



Pollmeier Spruce Laminated Veneer Lumber

Pollmeier Furnierwerkstoffe GmbH

Initial Acceptance: 23 January 2020

Expiration: 22 January 2021

Revision: 12 October 2020

TYPE OF ACCEPTANCE

Product Material — Wood, Plastics and Composites

CSI Specification Division: 06 00 00 and Section: 06 17 13 (Laminated Veneer Lumber)

MANUFACTURER IDENTIFICATION

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DESCRIPTION OF THE PRODUCT EVALUATED

The laminated veneer lumber (LVL) described in this Report is used as an alternative to sawn lumber for floor, wall, and roof structural members in beam, joist, rafter, header, and column applications.

Pollmeier Spruce LVL is manufactured in accordance with ASTM D5456, with in-plant manufacturing processes approved by PFS TECO. Spruce logs are peeled into veneers that are then dried, sorted according to defined parameters, and stored in a conditioned environment. During manufacture, an approved adhesive is applied to the veneer faces and scarf joints on the end of each sheet of veneer. Veneer is stacked and placed into a continuous-feed press, with heat and pressure applied, to produce one-ply **Pollmeier Spruce LVL**.

A secondary cold-press bonding process, using an approved adhesive and one-ply **Pollmeier Spruce LVL**, is used to produce 2-, 3-, and 4-ply members that are limited in use to joist/beam applications.

One-ply **Pollmeier Spruce LVL** is produced in thicknesses up to 1.75 in. (45 mm), depths of 3.5 to 24 in. (89 to 610 mm), and lengths from 6 to 59 ft. (1.8 to 18 m). Two-ply **Pollmeier Spruce LVL** can be produced in thicknesses up to 3.5 in. (89 mm), depths of 3.5 to 11-7/8 in. (89 to 301 mm), and length the same as that for one-ply members. Three-ply **Pollmeier Spruce LVL** can be produced in thickness up to 5.25 in. (133 mm), depths of 3.5 to 11-7/8 in. (89 to 301 mm), and length the same as that for one-ply members. Four-ply **Pollmeier Spruce LVL** can be produced in thickness up to 7.0 in. (178 mm), depths of 3.5 to 11-7/8 in. (89 to 301 mm), and length the same as that for one-ply members.

CODES AND STANDARDS APPLICABLE TO PRODUCT

- 2009, 2012, 2015, and 2018 International Building Code® (IBC®)
- 2009, 2012, 2015, and 2018 International Residential Code® (IRC®)
- 2015, 2018 National Design Specification® (NDS®) for Wood Construction
- ASTM D5456, *Standard Specification for Evaluation of Structural Composite Lumber Products*



PROPERTIES REVIEWED

Testing of the **Pollmeier Spruce LVL** was conducted in accordance with the applicable Codes and Standards. The evaluation of the testing and analysis verified that the **Pollmeier Spruce LVL** described in Tables 1, 2, and 3 complies with the requirements of ASTM D5456. Specific design properties and capacities are provided in Tables 1, 2, and 3 of this Report.

1. Properties:

- (a) Design of **Pollmeier Spruce LVL** described in this Report must be in accordance with the applicable code(s) and the NDS, including duration of load applications. Table 1 in this Report provides **Pollmeier Spruce LVL** design properties to be used when designing in accordance with the NDS. Fig. 1 illustrates member orientation with respect to load for joist/beam and plank applications.
- (b) Bending strength depth adjustment factors for the **Pollmeier Spruce LVL** product can be found in Table 2.

2. Connections:

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

LIMITATIONS OF ACCEPTANCE

Pollmeier Spruce 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 'Codes and Standards Applicable to Product' section of this Report, subject to the following conditions:

1. The **Pollmeier Spruce LVL** described in this Report is limited to dry service conditions where the in-service equilibrium moisture content is less than 16 percent.
2. Design calculations and details must be furnished to the building official or authority having jurisdiction, verifying that **Pollmeier Spruce 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.
3. **Pollmeier Spruce LVL** may be cut to depth and length for the required application; thickness of members must not be altered.
4. Use of **Pollmeier Spruce LVL** with notches and bored holes, in wall stud or rim board applications, or as preservative treated LVL, has not been reviewed and is not included in the scope of this Report.
5. The use of 2-, 3-, and 4-ply **Pollmeier Spruce LVL** is limited to joist/beam applications. In such cases, the engineer of record is responsible for the design, including requirements for bearing support and loads applied on the top or from the sides (e.g., side-mounted hangers).
6. The use of multi-ply **Pollmeier Spruce LVL** is limited to that which is bonded with approved adhesives in the Pollmeier manufacturing facility. The use of mechanical fasteners (e.g., nails, screws, bolts) to create wider beams from the **Pollmeier Spruce LVL** covered in this Report has not been evaluated and is outside the scope of this Report.
7. **Pollmeier Spruce LVL** is manufactured at the Pollmeier manufacturing facility located in Kreuzburg, Germany. Quality control inspections are conducted by PFS TECO.

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). The product has been evaluated for compliance with ASTM D5456 and ICC-ES *Acceptance Criteria for Structural Wood Based Products (AC47)*.

PRODUCT IDENTIFICATION

Pollmeier Spruce LVL described in this Report is identified by a stamp bearing the product name, grade, production date, PFS TECO plant number (343), the PFS TECO Research Report number (RR 0131), and the PFS certification mark (see Fig. 2).

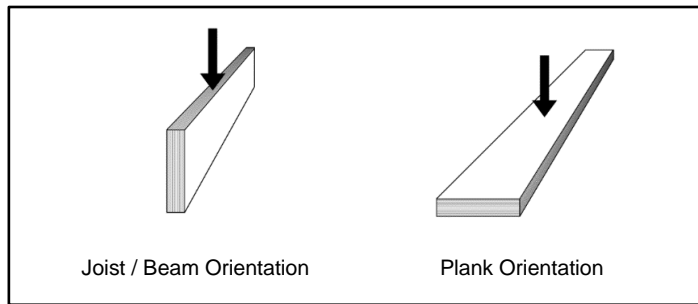


Fig. 1
Member Orientation with Respect to Load



Fig. 2
Image of PFS checkmark with United States country identifier

Table 1: Reference Design Values ⁽¹⁾⁽²⁾⁽³⁾

Orientation	Property		Design Value	
			(psi)	(kPa)
Axial	Compression, F_c		3,070	21,160
	Tension, F_t ⁽⁴⁾		2,280	15,720
Joist / Beam	Bending F_b ⁽⁵⁾	1-, 2-, 3-ply	3,075	21,200
		4-ply	3,050	21,000
	Bending MOE	Apparent ⁽⁶⁾	2.0×10^6	13.8×10^6
		Shear-free	2.1×10^6	14.8×10^6
	Compression Perp-to-Grain, F_c		600	4,130
	Shear, F_v		320	2,200
Plank ⁽⁷⁾	Bending, F_b		3,500	24,100
	Bending MOE, Apparent ⁽⁶⁾		1.9×10^6	13.1×10^6
	Compression Perp-to-Grain, F_c		460	3,170
	Shear, F_v		170	1,170

- 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) See Fig. 1 in this Report for an illustration of member orientation with respect to load.
- 4) Reference tension design value is for 6-ft (1.8 m) gage length. For other lengths, adjust the value by a factor $(6/L)^{1/10}$ where L is the length in ft.
- 5) Reference bending design value must be adjusted by a factor $(12/d)^{1/5}$ where d is in inches. Refer to Table 2.
- 6) The MOE listed is the apparent modulus of elasticity and includes the effects of shear deformation.
- 7) Values in the plank orientation are limited to one-ply LVL.



Table 2: Bending Strength Depth Adjustment Factor

Joist / Beam Depth	inches	1.75	3.5	5.5	9.25	12	14	16	20	24
	mm	45	89	140	235	305	356	406	508	610
Multiplier		1.47	1.28	1.17	1.05	1.00	0.97	0.94	0.90	0.87

Table 3: Equivalent Specific Gravity for Fastener Design ⁽¹⁾⁽²⁾⁽³⁾

Property		Face (Inserted Perpendicular to Wide Face)	Edge (Inserted Perpendicular to Narrow Face)
Nail Load Orientation	Withdrawal	0.60	0.50
	Lateral	0.55	
Bolt Dowel Bearing When Installed Perpendicular to Wide Face	Loaded Parallel to Grain	0.55	
	Loaded Perpendicular to Grain	0.55	

- (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 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 (inserted perpendicular to the wide face of members).