmental excellence is an integral aspect of long-term business success. Our Company and its employees are committed to the following:

• Complying with all applicable environmental laws and regulations, and with other requirements to which the organization subscribes.

acquiring two sawmills in the U.S. south. A major acquisition occurred in 2005 with the purchase of Weldwood of Canada. With this purchase, West Fraser entered the engineered wood business by acquiring the world's first continuous laminated veneer lumber press.

West Fraser expanded further in 2007 when the Company acquired 13 additional sawmills in the southern U.S. from International Paper Co. This added 1.8 billion board feet of lumber capacity to West Fraser for a total capacity of more than 6 billion board feet, making West Fraser one of the largest lumber producers in North America.

- Preventing pollution and continuing to improve our environmental performance by setting and reviewing environmental objectives and targets.
- Conducting periodic environmental audits.
- Providing training for employees and contractors to ensure environmentally responsible work practices.
- Communicating our environmental performance to employees, customers, shareholders, local communities and other stakeholders.
- Reviewing, on a regular basis, this policy to ensure that it reflects the Company's ongoing commitment to environmental stewardship.

OUR VISION

West Fraser's vision is to be the leading forest products company in Canada. Our goals are simple – leadership in profits, responsibility in communities, excellence in people and strength in products.

Mestfraser LVL 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 ($F_{C\perp}$).

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





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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

- 1³/₄" and 3¹/₂" 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". (1¾" and 3½" to 24"), 3½" thick in columns

West Fraser[™] LVL 2750F_b-1.7E

 1³/₄" and 3¹/₂" 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: CCMC 12904-R Check product availability with supplier prior to specifying LVL sizes.

STORAGE, HANDLING AND 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.
- Stickers to be aligned one above the other and spaced no more than 8'-0" apart.
- Do not exceed a storage bundle height of 10'-0".
- Keep the material above ground to minimize the absorption of ground moisture and allow circulation of air.
- Report all forklift damage prior to shipment.

- 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.
- Place first set of stickers on hard, level dry surface.
- Do not install any damaged LVL.

CAUTION: Wrap may be slippery when wet



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

West Fraser LVL 3100Fb - 2.0E LVL



Uest Fraser LVL

3100Fb – **2.0E** $1^{3}/_{4}^{"}$ and $3^{1}/_{2}^{"}$ THICK HEADERS AND BEAMS

DESIGN PROPERTIES

3100Fb-2.0E 1¾" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property					De	pth				
Design roperty	51⁄2"	71⁄4"	91⁄4"	91⁄2"	111⁄2"	117⁄8"	14"	16"	18"	24"
Moment (ft.lbs.)	4134	6967	11037	11608	16652	17693	24146	31073	38816	66835
Shear (lbs.)	3199	4217	5381	5526	6690	6908	8144	9307	10471	13961
Moment of Inertia (in^4)	24	56	115	125	222	244	400	597	851	2016
Weight (lbs./lin.ft.)	2.7	3.6	4.6	4.7	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" and greater beam depths are to be used in multiple member units only.

3100F_b-2.0E 3½" WEST FRASER[™] LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property	Depth											
Design roperty	51⁄2"	71⁄4"	91⁄4"	91⁄2"	111⁄2"	117⁄8"	14"	16"	18"	24"		
Moment (ft.lbs.)	8269	13933	22075	23215	33305	35386	48292	62146	77631	133669		
Shear (lbs.)	6398	8434	10762	11052	13380	13816	16288	18614	20942	27922		
Moment of Inertia (in^4)	49	111	231	250	444	488	800	1195	1701	4032		
Weight (lbs./lin.ft.)	5.5	7.2	9.2	9.5	11.5	11.8	14.0	15.9	17.9	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.

3100Fb - 2.0E 1¾" AND 3½" WEST FRASER™ LVL AVAILABLE SIZES



3100Fb -2.0E WEST FRASER™ LVL SPECIFIED STRENGTHS (STANDARD TERM)

Modulus of Elasticity	E = 2.0 x 10^6 psi
Bending Stress	F _b = 5729 psi
Shear (joist)	F _V = 554 psi
Compression Perpendicular to Grain (joist)	F _{c(perp)} = 1300 psi
Compression Parallel to Grain	F _{c(para)} = 4786 psi

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

GENERAL NOTES

- Tables are for one-ply 1³/₄" 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.
- Resistances shown are the maximum factored and/or unfactored resistances, in pounds per lineal foot, 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 and dry-use conditions. Refer to West Fraser's 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.
- Spans of multiple spans must be at least 40% of adjacent span.
- 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" and deeper beams are to be used in multiple member units only.
- Unfactored total load resistance is limited to a deflection of L/240. Unfactored live load resistance is based on a deflection of L/360. Check local code requirements for other deflection criteria.
- For an unfactored live load deflection limit of L/480, multiply UNFACTORED LOAD L/360 resistance by 0.75. The resulting unfactored live load shall not exceed the total factored load shown.
- Roof must have positive slope in order to prevent ponding.
- Tables will accommodate beam slopes to a maximum of 2:12.
- Bearing lengths are based on 1300 psi specified strength for 3100Fb-2.0E Grade materials which cannot be increased for duration of load. Bearing length may need to be increased if support member's allowable bearing stress is less.
- Spans shown are measured centre-to-centre of bearing.

INSTRUCTIONS FOR USE

- 1. Determine the factored total load and unfactored total and live load on the beam in pounds per lineal foot (plf).
- 2. Locate a span that meets or exceeds the required beam span, centre-to-centre of bearing.
- Scan from left to right within the SPAN row until you find a cell where;
 (1) the UNFACTORED LOAD L/360 resistance meets or exceeds the unfactored live load, (2) the UNFACTORED LOAD L/240 resistance

meets or exceeds the unfactored total load and (3) the FACTORED TOTAL LOAD resistance meets or exceeds the factored total load. All three rows must be checked and satisfied. Where no unfactored resistances are shown, factored total load will control.

4. To size a member for a span not shown, use capacities for the next larger span shown.

FACTORED RESISTANCE TABLE (POUNDS PER LINEAL FOOT)

	West Fraser [™] LVL — FLOOR					13⁄4″	NIDTH				
Span (ft)	Depth	5-1/2"	7-1/4"	9-1/4"	9-1/2"	11-1/2"	11-7/8"	14"	16"	18"	24"
	Unfactored Load (LL) L/360	305	660	1263	1353	2186	2363				
6	Unfactored Load (TL) L/240	455	986	4000	4062	2204	2406	24.45	20.42	46.45	700
0	Factored Total Load	916	1337	1802	1863	2391	2496	3145	3843		796
	Min. End / Int. Bearing (in)	1.5/3.8 197	2.5/6.4 431	3.5/8.7 840	3.6/9.0 903	4.6/11.5 1488	4.8/12.0 1614	6.1/15.1 2423	7.4/18.5	8.9/22.4	15.3/3
	Unfactored Load (LL) L/360 Unfactored Load (TL) L/240	292	643	1256	1349	1400	1014	2425			
7	Factored Total Load	672	1115	1488	1537	1952	2035	2531	3052	3633	586
	Min. End / Int. Bearing (in)	1.5/3.5	2.2/5.5	3.3/8.4	3.5/8.6	4.4/11.0	4.6/11.4	5.7/14.2	6.9/17.1	8.2/20.4	13.2/3
	Unfactored Load (LL) L/360	134	296	585	629	1052	1144	1746	2423		
8	Unfactored Load (TL) L/240	198	440	872	939	1572	1711			4645 8.9/22.4 3633 8.2/20.4 2983 7.7/19.1 2423 2529 7.3/18.3 1873 2195 7.0/17.6 1473 1939 6.8/17.1 1176 1736 6.7/16.7 952 1419 15.716.3 781 1162 1435 6.1/15.1 647 962 1321 5.6/14.1 542 804 1204 5.3/13.2 458 678 1066 5.0/12.4 300 5.77 949 4.7/11.7 335 4.851 4.4/11.1 220 633 3.8/9.6 194 <trr> 283</trr>	
0	Factored Total Load	514	867	1268	1308	1649	1717	2117	2530		464
	Min. End / Int. Bearing (in)	1.5/3.5	1.9/4.8	3.0/7.6	3.2/7.9	4.2/10.6	4.4/11.0	5.4/13.6	6.5/16.2		11.9/
	Unfactored Load (LL) L/360	95	211	422	454	768	837	1293	1816	2423	
9	Unfactored Load (TL) L/240	140 406	313 684	628 1086	677 1139	1146 1428	1250 1484	1820	2161	2520	383
	Factored Total Load	1.5/3.5	1.7/4.2	2.7/6.7	2.8/7.1	4.1/10.1	4.3/10.7	5.3/13.1	6.2/15.6		11.1/
	Min. End / Int. Bearing (in) Unfactored Load (LL) L/360	70	156	313	338	576	629	981	1390		11.17
	Unfactored Load (TL) L/240	102	230	465	502	858	938	1464	1550	1075	
10	Factored Total Load	328	554	878	924	1258	1307	1595	1885	2195	32
	Min. End / Int. Bearing (in)	1.5/3.5	1.5/3.8	2.4/6.0	2.5/6.3	3.6/9.1	3.9/9.7	5.1/12.8	6.1/15.1	7.0/17.6	10.5/
	Unfactored Load (LL) L/360		118	239	258	442	484	760	1085	1473	
11	Unfactored Load (TL) L/240		174	354	382	658	719	1132	1619		
	Factored Total Load		457	725	763	1095	1164	1420	1672		285
	Min. End / Int. Bearing (in)		1.5/3.5	2.2/5.5	2.3/5.8	3.3/8.3	3.5/8.8	4.8/12.0	5.9/14.8		10.1/
	Unfactored Load (LL) L/360		92 134	186 275	201 297	346 514	379 563	599 892	861 1283	11/6	242
12	Unfactored Load (TL) L/240		383	609	297 640	919	563 977	892 1279	1283	1736	252
	Factored Total Load Min. End / Int. Bearing (in)		1.5/3.5	2.0/5.0	2.1/5.3	3.0/7.6	3.2/8.1	4.4/11.0	5.7/14.2		9.7/2
	Unfactored Load (LL) L/360		73	148	160	276	302	480	694		199
42	Unfactored Load (TL) L/240		105	217	235	408	448	713	1032		
13	Factored Total Load		326	518	545	783	832	1136	1362	1571	226
	Min. End / Int. Bearing (in)		1.5/3.5	1.9/4.6	1.9/4.9	2.8/7.0	3.0/7.4	4.1/10.1	5.2/13.1		9.5/2
	Unfactored Load (LL) L/360		58	119	129	223	245	390	566		165
14	Unfactored Load (TL) L/240		84	174	188	329	361	579	841		201
	Factored Total Load		281 1.5/3.5	446	469 1.8/4.5	674 2.6/6.5	716 2.8/6.9	979	1247		205
	Min. End / Int. Bearing (in)		48	1.7/4.3 97	1.6/4.5	183	2.8/8.9	3.8/9.4 321	4.8/12.1 468		9.2/2
	Unfactored Load (LL) L/360		48 68	97 141	105	269	201	475	468 694		135
15	Unfactored Load (TL) L/240 Factored Total Load		244	388	408	586	623	852	1097		188
	Min. End / Int. Bearing (in)		1.5/3.5	1.6/4.0	1.7/4.2	2.4/6.0	2.6/6.4	3.5/8.8	4.5/11.3		9.1/2
	Unfactored Load (LL) L/360			81	87	152	167	268	390		11
40	Unfactored Load (TL) L/240			116	126	222	244	394	578	804	
16	Factored Total Load			340	358	515	547	748	963		173
	Min. End / Int. Bearing (in)			1.5/3.7	1.6/3.9	2.3/5.7	2.4/6.0	3.3/8.2	4.2/10.6		8.9/2
	Unfactored Load (LL) L/360			67	73	128	140	225	329		100
17	Unfactored Load (TL) L/240			97 301	105 317	186 455	204 484	331	486 852		149 160
	Factored Total Load			1.5/3.5	1.5/3.7	2.1/5.3	2.3/5.7	661 3.1/7.7	4.0/9.9		8.6/2
	Min. End / Int. Bearing (in) Unfactored Load (LL) L/360			57	62	108	119	191	280		86
	Unfactored Load (TL) L/240			81	88	156	172	279	412		127
18	Factored Total Load			268	282	405	431	589	759		149
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.5	2.0/5.0	2.1/5.3	2.9/7.3	3.8/9.4	4.7/11.7	8.1/2
	Unfactored Load (LL) L/360				53	92	101	163	240	335	74
19	Unfactored Load (TL) L/240				74	133	146	238	352		11(
19	Factored Total Load				253	363	386	528	681		14(
	Min. End / Int. Bearing (in)				1.5/3.5	1.9/4.7	2.0/5.0	2.8/6.9	3.6/8.9		7.7/1
	Unfactored Load (LL) L/360					79 112	87 125	141	207 303		64 95
20	Unfactored Load (TL) L/240					113 327	125 348	204 476	613		131
	Factored Total Load Min. End / Int. Bearing (in)					1.8/4.5	1.9/4.8	2.6/6.5	3.4/8.4	1736 6.7/16.7 952 1419 1571 6.5/16.3 781 1162 1435 6.1/15.1 647 962 1321 5.6/14.1 542 804 1204 5.3/13.2 458 678 1066 5.0/12.4 390 5.77 949 4.7/11.7 335 494 851 4.4/11.1 290 4.7/11.7 325 357 949 4.7/11.7 335 494 851 4.4/11.1 290 4.7/11.7 325 494 851 4.4/11.1 290 4.7/11.7 335 4.9/1 3.2/2 5.78 3.7/9.1 172 249 530 3.5/8.7	7.3/1
	Unfactored Load (LL) L/360	+				69	76	122	180		56
24	Unfactored Load (TL) L/240					97	107	176	262		83
21	Factored Total Load					296	315	431	556	695	120
	Min. End / Int. Bearing (in)					1.7/4.3	1.8/4.5	2.5/6.2	3.2/8.0	4.0/10.0	6.9/1
	Unfactored Load (LL) L/360					60	66	107	157		49
22	Unfactored Load (TL) L/240					84	93	153	228		73
	Factored Total Load					270	287	392	506		109
	Min. End / Int. Bearing (in)					1.6/4.1	1.7/4.3	2.4/5.9	3.1/7.6		6.6/1
	Unfactored Load (LL) L/360						58 81	94 134	138 200		44 64
23	Unfactored Load (TL) L/240 Factored Total Load						262	358	462		99
	Min. End / Int. Bearing (in)						1.7/4.1	2.3/5.7	2.9/7.3		6.3/1
	Unfactored Load (LL) L/360	+						83	122		39
24	Unfactored Load (TL) L/240							117	175		57
24	Factored Total Load							328	424	530	91
	Min. End / Int. Bearing (in)							2.2/5.4	2.8/7.0		6.0/1
	Unfactored Load (LL) L/360							65	97		31
26	Unfactored Load (TL) L/240							91	137		45
20	Factored Total Load							279	360		77
	Min. End / Int. Bearing (in)							2.0/5.0	2.6/6.4		5.6/1
	Unfactored Load (LL) L/360							53	78		25
28	Unfactored Load (TL) L/240							72	109		36
	Factored Total Load							239 1.8/4.6	309 2.4/5.9	387	67 5 2/1
	Min. End / Int. Bearing (in)							1.8/4.0		3.0/7.4 90	5.2/1
	Unfactored Load (LL) L/360								64 87	90 126	20 29
30	Unfactored Load (TL) L/240								268	336	58
	Factored Total Load	1							2.2/5.5	2.8/6.9	4.8/1

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

MULTIPLE MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS: 3100Fb - 2.0E

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

3100F_b-2.0E 1¾″ WEST FRASER[™] LVL

Unifor Appli	um Facto m Load (ed to Eit de Meml	PLF) her	2" 2" 2" 2" 2-PLY LVL	2" 2" 3-PLY LVL	2", 2", 4-PLY LVL*		
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only		
	12″ o.c.	2 Rows	885	663	NetApplicable		
	12 O.C.	3 Rows	1327	995	Not Applicable		
16d (3½") Common	6″ o.c.	2 Rows	1770	1326	Not Applicable		
Wire Nails	0 U.C.	3 Rows	2654	1990	Not Applicable		
	4″ o.c.	2 Rows	2655	1989	NetApplicable		
	4 O.C.	3 Rows	3981	2985	Not Applicable		
½″ A307	24″ o.c.	2 Rows	671	503	448		
Through	12″ o.c.	2 Rows	1342	1006	895		
Bolts	6″ o.c.	2 Rows	2684	2012	1790		

 * 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. Start all nails a minimum of 2½" in from ends. Bolts are to be material conforming to ASTM Standard A307. 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 21/2" in from ends.

3. Values listed are for standard term loading.

EXAMPLE (All loads shown are total factored)

First, convert joist reactions to plf load on each side of the beam by taking the joist reaction (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check factored resistance tables to verify that 3 plys can carry the total factored load of 700 plf. The maximum load applied to either outside member is 400 plf. Use 2 rows of 16d $(31/2^{"})$ common wire nails at 12" o.c. (good for 663 plf).



CONNECTION OF MULTIPLE PIECES FOR TOP-LOADED BEAMS

2.0E (1³/₄" wide pieces)

- Minimum of 2 rows of 16d (31/2") nails at 12" o.c. for 51/2" through 117/8" beams
- Minimum of 3 rows of 16d (31/2") nails at 12" o.c. for 14" through 24" beams



NOTES



Westfraser LVL 3000Fb - 1.9E LVL

LVL USER'S GUIDE

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LVL 3000Fb - 1.9E 1³/4" THICK HEADERS AND BEAMS

DESIGN PROPERTIES

3000Fb⁻1.9E 1¾″ WEST FRASER[™] LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property		Depth										
Design Hoperty	51⁄2"	71⁄4"	91⁄4"	91⁄2"	111/2"	117⁄8"	14"	16"	18"	24"		
Moment (ft.lbs.)	4079	6827	10751	11299	16132	17126	23277	29855	37184	63568		
Shear (lbs.)	3199	4217	5381	5526	6690	6908	8144	9307	10471	13961		
Moment of Inertia (in^4)	24	56	115	125	222	244	400	597	851	2016		
Weight (lbs./lin.ft.)	2.7	3.6	4.6	4.7	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" and greater beam depths are to be used in multiple member units only.

3000Fb - 1.9E 1¾″ WEST FRASER™ LVL AVAILABLE SIZES*



3000Fb - 1.9E WEST FRASER™ LVL SPECIFIED STRENGTHS (STANDARD TERM)

Modulus of Elasticity	E	=	1.9 x 10^6 psi
Bending Stress	Fb	=	5544 psi
Shear (joist)	Fv	=	554 psi
Compression Perpendicular to Grain (joist)	Fc(perp)	=	1300 psi
Compression Parallel to Grain	Fc(para)	=	4000 psi

1. Fb based on 12" depths. For other depths, multiply by (12/d)^(1/7.35).

2. Fc(perp) and E shall not be increased for duration of load.

FACTORED RESISTANCE TABLES

GENERAL NOTES

- Tables are for one-ply 1³/₄" 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 15 for multiple-ply connection details.
- Resistances shown are the maximum factored and/or unfactored resistances, in pounds per lineal foot, 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 and dry-use conditions. Refer to West Fraser's 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" and deeper beams are to be used in multiple member units only.
- Unfactored total load resistance is limited to a deflection of L/240. Unfactored live load resistance is based on a deflection of L/360. Check local code requirements for other deflection criteria.
- For an unfactored live load deflection limit of L/480, multiply UNFACTORED LOAD L/360 resistance by 0.75.
- Roof must have positive slope in order to prevent ponding.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 1300 psi specified strength for 1.9E Grade materials which cannot be increased for duration of load. Bearing length may need to be increased if support member's allowable bearing stress is less.
- Tables will accommodate beam slopes to a maximum of 2:12.

INSTRUCTIONS FOR USE

- 1. Determine the factored total load and unfactored total and live load on the beam in pounds per lineal foot (plf).
- 2. Locate a span that meets or exceeds the required beam span, centre-to-centre of bearing.
- Scan from left to right within the SPAN row until you find a cell where; (1) the UNFACTORED LOAD L/360 resistance meets or exceeds the unfactored live load,
 (2) the UNFACTORED LOAD L/240 resistance meets or exceeds the unfactored total load and (3) the FACTORED TOTAL LOAD resistance meets or exceeds the factored total load. All three rows must be checked and satisfied. Where no unfactored resistances are shown, factored total load will control.
- 4. To size a member for a span not shown, use capacities for the next larger span shown.

FACTORED RESISTANCE TABLE (POUNDS PER LINEAL FOOT)

3000Fb-1.9E West Fraser[™] LVL — FLOOR or ROOF (Standard Term) 13/4" WIDTH Span (ft) Depth 5-1/2 7-1/4 9-1/4' 9-1/2 11-1/2" 11-7/8 14" 16" 18" 24' Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 6.1/15.1 1.5/3.7 2.5/6.2 3.5/8.7 3.6/9.0 4.6/11.5 4.8/12.0 7.4/18.5 8.9/22.4 15.3/38.3 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 6.9/17.1 Min. End / Int. Bearing (in) 1.5/3.5 2.1/5.3 3.3/8.4 3.5/8.6 4.4/11.0 4.6/11.4 5.7/14.2 8.2/20.4 13.2/32.9 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.5/3.5 1.9/4.7 3.1/7.7 4.4/11.0 5.4/13.6 6.5/16.2 7.7/19.1 11.9/29.8 2.9/7.4 4.2/10.6 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 1.5/3.5 1.7/4.1 2.6/6.5 2.7/6.9 3.9/9.8 4.2/10.4 5.3/13.1 6.2/15.6 7.3/18.3 11.1/27.7 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.5/3.5 1.5/3.7 2.3/5.9 2.5/6.2 3.5/8.8 3.7/9.4 5.1/12.7 6.1/15.1 7.0/17.6 10.5/26.3 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.5/3.5 2.1/5.3 2.2/5.6 3.2/8.0 3.4/8.5 4.6/11.6 5.9/14.8 6.8/17.1 10.1/25.2 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.5/3.5 2.0/4.9 2.1/5.1 2.9/7.3 3.1/7.8 4.2/10.6 5.4/13.6 6.7/16.7 9.7/24.3 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.8/4.5 3.9/9.8 1.5/3.5 1.9/4.7 2.7/6.8 2.9/7.2 5.0/12.5 6.3/15.6 9.5/23.7 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.7/4.2 1.5/3.5 1.8/4.4 Min. End / Int. Bearing (in) 2.5/6.3 2.7/6.7 3.6/9.1 4.7/11.6 5.8/14.5 9.2/23.1 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 9.1/22.7 1.5/3.5 1.6/3.9 1.6/4.1 2.3/5.9 2.5/6.2 3.4/8.5 4.3/10.9 5.4/13.5 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.5/3.6 1.5/3.8 3.2/5.5 2.3/5.8 3.2/7.9 4.1/10.2 5.1/12.7 8.7/21.7 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.5/3.5 1.5/3.6 2.1/5.1 2.2/5.5 3.0/7.4 3.8/9.6 4.8/11.9 8.2/20.4 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.5/3.5 1.5/3.5 1.9/4.9 2.1/5.2 2.8/7.0 3.6/9.0 4.5/11.2 7.7/19.3 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.5/3.5 1.8/4.6 2.0/4.9 2.7/6.6 3.4/8.5 4.3/10.6 7.3/18.2 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.7/4.4 1.9/4.6 2.5/6.3 3.2/8.1 4.0/10.1 6.9/17.3 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.7/4.1 1.8/4.4 2.4/6.0 3.1/7.7 3.8/9.6 6.6/16.5 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.6/3.9 1.7/4.2 2.3/5.7 2.9/7.3 3.7/9.2 6.3/15.7 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load Min. End / Int. Bearing (in) 1.6/4.0 2.2/5.4 2.8/7.0 3.5/8.7 6.0/15.0 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 2.1/5.2 5.7/14.4 Min. End / Int. Bearing (in) 2.7/6.7 3.3/8.4 Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.9/4.8 2.5/6.2 3.1/7.7 5.3/13.2 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 1.8/4.4 2.3/5.7 2.8/7.1 4.9/12.3 Min. End / Int. Bearing (in) Unfactored Load (LL) L/360 Unfactored Load (TL) L/240 Factored Total Load 2.1/5.3 2.7/6.6 4.6/11.4 Min. End / Int. Bearing (in)

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

MULTIPLE MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS: 3000Fb - 1.9E

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

3000F_b-1.9E 1¾″ WEST FRASER™ LVL

Maximum Factored Uniform Load (PLF) Applied to Either Outside Member		(PLF) ther	2" 2" 2" 2-PLY LVL	2" 2" 3-PLY LVL	2" 2" 4-PLY LVL*		
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only		
	12″ o.c.	2 Rows	827	620	Not Applicable		
	12 0.0.	3 Rows	1241	930			
16d (3½") Common	6″ o.c.	2 Rows	1654	1240	Not Applicable		
Wire Nails	0 U.C.	3 Rows	2482	1860	Not Applicable		
	4″ o.c.	2 Rows	2481	1860	Not Applicable		
	4 U.C.	3 Rows	3723	2790	Νοι Αρμιταδίε		
1⁄2 ″ A307	24″ o.c.	2 Rows	671	503	448		
Through	12″ o.c.	2 Rows	1342	1006	895		
Bolts	6″ o.c.	2 Rows	2684	2012	1790		

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

2. Bolts are to be material conforming to ASTM Standard A307. 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 $2\frac{1}{2}$ " in from ends.

1. Nails to be located a minimum of 2" from the top and bottom of the member. Start all nails a minimum of $2\frac{1}{2}$ in from ends.

3. Values listed are for standard term loading.

EXAMPLE (All loads shown are total factored)

First, convert joist reactions to plf load on each side of the beam by taking the joist reaction (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check factored resistance tables to verify that 3 plys can carry the total factored load of 700 plf. The maximum load applied to either outside member is 400 plf. Use 2 rows of 16d $(3\frac{1}{2})$ common wire nails at 12" o.c. (good for 620 plf).



CONNECTION OF MULTIPLE PIECES FOR TOP-LOADED BEAMS

1.9E (1³/₄" wide pieces)

- Minimum of 2 rows of 16d (31/2") nails at 12" o.c. for 51/2" through 117/8" beams
- Minimum of 3 rows of 16d (31/2") nails at 12" o.c. for 14" through 24" beams



NOTES

West Fraser LVL 3000Fb - 1.8E LVL



$\frac{1}{1} = \frac{1}{2} = \frac{1}$

DESIGN PROPERTIES

3000Fb-1.8E 11⁄2" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property					Depth				
Design Property	5 ½″	7 ¼″	9 ½″	9 ½″	11½″	111%″	14″	16″	18″
Moment (ft.lbs.)	3497	5852	9215	9684	13827	14679	19951	25590	31872
Shear (lbs.)	2653	3497	4462	4583	5548	5729	6754	7718	8683
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" and greater beam depths are to be used in multiple member units only (11/2" thick).

3000F_b-1.8E 1½" WEST FRASER™ LVL AVAILABLE SIZES



3000Fb-1.8E WEST FRASER[™] LVL SPECIFIED STRENGTHS (STANDARD TERM)

Modulus of Elasticity	E	=	1.8 x 10^6 psi
Bending Stress	Fb	=	5544 psi
Shear (joist)	Fv	=	536 psi
Compression Perpendicular to Grain (joist)	F _{c(perp)}	=	1365 psi
Compression Parallel to Grain	F _{c(para)}	=	3750 psi

1. F_b based on 12" depths. For other depths, multiply by (12/d)^(1/7.35).

2. F_{C(perp)} and E shall not be increased for duration of load.

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 21 for multiple-ply connection details.
- Resistances shown are the maximum factored and/or unfactored resistances, in pounds per lineal foot, 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 and dry-use conditions. Refer to West Fraser's 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" and deeper beams are to be used in multiple member units only.
- Unfactored total load resistance is limited to a deflection of L/240. Unfactored live load resistance is based on a deflection of L/360. Check local code requirements for other deflection criteria.
- For an unfactored live load deflection limit of L/480, multiply UNFACTORED LOAD L/360 resistance by 0.75.
- Roof must have positive slope in order to prevent ponding.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 1365 psi specified strength for 1.8E Grade materials which cannot be increased for duration of load. Bearing length may need to be increased if support member's allowable bearing stress is less.
- Tables will accommodate beam slopes to a maximum of 2:12.

INSTRUCTIONS FOR USE

- 1. Determine the factored total load and unfactored total and live load on the beam in pounds per lineal foot (plf).
- 2. Locate a span that meets or exceeds the required beam span, centre-to-centre of bearing.
- Scan from left to right within the SPAN row until you find a cell where;
 (1) the UNFACTORED LOAD L/360 resistance meets or exceeds the unfactored live load, (2) the UNFACTORED LOAD L/240 resistance

meets or exceeds the unfactored total load and (3) the FACTORED TOTAL LOAD resistance meets or exceeds the factored total load. All three rows must be checked and satisfied. Where no unfactored resistances are shown, factored total load will control.

4. To size a member for a span not shown, use capacities for the next larger span shown.

FACTORED RESISTANCE TABLE (POUNDS PER LINEAL FOOT)

	Vest Fraser [™] LVL — FLOOR					1½" WIDTH	1			
Span (ft)	Donth	E 1/2"	7 1/4"	0.1/4"			11-7/8"	1 4 11	16"	10
	Depth Unfactored Load (LL) L/360	5-1/2" 236	7-1/4" 509	9-1/4" 974	9-1/2" 1044	11-1/2" 1686	11-7/8" 1823	14"	10	18"
	Unfactored Load (LL) L/360 Unfactored Load (TL) L/240	351	760	1458	1044	1000	1025			
6	Factored Total Load	775	1109	1494	1545	1983	2071	2609	3188	3852
	Min. End / Int. Bearing (in)	1.5/3.5	2.0/5.1	2.7/6.8	2.8/7.1	3.6/9.1	3.8/9.5	4.8/11.9	5.8/14.6	7.1/17
	Unfactored Load (LL) L/360	152	332	648	696	1148	1245	1869		
-	Unfactored Load (TL) L/240	225	496	969	1041					
7	Factored Total Load	569	925	1235	1275	1619	1688	2100	2531	3013
	Min. End / Int. Bearing (in)	1.5/3.5	2.0/4.9	2.6/6.6	2.7/6.8	3.5/8.6	3.6/9.0	4.5/11.2	5.4/13.5	6.4/16
	Unfactored Load (LL) L/360	103	228	451	485	811	883	1347	1869	246
0	Unfactored Load (TL) L/240	153	339	673	724	1213	1320			
8	Factored Total Load	435	729	1052	1085	1368	1424	1756	2099	2474
	Min. End / Int. Bearing (in)	1.5/3.5	1.8/4.5	2.6/6.4	2.6/6.6	3.3/8.4	3.5/8.7	4.3/10.7	5.1/12.8	6.0/15
	Unfactored Load (LL) L/360	73	163	325	350	592	646	997	1401	1869
9	Unfactored Load (TL) L/240	108	242	484	522	884	964	1491		
9	Factored Total Load	343	575	907	945	1184	1231	1509	1792	209
	Min. End / Int. Bearing (in)	1.5/3.5	1.6/3.9	2.5/6.2	2.6/6.5	3.3/8.1	3.4/8.5	4.1/10.4	4.9/12.3	5.8/14
	Unfactored Load (LL) L/360	54	120	242	261	444	485	757	1072	144
10	Unfactored Load (TL) L/240	78	178	359	387	662	723	1129		
10	Factored Total Load	278	465	734	771	1044	1084	1323	1564	182
	Min. End / Int. Bearing (in)	1.5/3.5	1.5/3.5	2.2/5.6	2.4/5.9	3.2/8.0	3.3/8.3	4.0/10.1	4.8/11.9	5.6/1
	Unfactored Load (LL) L/360		91	184	199	341	373	586	837	113
11	Unfactored Load (TL) L/240		134	273	295	507	555	874	1249	
	Factored Total Load		384	606	637	910	966	1178	1387	160
	Min. End / Int. Bearing (in)		1.5/3.5	2.0/5.1	2.1/5.3	3.1/7.6	3.2/8.1	4.0/9.9	4.7/11.6	5.4/13
	Unfactored Load (LL) L/360		71	144	155	267	292	462	664	907
12	Unfactored Load (TL) L/240		103	212	229	396	434	688	990	135
12	Factored Total Load		322	508	534	764	811	1061	1245	144
	Min. End / Int. Bearing (in)		1.5/3.5	1.9/4.7	2.0/4.9	2.8/7.0	3.0/7.4	3.9/9.7	4.6/11.4	5.3/1
	Unfactored Load (LL) L/360		56	114	123	213	233	375	535	735
13	Unfactored Load (TL) L/240		81	167	181	315	345	550	796	109
	Factored Total Load		274	433	455	650	690	939	1130	130
	Min. End / Int. Bearing (in)		1.5/3.5	1.7/4.3	1.8/4.5	2.6/6.4	2.7/6.8	3.7/9.3	4.5/11.2	5.2/1
	Unfactored Load (LL) L/360		45	92	99	172	189	301	437	602
14	Unfactored Load (TL) L/240		65	134	145	254	279	446	649	896
	Factored Total Load		236	373	392	560	595	809	1035	119
	Min. End / Int. Bearing (in)		1.5/3.5	1.6/4.0	1.7/4.2	2.4/6.0	2.5/6.4	3.5/8.6	4.4/11.1	5.1/1
	Unfactored Load (LL) L/360		37 52	75 109	81	141	155	248	361	499
15	Unfactored Load (TL) L/240				118	208	228	367	535	742
	Factored Total Load		205	324	341	487	517	704	904	109
	Min. End / Int. Bearing (in)		1.5/3.5	1.5/3.7	1.6/3.9	2.2/5.6	2.4/5.9	3.2/8.1	4.1/10.3	5.0/1
	Unfactored Load (LL) L/360			62 90	67 97	117 172	129 188	206 304	301 446	418
16	Unfactored Load (TL) L/240			284	299	428	454	618	446 794	620 989
	Factored Total Load									
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.7	2.1/5.2	2.2/5.5	3.0/7.5	3.9/9.7	4.8/1
	Unfactored Load (LL) L/360			52 75	56 81	98	108 157	174 255	254 375	353 523
17	Unfactored Load (TL) L/240			252	264	143 378	402	547	702	875
	Factored Total Load			1.5/3.5	1.5/3.5	2.0/4.9	2.1/5.2	2.8/7.1	3.6/9.1	4.5/1
	Min. End / Int. Bearing (in)			44	48	83	91	147	216	4.5/1
	Unfactored Load (LL) L/360 Unfactored Load (TL) L/240			62	68	121	133	216	318	445
18	Factored Total Load			224	235	337	358	487	626	780
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.5	1.9/4.6	2.0/4.9	2.7/6.7	3.4/8.6	4.3/1
	Unfactored Load (LL) L/360			1.3/3.3	41	71	78	126	185	259
	Unfactored Load (TL) L/240				57	102	113	184	271	381
19	Factored Total Load				211	302	321	437	561	699
	Min. End / Int. Bearing (in)				1.5/3.5	1.8/4.4	1.9/4.7	2.5/6.3	3.3/8.1	4.1/1
	Unfactored Load (LL) L/360					61	67	109	160	224
	Unfactored Load (TL) L/240					87	96	158	233	329
20	Factored Total Load					272	289	394	506	630
	Min. End / Int. Bearing (in)					1.7/4.2	1.8/4.4	2.4/6.0	3.1/7.7	3.8/9
	Unfactored Load (LL) L/360					53	58	94	139	19
24	Unfactored Load (TL) L/240					75	83	136	202	285
21	Factored Total Load					246	262	357	458	571
	Min. End / Int. Bearing (in)					1.6/3.9	1.7/4.2	2.3/5.7	2.9/7.3	3.7/9
	Unfactored Load (LL) L/360					46	51	82	121	170
22	Unfactored Load (TL) L/240					65	72	118	176	249
22	Factored Total Load					224	238	324	417	520
	Min. End / Int. Bearing (in)					1.5/3.8	1.6/4.0	2.2/5.4	2.8/7.0	3.5/8
	Unfactored Load (LL) L/360						45	72	107	150
22	Unfactored Load (TL) L/240						62	103	154	218
23	Factored Total Load						217	296	381	475
	Min. End / Int. Bearing (in)						1.5/3.8	2.1/5.2	2.7/6.7	3.3/8
	Unfactored Load (LL) L/360							64	94	133
24	Unfactored Load (TL) L/240							90	135	192
24	Factored Total Load							272	349	436
	Min. End / Int. Bearing (in)							2.0/5.0	2.6/6.4	3.2/8
	Unfactored Load (LL) L/360							50	75	105
20	Unfactored Load (TL) L/240							70	106	151
26	Factored Total Load							231	297	370
	Min. End / Int. Bearing (in)							1.8/4.6	2.4/5.9	2.9/7
	Unfactored Load (LL) L/360							41	60	85
	Unfactored Load (TL) L/240							55	84	120
28	Factored Total Load							198	255	318
	Min. End / Int. Bearing (in)							1.7/4.2	2.2/5.4	2.7/6
	Unfactored Load (LL) L/360							1.774.2	49	69
	Unfactored Load (TL) L/240								67	97
30	Factored Total Load								221	276

 Min. End / Int. Bearing (in)

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

MULTIPLE MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS: 3000Fb - 1.8E

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

3000F_b-1.8E 1½" WEST FRASER™ LVL

Unif	2 Rows		2" 	2" 2" 2" 3-PLY LVL	2" 2" 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
	12″ o.c.	2 Rows 3 Rows	698 1047	524 785	Not Applicable
10d (3") Common Wire Nails	6″ o.c.	2 Rows 3 Rows	1396 2094	1048 1570	Not Applicable
	4″ o.c.	2 Rows 3 Rows	2094 3141	1572 2355	Not Applicable
1⁄2″ A307	24″ o.c.	2 Rows	575	432	384
Through	12″ o.c.	2 Rows	1150	863	767
Bolts	6″ o.c.	2 Rows	2300	1726	1534

* 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. Start all nails

 Bolts are to be material conforming to ASTM Standard A307. 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 21/2" in from ends.

Values listed are for standard term loading.

EXAMPLE (All loads shown are total factored)

a minimum of 21/2" in from ends.

First, convert joist reactions to plf load on each side of the beam by taking the joist reaction (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check factored resistance tables to verify that 3 plys can carry the total factored load of 700 plf. The maximum load applied to either outside member is 400 plf. Use 2 rows of 10d (3") common wire nails at 12" o.c. (good for 524 plf).



CONNECTION OF MULTIPLE PIECES FOR TOP-LOADED BEAMS

1.8E (11/2" wide pieces)

- Minimum of 2 rows of 10d (3") nails at 12" o.c. for 51/2" through 117/8" beams
- Minimum of 3 rows of 10d (3") nails at 12" o.c. for 14" through 18" beams



🔰 West Fraser LVL

3000Fb – **1.8E** 1³/₄" and 3¹/₂" THICK

DESIGN PROPERTIES

3000Fb-1.8E 1¾" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property		Depth									
besign roperty	51⁄2"	71⁄4"	91⁄4"	91⁄2"	11½"	117⁄8"	14"	16"	18"	24"	
Moment (ft.lbs.)	4079	6827	10751	11299	16132	17126	23277	29855	37184	63568	
Shear (lbs.)	3095	4080	5206	5347	6472	6683	7879	9005	10130	13507	
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" and greater beam depths are to be used in multiple member units only.

3000Fb-1.8E 31⁄2" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property	Depth									
besign roperty	51⁄2"	71⁄4"	91⁄4"	91⁄2"	11½"	111⁄/8"	14"	16"	18"	24"
Moment (ft.lbs.)	8159	13654	21501	22597	32264	34252	46553	59709	74368	127136
Shear (lbs.)	6191	8161	10412	10693	12944	13367	15758	18010	20261	27014
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.

3000F_b - 1.8E 1¾" AND 3½" WEST FRASER™ LVL AVAILABLE SIZES



3000Fb -1.8E WEST FRASER[™] LVL SPECIFIED STRENGTHS (STANDARD TERM)

Modulus of Elasticity	E = 1.8 x 10^6 psi
Bending Stress	$F_b = 5544 \text{ psi}$
Shear (joist)	$F_V = 536 \text{ psi}$
Compression Perpendicular to Grain (joist)	F _{c(perp)} = 1365 psi
Compression Parallel to Grain	F _{c(para)} = 3750 psi

1. F_b based on 12" depths. For other depths, multiply by (12/d)^(1/7.35). 2. $F_{\rm c(perp)}$ and E shall not be increased for duration of load.

FACTORED RESISTANCE TABLES

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 25 for multiple-ply connection details.
- Resistances shown are the maximum factored and/or unfactored resistances, in pounds per lineal foot, 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 and dry-use conditions. Refer to West Fraser's 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" and deeper beams are to be used in multiple member units only.
- Unfactored total load resistance is limited to a deflection of L/240. Unfactored live load resistance is based on a deflection of L/360. Check local code requirements for other deflection criteria.
- For an unfactored live load deflection limit of L/480, multiply UNFACTORED LOAD L/360 resistance by 0.75.
- Roof must have positive slope in order to prevent ponding.
- Spans of multiple spans must be at least 40% of adjacent span.
- Bearing lengths are based on 1365 psi specified strength for 1.8E Grade materials which cannot be increased for duration of load. Bearing length may need to be increased if support member's allowable bearing stress is less.
- Tables will accommodate beam slopes to a maximum of 2:12.

INSTRUCTIONS FOR USE

- 1. Determine the factored total load and unfactored total and live load on the beam in pounds per lineal foot (plf).
- 2. Locate a span that meets or exceeds the required beam span, centre-to-centre of bearing.
- Scan from left to right within the SPAN row until you find a cell where;
 (1) the UNFACTORED LOAD L/360 resistance meets or exceeds the unfactored live load, (2) the UNFACTORED LOAD L/240 resistance

meets or exceeds the unfactored total load and (3) the FACTORED TOTAL LOAD resistance meets or exceeds the factored total load. All three rows must be checked and satisfied. Where no unfactored resistances are shown, factored total load will control.

4. To size a member for a span not shown, use capacities for the next larger span shown.

FACTORED RESISTANCE TABLE (POUNDS PER LINEAL FOOT)

Enon (ft)						1¾″ V	VIDTH				
Span (ft)	Depth	5-1/2"	7-1/4"	9-1/4"	9-1/2"	11-1/2"	11-7/8"	14"	16"	18"	24"
	Unfactored Load (LL) L/360	275	594	1137	1218	1967	2126				
6	Unfactored Load (TL) L/240	410	887	1701							
U	Factored Total Load	904	1294	1743	1803	2313	2416	3044	3719	4494	7708
	Min. End / Int. Bearing (in)	1.5/3.5	2.0/5.1	2.7/6.8	2.8/7.1	3.6/9.1	3.8/9.5	4.8/11.9	5.8/14.6	7.1/17.6	12.1/30
	Unfactored Load (LL) L/360	177 263	388 578	756 1131	812 1214	1339	1453	2181			
7	Unfactored Load (TL) L/240	664	1079	1440	1488	1889	1969	2450	2953	3516	567
	Factored Total Load Min. End / Int. Bearing (in)	1.5/3.5	2.0/4.9	2.6/6.6	2.7/6.8	3.5/8.6	3.6/9.0	4.5/11.2	5.4/13.5	6.4/16.1	10.4/2
	Unfactored Load (LL) L/360	120	266	526	566	947	1030	1571	2181	2876	10.4/2
	Unfactored Load (TL) L/240	178	396	785	845	1415	1539		2.01	2070	
8	Factored Total Load	507	850	1227	1266	1596	1661	2049	2449	2886	449
	Min. End / Int. Bearing (in)	1.5/3.5	1.8/4.4	2.6/6.4	2.6/6.6	3.3/8.4	3.5/8.7	4.3/10.7	5.1/12.8	6.0/15.1	9.4/23
	Unfactored Load (LL) L/360	85	190	379	409	691	753	1163	1634	2181	
9	Unfactored Load (TL) L/240	126	282	565	609	1031	1125	1739			
5	Factored Total Load	400	671	1058	1102	1382	1436	1761	2091	2448	371
	Min. End / Int. Bearing (in)	1.5/3.5	1.6/4.0	2.5/6.2	2.6/6.5	3.3/8.1	3.4/8.5	4.1/10.4	4.9/12.3	5.8/14.4	8.7/2
	Unfactored Load (LL) L/360	63 92	140 207	282 419	304 452	518 772	566 844	883 1318	1251	1685	
10	Unfactored Load (TL) L/240 Factored Total Load	324	543	856	900	1218	1265	1544	1824	2125	316
	Min. End / Int. Bearing (in)	1.5/3.5	1.5/3.6	2.2/5.6	2.4/5.9	3.2/8.0	3.3/8.3	4.0/10.1	4.8/11.9	5.6/13.9	8.3/2
	Unfactored Load (LL) L/360	1.5/5.5	106	215	232	398	435	684	976	1325	267
	Unfactored Load (TL) L/240		156	318	344	592	647	1019	1457	1525	207
11	Factored Total Load		448	707	743	1061	1127	1374	1618	1877	276
	Min. End / Int. Bearing (in)		1.5/3.5	2.0/5.1	2.1/5.3	3.1/7.6	3.2/8.1	4.0/9.9	4.7/11.6	5.4/13.5	7.9/1
	Unfactored Load (LL) L/360		83	168	181	312	341	539	775	1058	218
12	Unfactored Load (TL) L/240		121	247	267	462	506	803	1155	1580	
12	Factored Total Load		376	593	623	891	946	1238	1453	1680	244
	Min. End / Int. Bearing (in)		1.5/3.5	1.9/4.7	2.0/4.9	2.8/7.0	3.0/7.4	3.9/9.7	4.6/11.4	5.3/13.2	7.7/1
	Unfactored Load (LL) L/360		65	133	144	248	272	432	624	857	179
13	Unfactored Load (TL) L/240		95	195	211	368	403	642	929	1277	24.0
	Factored Total Load		320	505	531	758	805	1096	1319	1521	219
	Min. End / Int. Bearing (in)		1.5/3.5	1.7/4.3	1.8/4.5	2.6/6.4	2.7/6.8	3.7/9.3	4.5/11.2	5.2/12.9	7.5/1
	Unfactored Load (LL) L/360		53 75	107 157	116 169	201 296	220 325	351 521	510 757	703 1046	149
14	Unfactored Load (TL) L/240		275	435	457	653	694	944	1207	1389	199
	Factored Total Load Min. End / Int. Bearing (in)		1.5/3.5	1.6/4.0	1.7/4.2	2.4/6.0	2.5/6.4	3.5/8.6	4.4/11.1	5.1/12.7	7.3/1
	Unfactored Load (LL) L/360		43	88	95	165	181	289	4.4/11.1	583	125
	Unfactored Load (TL) L/240		61	127	138	242	266	428	624	866	125
15	Factored Total Load		239	378	397	568	604	821	1054	1278	182
	Min. End / Int. Bearing (in)		1.5/3.5	1.5/3.7	1.6/3.9	2.2/5.6	2.4/5.9	3.2/8.1	4.1/10.3	5.0/12.5	7.1/1
	Unfactored Load (LL) L/360			73	78	137	150	241	351	488	105
46	Unfactored Load (TL) L/240			105	113	200	220	355	520	724	157
16	Factored Total Load			332	349	499	530	721	926	1154	167
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.7	2.1/5.2	2.2/5.5	3.0/7.5	3.9/9.7	4.8/12.1	7.0/1
	Unfactored Load (LL) L/360			61	66	115	126	203	296	412	90
17	Unfactored Load (TL) L/240			87	94	167	184	298	437	610	134
.,	Factored Total Load			293	308	441	469	638	819	1021	155
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.5	2.0/4.9	2.1/5.2	2.8/7.1	3.6/9.1	4.5/11.4	6.9/1
	Unfactored Load (LL) L/360			51 73	56 79	97 141	107 155	172 252	252 371	351 519	775 115
18	Unfactored Load (TL) L/240 Factored Total Load			261	275	393	418	568	730	910	144
	Min. End / Int. Bearing (in)			1.5/3.5	1.5/3.5	1.9/4.6	2.0/4.9	2.7/6.7	3.4/8.6	4.3/10.7	6.8/1
	Unfactored Load (LL) L/360			1.3/3.3	47	83	91	147	216	302	67
	Unfactored Load (TL) L/240				67	119	131	214	317	445	99
19	Factored Total Load				246	352	374	510	654	816	135
	Min. End / Int. Bearing (in)				1.5/3.5	1.7/4.4	1.9/4.6	2.5/6.3	3.3/8.1	4.1/10.1	6.7/1
	Unfactored Load (LL) L/360					71	78	127	186	261	58
20	Unfactored Load (TL) L/240					102	112	184	272	383	86
20	Factored Total Load					317	337	459	590	736	126
	Min. End / Int. Bearing (in)					1.7/4.1	1.8/4.4	2.4/6.0	3.1/7.7	3.9/9.6	6.6/1
	Unfactored Load (LL) L/360					62	68	110	162	227	51
21	Unfactored Load (TL) L/240					88 287	97 305	159	236 534	333	75
	Factored Total Load					287 1.6/3.9	305 1.7/4.2	416 2.3/5.7	534 2.9/7.3	666 3.7/9.1	114 6.3/1
	Min. End / Int. Bearing (in) Unfactored Load (LL) L/360	-				54	59	2.3/5.7	142	3.7/9.1	6.3/1
	Unfactored Load (TL) L/240					76	84	138	205	290	66
22	Factored Total Load					261	278	378	486	607	104
	Min. End / Int. Bearing (in)					1.5/3.8	1.6/4.0	2.2/5.4	2.8/7.0	3.5/8.7	6.0/1
	Unfactored Load (LL) L/360						52	84	124	175	39
22	Unfactored Load (TL) L/240						73	120	180	254	58
23	Factored Total Load						254	346	444	554	951
	Min. End / Int. Bearing (in)						1.5/3.8	2.1/5.2	2.7/6.7	3.3/8.3	5.7/1
	Unfactored Load (LL) L/360							74	110	155	35
24	Unfactored Load (TL) L/240							105	158	224	510
	Factored Total Load							317	407	508	872
	Min. End / Int. Bearing (in)							2.0/5.0	2.6/6.4	3.2/8.0	5.5/1
	Unfactored Load (LL) L/360							59	87	123	28
26	Unfactored Load (TL) L/240							82	123	176	410
	Factored Total Load							269	346	432	74 ⁻
	Min. End / Int. Bearing (in)			_				1.8/4.6	2.4/5.9 70	2.9/7.3	5.0/1
	Unfactored Load (LL) L/360 Unfactored Load (TL) L/240							47 65	70 98	99 140	330
28	Factored Total Load (1L) L/240							231	297	371	638
	Min. End / Int. Bearing (in)							1.7/4.2	2.2/5.4	2.7/6.8	4.7/1
	Unfactored Load (LL) L/360							1.//4.2	57	81	4.771
	omactorea Loau (LL/ L/300	1									
	Unfactored Load (TL) 1/2/0								79	113	260
30	Unfactored Load (TL) L/240 Factored Total Load								79 258	113 322	269 554

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

MULTIPLE MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS: 3000Fb - 1.8E

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

3000F_b-1.8E 1¾" WEST FRASER™ LVL

Unif Ap	timum Fact form Load plied to Eit tside Mem	(PLF) ther	2" 2" 2-PLY LVL	2"	2" 2" 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
	12″ o.c.	2 Rows	827	620	Not Applicable
	12 0.0.	3 Rows	1241	930	Not Applicable
16d (3½") Common	6″ o.c.	2 Rows	1654	1240	Not Applicable
Wire Nails	0 0.C.	3 Rows	2482	1860	Not Applicable
	4″ o.c.	2 Rows	2481	1860	Not Applicable
	4 U.C.	3 Rows	3723	2790	Not Applicable
½″ A307	24″ o.c.	2 Rows	671	503	448
Through	12″ o.c.	2 Rows	1342	1006	895
Bolts	6″ o.c.	2 Rows	2684	2012	1790

 * 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. Start all nails a minimum of 21/2" in from ends. Bolts are to be material conforming to ASTM Standard A307. 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 21/2" in from ends.

3. Values listed are for standard term loading.

EXAMPLE (All loads shown are total factored)

First, convert joist reactions to plf load on each side of the beam by taking the joist reaction (lbs.) divided by the joist spacing (ft.). 400 lbs/(16/12) = 300 plf and 533 lbs/(16/12) = 400 plf. Check factored resistance tables to verify that 3 plys can carry the total factored load of 700 plf. The maximum load applied to either outside member is 400 plf. Use 2 rows of 16d $(3\frac{1}{2})$ common wire nails at 12" o.c. (good for 620 plf).



CONNECTION OF MULTIPLE PIECES FOR TOP-LOADED BEAMS

1.8E (1³/₄" wide pieces)

- Minimum of 2 rows of 16d (31/2") nails at 12" o.c. for 51/2" through 117/8" beams
- Minimum of 3 rows of 16d (31/2") nails at 12" o.c. for 14" through 24" beams



COLUMNS: 3000Fb - 1.8E

ALLOWABLE FACTORED AXIAL LOADS (LBS)

Column Length (ft)	31⁄2" x 31⁄2"	31⁄2" x 43⁄8"	31⁄2" x 51⁄2"	31⁄2" x 71⁄4"	31⁄2" x 85⁄8"
3	29528	35645	42891	52930	59895
4	26678	32173	38688	47748	54072
5	23161	27939	33629	41606	47232
6	19503	23568	28442	35350	40283
7	16124	19541	23671	29592	33872
8	13219	16076	19558	24602	28289
9	10814	13200	16129	20413	23576
10	8856	10849	13312	16947	19653
12	5993	7390	9137	11753	13729
14	4132	5120	6367	8256	9701

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

COLUMN DETAILS



ALLOWABLE FACTORED AXIAL LOADS (LBS) - WOOD PLATE BEARING CONNECTIONS

Column Length (ft)	31⁄2" x 31⁄2"	31⁄2" x 43⁄8"	31⁄2" x 51⁄2"	31⁄2" x 71⁄4"	31⁄2" x 85⁄8"
3 – 9	7526	9408	11827	15590	18547
10	7526	9408	11827	15590	18547
12	5993	7390	9137	11753	13729
14	4132	5120	6367	8256	9701

1. Loads are based on the allowable crushing of a wood plate (SPF, any grade), $F_{CP} = 768$ psi.

GENERAL NOTES

- · Tables apply to solid, one-piece members only.
- Tables assumes that columns are unbraced, except at column ends.
- · Column members to be used in dry service conditions only.
- Column length is the distance between the centers of restraining members.
- Tables include an eccentricity equal to 1/6 of the larger column dimension (thickness or width).

Engineered wood rim board for lateral support.

- · Loads are based on simple axial loaded columns. For side loads or other combined bending and axial loads, see the provisions of CSA Standard 086-09.
- · Factored resistances are based on standard term loading.

West Fraser LVL 2750Fb - 1.7E LVL



West Fraser LVL

2750Fb – **1.7E** $1^{3}/_{4}^{"}$ and $3^{1}/_{2}^{"}$ THICK HEADERS, BEAMS AND COLUMNS

DESIGN PROPERTIES

2750Fb-1.7E 1¾" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property		Depth										
Design Property	51⁄2"	71⁄4"	91⁄4"	91⁄2"	111⁄2"	117⁄8"	14"	16"	18"	24"		
Moment (ft.lbs.)	3667	6180	9791	10297	14772	15695	21419	27564	34432	59287		
Shear (lbs.)	3095	4080	5206	5347	6472	6683	7879	9005	10130	13507		
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.

3. All 16" and greater beam depths are to be used in multiple member units only.

2. Lateral support of beam is required at bearing locations.

2750Fb-1.7E 31⁄2" WEST FRASER™ LVL FACTORED RESISTANCES (STANDARD TERM)

Design Property		Depth										
Design Property	51⁄2"	71⁄4"	91⁄4"	91⁄2"	111⁄2"	117⁄8"	14"	16"	18"	24"		
Moment (ft.lbs.)	7335	12360	19582	20594	29544	31390	42838	55128	68864	118573		
Shear (lbs.)	6191	8161	10412	10693	12944	13367	15758	18010	20261	27014		
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.

2750Fb - 1.7E 1¾″ AND 3½″ WEST FRASER™ LVL AVAILABLE SIZES



2750Fb -1.7E WEST FRASER[™] LVL SPECIFIED STRENGTHS (STANDARD TERM)

Modulus of Elasticity	E = 1.7 x 10^6 psi
Bending Stress	F _b = 5082 psi
Shear (joist)	$F_V = 536 \text{ psi}$
Compression Perpendicular to Grain (joist)	F _{c(perp)} = 1363 psi
Compression Parallel to Grain	F _{c(para)} = 3756 psi

1. F_b based on 12" depths. For other depths, multiply by (12/d)^(1/9). 2. $F_{c(perp)}$ and E shall not be increased for duration of load.



Miscellaneous Details, Software and Warranty Information



BEARING DETAILS



ALLOWABLE HOLES



- 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
- of the uncut beam between holes must be a minimum of
- hole diameter is 3/4", 11/8" and 11/2" respectively. For deeper beams, the maximum hole diameter is 2". The maximum number of holes for each span is limited to 3.

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"

Parallel to Glue Lines Perpendicular to Glue Lines

* Not allowed on product thickness less than $11\!\!\!/\!\! 2''$

OUR WEATHER RESISTANT COATING



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.

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

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.



LIMITED LIFETIME WARRANTY

(*to non-consumer buyers)

Sundre Forest Products Inc. warrants that its WEST FRASER[™] LVL is free from defects in materials and workmanship, and, when correctly installed, will perform in accordance with Sundre Forest Products Inc.'s published specifications for the lifetime of the building. West Fraser[™] LVL used anywhere else except as shown in our published specifications is not covered in this warranty. *A non-consumer is a person or entity who purchases a product for purposes of resale or to incorporate into another product which will be resold.

LIMITATIONS

Sundre Forest Products Inc. must be given a reasonable opportunity to inspect its WEST FRASERTM LVL before it will honor any claims under the above warranty.

If, after inspection, Sundre Forest Products Inc. determines that a product failure exists covered by the above warranty, Sundre Forest Products Inc. will pay to the owner of the structure an amount equal to the reasonable cost of labor and materials required to remove and replace or repair the defective product. The product must be protected from exposure to moisture from whatever source in accordance with provisions of the applicable building standards. Failure to protect the product from moisture, except for incidental exposure during construction, may cause the product to fail to perform as warranted and will void this limited lifetime warranty. Exposure to standing water and accumulations of snow and ice without reasonably prompt removal thereof will void this limited lifetime warranty.

DISCLAIMER

Except for the express warranty and remedy set out above, Sundre Forest Products Inc. disclaims all other warranties and guaranties, express or implied, including implied warranties of merchantability or fitness for a particular purpose. No other warranty or guaranty will be made by or on behalf of the manufacturer or the seller or by operation of law with respect to the product or its installation, storage, handling, maintenance, use, replacement or repair. Neither Sundre Forest Products Inc. nor the seller shall be liable by virtue of any warranty or guaranty, or otherwise, for any special, incidental or consequential loss or damage resulting from the use of the product. Sundre Forest Products Inc. makes no warranty or guaranty with respect to installation of the product by the builder or the builder's contractor or any other installer.

For information on the above warranty, contact West Fraser LVL Sales Office at 250-991-5350.



(250) 991-5350 EMAIL: LVL@WESTFRASER.COM

WWW.WESTFRASER.COM/PRODUCTS/LVL-LAMINATED-VENEER-LUMBER

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