

**Pacific Woodtech Preservative-Treated
Laminated Veneer Lumber
Pacific Woodtech Corporation**

PR-L329

Revised October 11, 2019

Products: Preservative-Treated Laminated Veneer Lumber
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1. Basis of the product report:
 - 2018 and 2015 International Building Code (IBC): Sections 104.11 Alternative materials and 2303.1.10 Structural composite lumber
 - 2012 IBC: Section 104.11 Alternative materials and Section 2303.1.9 Structural composite lumber
 - 2018 and 2015 International Residential Code (IRC): Sections R104.11 Alternative materials, and R502.1.5, R602.1.5, and R802.1.4 Structural composite lumber
 - 2012 IRC: Sections R104.11 Alternative materials, and R502.1.7, R602.1.4, and R802.1.6 Structural composite lumber
 - ASTM D5456-14b, ASTM D5456-13, and ASTM D5456-09 recognized by the 2018 IBC and IRC, 2015 IBC and IRC, and 2012 IBC and IRC, respectively
 - APA Reports T99P-18, T99P-19, T99P-20, T2001P-52, T2001P-76, T2002P-31, T2003P-50, T2004P-1, T2006P-10, T2006P-88, T2008P-47, T2009P-45, T2011P-48, T2012P-32, T2015P-23, T2019P-43, and T2019P-52, and other qualification data

2. Product description:

Pacific Woodtech preservative-treated laminated veneer lumber (LVL), designated as PWT TREATED LVL, is an LVL product pressed into billets that are approximately 48 inches in width, 3/4 to 3-1/2 inches in thickness, and up to approximately 66 feet in length. LVL billets are ripped into products that are 1-3/4 to 48 inches in depth. Products up to 7 inches in thickness may be fabricated by means of a secondary face-bonding process.

PWT TREATED LVL is treated with Propiconazole Tebuconazole Imidacloprid (PTI) as part of the in-glueline treatment during the LVL manufacturing process for fungal decay and resistance to wood destroying insects, including Formosan termites, to a retention level equivalent to that specified in ICC-ES Evaluation Report ESR-3834 for the Use Categories UC1 through UC4A. PWT TREATED LVL shall be limited to the above ground applications including, but not limited to, structural members that are critical or hard to replace. The efficacy of the preservative treatment of the PWT TREATED LVL is outside the scope of this report and the APA certification program.

3. Design properties:

The structural design provisions for wood construction provided in the building code are applicable to PWT TREATED LVL. Table 1 lists Allowable Stress Design reference values. Table 2 lists the equivalent specific gravities for connection design. Minimum fastener spacings when installed in the edge of a member are provided in Table 3. The allowable spans for PWT TREATED LVL shall be in accordance with the recommendations provided by the manufacturer (www.pacificwoodtech.com/treated).

Service conditions are considered dry use where the environmental conditions (temperature and relative humidity) will result in an average equilibrium moisture content (EMC) of sawn lumber of less than 16%. Average EMC of 16% or greater is considered wet use conditions.

4. Product installation:
PWT TREATED LVL shall be installed in accordance with the recommendations provided by the manufacturer (see link above).
5. Fire-rated assemblies:
The provisions of IBC Section 721.6.3, Design of fire-resistant exposed wood members, shall be applicable to PWT TREATED 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/resource-library) and the manufacturer (see link above).
6. Limitations:
 - a) PWT TREATED LVL shall be designed in accordance with the code using the design properties specified in this report.
 - b) The efficacy of the preservative treatment of the PWT TREATED LVL is outside the scope of this report and the APA certification program.
 - c) PWT TREATED LVL is produced at the Pacific Woodtech Corporation manufacturing plant located in Burlington, Washington, under a quality control program audited by APA.
 - d) This report is subject to re-examination in one year.
7. Identification:
PWT TREATED LVL is sold under the Pacific Woodtech brand. All products are identified by a label bearing the manufacturer's name (Pacific Woodtech) and/or trademark, the APA assigned plant number (1047), the LVL grade, the APA logo, this report number (PR-L329), and a means of identifying the date of manufacture.

Table 1. Allowable Stress Design Reference Values for PWT TREATED LVL^(a)

Grade	Service Conditions	E _{true} ^(b) , 10 ⁶ psi	Beam ^(c)			Plank ^(d)			Axial	
			F _b ^(e,g) , psi	F _v , psi	F _{c⊥} , psi	F _b ^(f,g) , psi	F _v , psi	F _{c⊥} , psi	F _t ^(h) , psi	F _c ⁽ⁱ⁾ , psi
2.0E _{true}	Dry Use	2.0	2800	285	850 ^(j)	2800	150	650 ^(k)	2100	2500
2.0E _{true}	Wet Use	1.4	1680	160	850 ^(l)	1680	100	650 ^(l)	1780	875

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

- (a) Except for modulus of elasticity (E_{true}) and compression perpendicular to grain (F_{c⊥}), the tabulated values are permitted to be adjusted for duration of load, as provided in the code.
- (b) Tabulated E_{true} values are the shear-free modulus of elasticity. Coefficient of variation of E_{true}, COV_E = 0.10. The deflection equation for a simple-span beam under uniform load is:

$$\delta = \frac{270 w L^4}{E_{true} b h^3} + \frac{28.8 w L^2}{E_{true} b h}$$

where:

δ	= Estimated total deflection, inches	w	= uniform load, plf
L	= span, feet	E_{true}	= tabulated shear-free E, psi
b	= beam width, inches	h	= beam depth, inches

- (c) Beam values apply to members loaded and supported on faces showing the narrow edge of all veneers, typically the narrow faces of the member.
- (d) Plank values apply to members loaded and supported on faces showing the face of one veneer, typically the wide faces of the member.
- (e) Flexural stress, F_b, in the beam orientation is based on a reference depth of 12 inches. For other depths, multiply by a size factor of (12/d)^{1/5}, where d is the depth in inches. For depths less than 1-3/4 inches, multiply by 1.47.
- (f) Flexural stress, F_b, in the plank orientation is based on a reference depth of 1-3/4 inches. For other depths, multiply by a size factor of (1.75/d)^{1/3}, where d is the depth in inches. For depths less than 1-3/4 inches, use the tabulated value.
- (g) Flexural stress, F_b, values are permitted to be increased by 4 percent for repetitive members, as provided in the code.
- (h) Tensile stress parallel to grain, F_t, is based on a reference gage length of 4 feet. For longer lengths, multiply by a length factor of (4/L)^{1/10}, where L is the length in feet.
- (i) Compressive stress parallel to grain, F_c.
- (j) Tabulated compressive stress perpendicular to grain (F_{c⊥}) value in the beam orientation is based on the average stress at the 0.04-in. deformation in accordance with ASTM D5456.
- (k) Tabulated F_{c⊥} value in the plank orientation is based on the average stress at the proportional limit or 0.04-in. deformation, whichever is less, in accordance with ASTM D5456.
- (l) Deformation up to 1/8 inch could occur at the tabulated compressive stress perpendicular to grain in wet use conditions.

Table 2. Equivalent Specific Gravity for Connection Design for PWT TREATED LVL

Connection Type	Face ^(a)	Edge ^(b)
Nail – Withdrawal	0.50	0.47
Nail – Lateral	0.50	0.50
Bolt – Lateral	0.50	NA ^(c)

- (a) Face: member faces showing the face of one veneer, typically the wide faces of the member.
 (b) Edge: member faces showing the narrow edge of all veneers, typically the narrow faces of the member.
 (c) Not available.

Table 3. Minimum Spacing for Fasteners Installed into Edge of PWT TREATED LVL

LVL Dimensions	Fastener ^(a)	Minimum Spacing (inches)
Minimum 3/4-inch thick and 3-1/2-inch deep	8d Nail	3
	10d Nail	4
	12d Nail	4
	16d Nail	NP ^(b)
	14 Gage Staple	4
Minimum 1-1/4-inch thick and 3-1/2-inch deep	10d Nail	4
	12d Nail	4
	16d Nail	6 ^(c)
	14 Gage Staple	4

For SI: 1 inch = 25.4 mm

- (a) Nails are either common or box nails.
 (b) Not permitted.
 (c) Permitted to be 4 inches when nailing through bottom wall plate and sheathing (maximum 1-3/8 inches of penetration).

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