



## EverEdge™ Laminated Veneer Lumber (LVL) Weyerhaeuser Company

**Date of Initial Acceptance:** September 14, 2017

**Expiration Date:** September 30, 2022

**Revision Date:** September 30, 2020

**MANUFACTURER IDENTIFICATION:** Weyerhaeuser Company  
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**TYPE OF ACCEPTANCE:** **Product Material — Wood, Plastics and Composites**  
CSI Specification Division: 06 00 00 and Section: 06 17 13 (Laminated Veneer Lumber)

**PRODUCT DESCRIPTION:**

**EverEdge™ laminated veneer lumber (LVL)** is a structural composite lumber (SCL) product manufactured by laminating wood veneer sheets with an exterior type structural adhesive in a continuous press. The finished product is a composite of veneer sheet elements with wood fibers primarily oriented along the longitudinal axis of the member. Manufacturing parameters including wood species, adhesives and finished dimensional tolerances are specified in the **EverEdge LVL** manufacturing standard. **EverEdge LVL** is available in thicknesses up to 1.75 inches, depths up to 24 inches, and lengths up to 80 feet.

**APPLICABLE CODES AND STANDARDS:**

- 2009, 2012, 2015, and 2018 International Building Code® (IBC®)
- 2009, 2012, 2015, and 2018 International Residential Code® (IRC®)

**CHARACTERISTICS REVIEWED:**

**EverEdge LVL** must be designed and installed in accordance with this Report, the manufacturer's installation instructions and the applicable code(s). If the requirements in the manufacturer's installation instructions differ from those in this Report, this Report governs.

**1. Properties:**

- (a) Design of **EverEdge LVL** described in this Report must be in accordance with the applicable code(s) and the ANSI/AWC National Design Specification® (NDS®) for Wood Construction, including duration of load applications. Table 1 provides **EverEdge LVL** design properties to be used when designing in accordance with the NDS.

**2. Connections:**

- (a) Mechanical connections for **EverEdge LVL** must be in accordance with the NDS. Table 2 specifies requirements for equivalent specific gravity for nails, bolts, screws and lag screws to be used when designing in accordance with the NDS. Table 3 specifies requirements for nail spacing.

**3. Fire Resistance:**

- (a) Fire resistance of **EverEdge LVL** must be calculated in accordance with Chapter 16 of the NDS (2018 edition).

**APPLICABLE USES:**

**EverEdge LVL** is intended for use in construction as an alternative to lumber used in floor, roof, and truss applications. Structural applications include use as beams, headers, joists and rafters. Use of the LVL for wall studs in fire resistant construction and for braced/shear wall applications has not been reviewed and is not part of this Report.

**LIMITATIONS OF ACCEPTANCE:**

**EverEdge LVL** described in this Report complies with or is a suitable alternative to what is specified for solid sawn lumber in those codes listed in the Applicable Codes section of this Report, subject to the following conditions:

1. **EverEdge LVL** must be manufactured, identified, designed and installed in accordance with this Report, the manufacturer's published installation instructions, and the applicable code(s). If the requirements in the manufacturer's installation instructions differ from those in this Report, this Report governs.
2. The product described in this Report is limited to dry service conditions where the in-service equilibrium moisture content is less than 16 percent.
3. Design calculations and details must be furnished to the building official or authority having jurisdiction, verifying that the **EverEdge LVL** is used in compliance with this Report. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is constructed.
4. **EverEdge LVL** may be cut in depth and length for the required applications. The depth shall not be less than 3.5 inches. The thickness of the member must not be altered.
5. Use of **EverEdge LVL** with notches and bored holes, or use as preservative treated LVL, has not been reviewed and is not part of this Report.
6. **EverEdge LVL** is manufactured at the Weyerhaeuser manufacturing facilities located in Castleberry, Alabama or Natchitoches, Louisiana. Quality control inspections are performed by PFS TECO (AA-652).

**DOCUMENTATION SUBMITTED:**

Submitted data was provided in accordance with PFS TECO 1601 (quality control manual, specifications, manufacturer's installation instructions, test data and descriptive information). Test data and analysis was also provided and reviewed for compliance with ASTM D5456, *Standard Specification for Evaluation of Structural Composite Lumber Products*; and ICC-ES *Acceptance Criteria for Structural Wood-Based Products (AC47)*.

**PRODUCT IDENTIFICATION:**

**EverEdge LVL** described in this Report is identified by a mark bearing the product name, grade, production date, plant number, the PFS TECO Research Report number (RR 0105) and the PFS certification mark (see Fig. 1).



Fig. 1: PFS Check Certification Mark with United States country identifier

Table 1: Reference Design Values for 2.0E - 2900F<sub>b</sub> ES EverEdge LVL <sup>(1)(2)(3)</sup>

Orientation <sup>(4)</sup>	Property	Value (psi)	
Joist and Plank	Modulus of Elasticity	E <sup>(5)</sup>	2.0 x 10 <sup>6</sup>
		E <sub>min</sub> <sup>(6)</sup>	1.017 x 10 <sup>6</sup>
Axial	Compression, F <sub>c</sub>	2,510	
	Tension, F <sub>t</sub> <sup>(7)</sup>	1,895	
Joist	Bending, F <sub>b</sub> <sup>(8)</sup>	2,900	
	Compression Perp-to-Grain, F <sub>c⊥</sub>	800	
	Shear, F <sub>v</sub>	285	
Plank	Bending, F <sub>b</sub>	2,865	
	Compression Perp-to-Grain, F <sub>c⊥</sub>	525	
	Shear, F <sub>v</sub>	190	

- (1) Values are based on dry service conditions where the in-service equilibrium moisture content is less than 16 percent.
- (2) Values may be adjusted in accordance with section 8.3 of the NDS (2018 edition).
- (3) Eastern Species (ES) Grade are produced primarily of southern pine (SP) and/or yellow poplar (YP).
- (4) See Fig. 2 for an illustration of member orientation.
- (5) Calculated deflection of bending members must account for both bending and shear deflection. The deflection of a uniformly loaded simple span beam is calculated as follows:

$$\Delta = \frac{270 w L^4}{E b d^3} + \frac{28.8 w L^2}{E b d}$$

where Δ = Deflection, in.                      d = Beam depth, in.  
 b = Beam width, in.                          L = Span, ft  
 w = Uniform load, plf                      E = Modulus of Elasticity, psi

- (6) Reference modulus of elasticity for column stability calculations in accordance with the NDS.
- (7) Reference tension design value is based on a standard length of 4 feet. For lengths longer than 4 feet, multiply F<sub>t</sub> by the following adjustment:

$$(4/L)^{0.085}, \text{ where } L \text{ is length in feet.}$$

For lengths less than 4 feet, use the tabular reference design value.

- (8) Reference bending design value must be adjusted by C<sub>v</sub> = (12/d)<sup>0.136</sup> ≤ 1.18, where d is in inches.

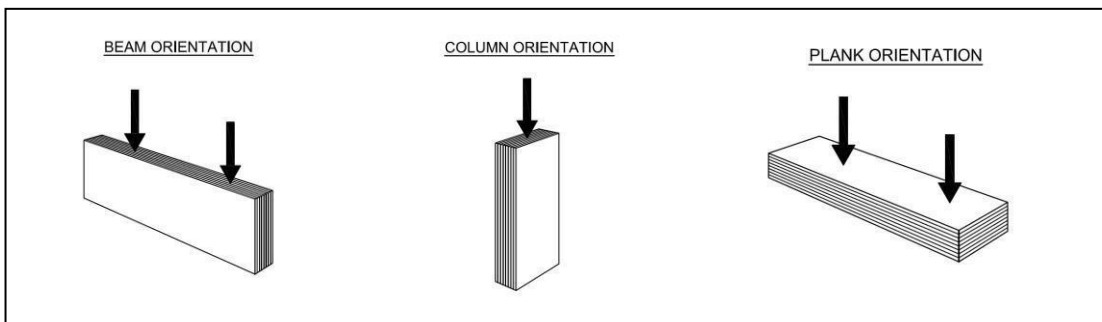


Fig. 2: Member Orientation with Respect to Load

**Table 2: Equivalent Specific Gravity (SG) for Fastener Design** <sup>(1)(2)(3)</sup>

Type	Orientation		Equivalent SG
Nails and Screws	Withdrawal	Installed in Face	0.5
		Installed in Edge	
	Dowel Bearing	Installed in Face	
		Installed in Edge	
Bolts and Lag Screws	Dowel Bearing (Installed in Face)	Load Parallel to Grain	
		Load Perpendicular to Grain	

- (1) Connection design values must be calculated in accordance with Chapters 11 and 12 of the NDS (2018 edition) and must be adjusted by the applicable factors specified in the NDS.
- (2) Minimum nail spacing and edge distances must be as specified in Table 3 in this report. Minimum spacing, end and edge distances for bolts and lag screws must be as specified in the NDS.
- (3) Bolts and lag screws are limited to installation in the face (plank orientation).

**Table 3: Minimum Nail and Staple Spacing along the Edge (joist orientation) of the Member** <sup>(1)(2)(3)(4)</sup>

Fastener type	Fastener Dimensions (in.)		On-Center Spacing (in.)
	Length	Diameter	
6d common nail	2	0.113	3
8d box nail	2.5		
8d common nail	2.5	0.131	4
8d, N8 or N11 nail	1.5		
10d box nail	3	0.128	4
12d box nail	3.25		
10d common nail	3	0.148	5
12d common nail	3.25		
10d, N10 or NA9D nail	1.5	0.148	5
16d box nail	3.5	0.135	5
16d sinker nail	3.25	0.148	5
16d common nail	3.5	0.162	8 <sup>(5)</sup>
No. 14 gage staple	N/A		4

- (1) Maximum permissible rows are three (3) for LVL of 1.75 inch thickness.
- (2) To minimize splitting, member edge distance and spacing between rows shall be 2.5 x nail diameter or 0.375 inches, whichever is greater. Where multiple rows are used, fasteners in adjacent rows must be staggered and the rows must be equally spaced from the centerline of the narrow face axis.
- (3) Nail spacing in this table may be used for wood screws provided that the lengths and root diameters are equal to (or less than) the nail sizes listed in the table above.
- (4) For nails driven into the face (plank orientation), the closest on-center spacing is as permitted by the code for sawn lumber.
- (5) The minimum allowable spacing may be decreased to 5.0 inches on center when maximum nail penetration is 1.25 inches, such as when nailing through a wall sill plate and floor sheathing.