



NYC Department of Buildings  
280 Broadway, New York, NY 10007  
Patricia Lancaster, FAIA, Commissioner  
(212) 566-5000, TTY: (212) 566-4769

## Report of Materials and Equipment Acceptance Division

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use subject to the terms and conditions contained herein.

### MEA 406-04-E Vol. 5

**Manufacturer:** Sundre Forest Products, Inc., a Subsidiary of West Fraser Mills Ltd, Box 1737, Rocky Mountain House, Alberta, Canada T4T 1B3

**Trade Name(s):** West Fraser™ LVL

**Product:** Laminated veneer lumber (LVL)

**Pertinent Code Section(s):** RS-10; Subchapter 10, Article 7

**Test(s):** ASTM D5456 and when applicable by D5456, D143, D198, D1761, D2395, D2915, D4442, D4761, D4933, D5764: Bending, tension parallel to grain, longitudinal shear, compression parallel and perpendicular to grain, modulus of elasticity, connections, moisture content, Specific gravity

**Laboratory:** APA-The Engineered Wood Association, P.O. Box 11700, Tacoma, WA 98411-0700. In plant qualification testing conducted by Sundre Forest Products Inc. and witnessed by APA-EWS. Allowable design stresses were certified by James J. Barlow, P.E., New York State License Number: 078757.

**Test Report(s):** APA Report T2005P-42, Qualification of 1.8E Laminated Veneer Lumber, dated July 27, 2005; APA T2007P-12, Qualification of 1.8E Laminated Veneer, dated March 9, 2007; APA Letter Report on the use of true E, dated March 10, 2006, as designed by Thomas D. Skaggs, PhD., P.E. for West Fraser™ LVL, Sundre Forest Products, Inc.; APA Letter Report on the use of depth factors, dated March 28, 2007, by Thomas D. Skaggs,

PhD., P.E. for West Fraser™ LVL, Sundre Forest Products, Inc., Rocky Mountain House, Alberta, Canada; APA Letter Report on the increase in bending values for 1.9E and 2.0E, dated March 9, 2007, by Thomas D. Skaggs, PhD., P.E. for West Fraser™ LVL, Sundre Forest Products, Inc., Rocky Mountain House, Alberta, Canada.

**Description:** West Fraser™ LVL is manufactured by laminating sheets of veneer on top of each other. Veneer sheets are graded using Ultrasonic Propagation Time (UPT) grading method. Graded veneers may be scarfed or unscarfed before being sent to the sheet feeder. There the veneers are sequenced into prescribed lay-ups, with glue applied on the top face of each veneer sheet, with the exception of the top veneer. The glue is exterior-grade phenolic adhesive complying with ASTM 02559. The veneer sheets are staggered and lapped within lay-up patterns as specified in Sundre Forest Products, Inc. approved Quality Control Manual. The grain of all veneer is oriented along the length of the billet. The lay-up is then subjected to hot pressing until the glue is cured. Products are available in thickness of 3/4-inch to 3½-inches, depths of 1½ -inches to 48-inches and lengths to 80 feet.

**TABLE 1 - ALLOWABLE DESIGN PROPERTIES FOR WEST FRASER™ LVL,<sup>1, 2, 3,4,5,6,7,8,9</sup>**

PROPERTY <sup>1,2,3,4,5</sup>		DESIGN STRESS (psi)				
		1.3E GRADE <sup>1,7</sup>	1.7E GRADE <sup>1,7</sup>	1.8E GRADE <sup>2,7</sup>	1.9E GRADE <sup>2,7</sup>	2.0E GRADE <sup>1,8</sup>
Bending (F <sub>b</sub> )	Joist	1700	2750	3000	3100	3200
	Plank	1900	2600	3000	3000	3500
Tension Parallel to Grain (F <sub>t</sub> )		1300	1950	1950	1950	2100
Longitudinal Shear (F <sub>v</sub> )	Joist	220	290	290	350	350
Compression Parallel (F <sub>c  </sub> )		1800	2350	2350	2500	3000
Compression Perpendicular (F <sub>c⊥</sub> )	Joist	600	700	750	750	750
Modulus of Elasticity (10 <sup>6</sup> ), MOE		1.3	1.7	1.8	1.9	2.0

For SI: 1 psi = 6.89 kPa, 1 inch = 25.4 mm

<sup>1</sup>The tabulated values are based on loads of a normal duration and a reference depth of 12 inches. For depths of 3½ inches and deeper, when loaded edgewise, the allowable bending stress shall be modified by (12/d)<sup>0.1111</sup> for 1.3E, 1.7E, and 2.0E grades as shown in the following table:

Depth Factor									
Depth (in.)	3½	5½	7¼	9½	11⅞	14	16	18	24
Multiply by	1.15	1.09	1.06	1.03	1.00	0.98	0.97	0.96	0.93

<sup>2</sup>The allowable bending stress shall be modified by (12/d)<sup>0.1361</sup> grades as shown in the following table:

Depth Factor									
Depth (in.)	3½	5½	7¼	9½	11⅞	14	16	18	24
Multiply by	1.18	1.11	1.07	1.03	1.00	0.98	0.96	0.95	0.91

<sup>3</sup>Tension (F<sub>t</sub>) of the 1.3E, 1.7E, 1.8E, 1.9E and 2.0E grades is based on a gauge length of 4 feet. For specimens longer than 4 feet, a length factor of (4/L)<sup>1/11</sup> shall be used to adjust the F<sub>t</sub> where L is the actual length in feet.

<sup>4</sup>Load parallel to glue line is for joist and perpendicular to glue line is for plank.

<sup>5</sup>Stresses may be adjusted for duration of load in accordance with the applicable code.

<sup>6</sup>Tabulated flexural stress (F<sub>b</sub>) may be increased by 4 percent when the member qualifies as a repetitive member as defined in AFPA NDS.

<sup>7</sup>LVL grades produced in lodgepole pine.

<sup>8</sup>LVL grades produced in lodgepole pine, or lodgepole pine, Douglas fir/white spruce and aspen in combination.

<sup>9</sup>Deflection of uniformly loaded simple span beams, deflection is calculated as follows:

$$\Delta = \frac{270WL^4}{Ebd^3} + \frac{28.8WL^2}{Ebd}$$

where :

Δ = Deflection, inches

W = Uniform load, plf

L = Span, feet

b = Beam width, inches

d = Beam depth, inches

E = Modulus of Elasticity, psi

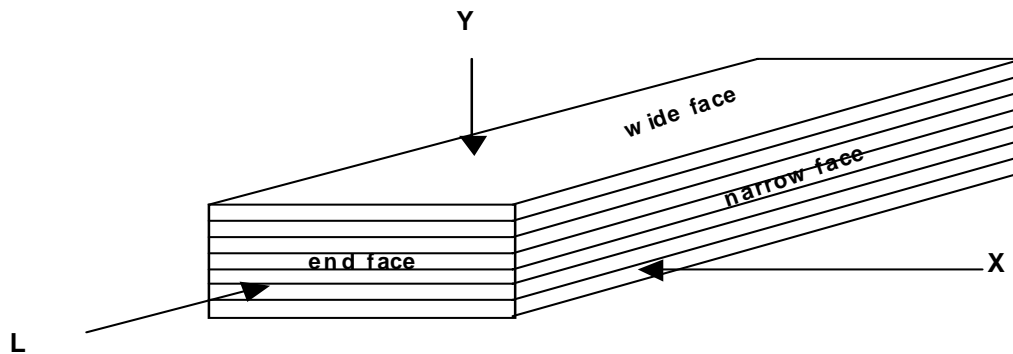
**TABLE 2 - FASTENER DETAILS**

FASTENER DESCRIPTION		EQUIVALENT SPECIES SPECIFIC GRAVITY <sup>1,2</sup>				
		1.3E Grade	1.7E Grade	1.8E Grade	1.9E Grade	2.0E Grade
<b>Nail Withdrawal</b>						
Face	Installed perpendicular to the wide face	Hem-Fir (0.43)	Hem-Fir (North) (0.46)	Hem-Fir (North) (0.46)	Douglas Fir-Larch (0.50)	Douglas Fir-Larch (0.50)
Edge	Installed parallel to the wide face	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)
<b>Nail Lateral</b>						
Face	Installed perpendicular to the wide face	Hem-Fir (0.43)	Douglas Fir-Larch (0.50)	Douglas Fir-Larch (0.50)	Douglas Fir-Larch (0.50)	Douglas Fir-Larch (0.50)
Edge	Installed parallel to the wide face	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)
<b>Bolt Installed Perpendicular to the Wide Face</b>						
Parallel to grain		Northern Species (0.34)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)
Perpendicular to grain		Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)	Hem-Fir (0.43)

<sup>1</sup> Allowable lateral values for nails noted in the applicable code apply to the LVL for conditions and the species noted in the table.

<sup>2</sup> See **Figure 1** for orientation details.

**FIGURE 1 - WEST FRASER™ LVL ORIENTATION**



**Terms and Conditions:** The West Fraser™ LVL lumber is accepted on condition that:

1. All uses, locations and installations shall comply with the applicable requirements of the New York City Building Code and on further condition that the design provisions and specifications as listed in the above laboratory reports shall apply.
2. Structures designed using West Fraser™ LVL lumber shall conform to the Manufacturer's specifications except that appropriate design load(s), deflection limitation(s) and other performance standards of the New York City Building Code shall apply.
3. West Fraser™ LVL lumber shall be for interior use only and stamped "INTERIOR" and "MEA 406-04-E Vol. 5" on each beam.
4. West Fraser™ LVL, when stored out-of-doors or exposed to wet weather conditions during construction shall be inspected by the user for swelling or warping etc. and replaced if so damaged.
5. Beams less than 1½" thick shall be fire-stopped every 500 square feet in floor construction.
6. All shipments and deliveries of such materials shall be provided with a label, suitably placed, certifying that the materials shipped or delivered are equivalent to those tested and accepted for use, as provided for in Section 27-131 of the New York City Building Code.

Final Acceptance July 30, 2007.

Examined By Donald [Signature]