

Broadspan[®] Laminated Veneer Lumber
Georgia-Pacific Wood Products LLC

PR-L272
Revised August 20, 2010

Product: Broadspan[®] 1.3E, 1.5E, 1.7E, 1.9E and 2.0E LVL
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www.broadspanewp.com

1. Basis of the product report:
 - 2009 and 2006 International Building Code (IBC): Sections 104.11 Alternative Materials and 2303.1.9 Structural composite lumber
 - 2009 and 2006 International Residential Code (IRC): Section R104.11 Alternative Materials
 - ASTM D 5456-05a and D 5456-03 recognized by the 2009 and 2006 IBC, respectively
 - APA Reports T97P-26, T98P-10, T2000P-24, T2002P-12, T2002P-15, T2002P-44, T2002P-45, T2002P-66, T2003M-13, T2003P-46, T2003P-81A, T2004P-09, T2004P-25, T2004P-26, T2004M-41, T2004P-48, T2004M-56, T2004M-80, T2005M-23, T2005P-25, T2005M-97, T2007P-08, T2007P-09, T2007P-10, T2007P-59, T2007P-98, and other qualification data.
2. Product description:

Broadspan LVL is made with veneer sheets of various species and grades in accordance with the in-plant manufacturing standards approved by APA. Broadspan LVL is available in thicknesses from 3/4 inch to 3-1/2 inches, widths of 3-1/2 inches to 48 inches and lengths up to 80 feet.
3. Design properties:

Table 1 lists the design properties; Table 2 lists the equivalent specific gravities for connection design for Broadspan LVL; and Table 3 lists the allowable fastener spacing. The allowable loads for Broadspan LVL shall be in accordance with the recommendations provided by the manufacturer (www.broadspanewp.com).
4. Product installation:

Broadspan LVL shall be installed in accordance with the recommendations provided by the manufacturer. Permissible details and allowable hole sizes shall be in accordance with the recommendations provided by the manufacturer.
5. Fire-rated assemblies:

The provisions of IBC Section 721.6.3, design of fire-resistant exposed wood members, shall be applicable to Broadspan LVL. Fire-rated assemblies shall be constructed in accordance with the recommendations provided by APA Design/Construction Guide: *Fire-Rated Systems*, Form W305 (www.apawood.org/publications) and the manufacturer.
6. Limitations:
 - a) Broadspan LVL shall be designed in accordance with the code using the design properties specified in this report.
 - b) Broadspan LVL is limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.
 - c) The 1.9E and 2.0E ($F_v = 290$ psi) Broadspan LVL grades are produced at the Georgia-Pacific Wood Products LLC facility in Roxboro, North Carolina or Georgia-Pacific Wood

Products South LLC facility in Thorsby, Alabama under a quality assurance program audited by APA.

- d) The 1.3E, 1.5E, 1.7E and 2.0E ($F_v = 350$ psi) Broadspan LVL grades are produced at the Georgia-Pacific Wood Products South LLC facility in Thorsby, Alabama under a quality assurance program audited by APA.
- e) This report is subject to re-examination in one year.

7. Identification:

Broadspan LVL described in this report is identified by a label bearing the manufacturer's name (Georgia-Pacific, Georgia-Pacific Wood Products LLC or Georgia-Pacific Wood Products South LLC) and/or trademark (Broadspan), the APA assigned plant number (1028 for the Roxboro plant and 1086 for the Thorsby plant), the LVL grade, the APA logo, the report number PR-L272, and a means of identifying the date of manufacture.

Table 1. Design Properties (Allowable Stress Design) for Broadspan LVL^(a,b)

Property		Design Stress for Allowable Stress Design (psi)					
		1.3E Grade	1.5E Grade	1.7E Grade	1.9E Grade	2.0E Grade	2.0E Grade
Bending (F_b) ^(c)	Joist ^(d)	1,750	2,250	2,500	2,750	3,100	3,100
Tension parallel to grain (F_t) ^(e)		1,300	1,400	1,500	1,700	1,900	2,100
Longitudinal shear (F_v)	Joist	285	285	285	290	290	350
Compression parallel ($F_{c }$)		2,000	2,200	2,400	2,500	3,000	3,000
Compression perpendicular ($F_{c\perp}$)	Joist	750	750	750	750	750	750
Modulus of Elasticity, E ($\times 10^6$)		1.3	1.5	1.7	1.9	2.0	2.0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 4.448 N, 1 psi = 6.9 kPa.

- (a) The tabulated values are design values for normal duration of load. All values, except for E and $F_{c\perp}$, are permitted to be adjusted for other load durations as permitted by the code. The design stresses are limited to conditions in which the average equilibrium moisture content of sawn lumber is less than 16 percent.
- (b) Joist = load parallel to glueline.
- (c) Tabulated flexural stress (F_b) may be increased by 4 percent when the member qualifies as a repetitive member as defined in the NDS.
- (d) The tabulated values are based on a reference depth of 12 inches. For other depths, when loaded edgewise, the allowable bending stress (F_b) shall be modified by $(12/d)^{1/6.5}$, where d = depth in inches, as shown in the following table. For depths less than 3-1/2 inches, the factor for the 3-1/2-inch depth shall be used.

Depth (in.)	3-1/2	5-1/2	7-1/4	9-1/2	11-7/8	14	16	18	24
Multiply by	1.21	1.13	1.08	1.04	1.00	0.98	0.96	0.94	0.90

- (e) The tabulated values are based on a reference length of 4 feet. For other lengths, the allowable tensile stress shall be modified by $(4/\ell)^{1/11}$, where ℓ = length in feet. For lengths less than 4 feet, use the allowable tension stresses in Table 1 unadjusted.

Table 2. Fastener Details for Broadspan LVL

LVL Grade	Equivalent Specific Gravity (S.G.)					
	Nails				Bolts	
	Withdrawal Load		Lateral Load		Lateral Load	
	Installed in Edge	Installed in Face	Installed in Edge	Installed in Face	Installed in Face	
				Parallel to Grain	Perpendicular to Grain	
1.3E, 1.5E, 1.7E	Hemlock/fir (0.43)	Hemlock/fir (0.43)	Hemlock/fir (0.43)	Western hemlock (0.47)	Hemlock/fir (0.43)	Hemlock/fir (0.43)
1.9E, 2.0E	Hemlock/fir (0.43)	Douglas-fir/larch (0.50)	Douglas-fir/larch (0.50)	Douglas-fir/larch (0.50)	Douglas-fir/larch (0.50)	Douglas-fir/larch (0.50)

Table 3. Allowable Fastener Spacing for Broadspan LVL^(a)

Minimum Member Size (in.)	Connector Size	Nails Installed in the Narrow Face
		On-Center Spacing (inches)
3/4 x 3-1/2	8d box and common nail	6
	10d box and common nail	6
	16d sinker and 12d common nail	6
1-3/4 x 5-1/2	8d box and common nail	4
	10d box and common nail	4
	16d sinker and 12d common nail	4
	16d common nail	8

For SI: 1 inch = 25.4 mm.

^(a) The minimum on-center spacing permitted for nails installed in the wide face of Broadspan LVL is the same as that permitted by the applicable code for solid-sawn lumber.

APA – The Engineered Wood Association is an accredited certification body under ISO 65 by Standards Council of Canada (SCC) and an accredited inspection agency by the International Code Council (ICC) International Accreditation Service (IAS) under ISO/IEC 17020. APA is also an accredited testing organization recognized by IAS and SCC under ISO/IEC 17025. APA is a recognized testing laboratory by Miami-Dade County, and a Product Testing Laboratory, Product Quality Assurance Entity, and Product Validation Entity by the Florida Department of Community Affairs (DCA).

APA – THE ENGINEERED WOOD ASSOCIATION

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