ICC EVALUATION SERVICE®

ICC-ES Evaluation Report

ESR-4618

Reissued April 2023

This report is subject to renewal April 2024.

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 17 13—Laminated Veneer Lumber

REPORT HOLDER:

POLLMEIER FURNIERWERKSTOFFE GMBH

EVALUATION SUBJECT:

POLLMEIER SPRUCE LVL

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Structural
- Fire resistance

2.0 USES

The Pollmeier spruce laminated veneer lumber (LVL) products described in this evaluation report are used in engineered designs as alternatives to sawn lumber for beams, headers, joists and rafters. The LVL may be used in structures regulated under the IRC when an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

Pollmeier Spruce LVL is manufactured from spruce veneers and adhesives meeting the requirements specified in the manufacturer's quality documentation. The grain of all veneer is oriented parallel to the length of the billet. Pollmeier Spruce LVL members are available in thicknesses from $1^3/_4$ to 7 inches (45 to 180 mm), depths from $3^1/_2$ to 24 inches (89 to 610 mm), and lengths up to 59 feet (18 m). Each billet is $1^3/_4$ inches (45 mm) thick. Multiple billets are laminated together to produce thicker LVL products. One grade is produced, namely 2.1E.

4.0 DESIGN

The design provisions for structural composite lumber in Chapter 8 of the ANSI/AWC National Design Specification for Wood Construction® (NDS) are applicable to Pollmeier Spruce LVL, unless otherwise noted in this report. Reference design values for dry conditions of use of Pollmeier Spruce LVL are shown in Table 1.

Connections of the Pollmeier Spruce LVL must be designed in accordance with the NDS using the equivalent specific gravities shown in Table 3 for various fastener conditions. Bolt and nail spacing must be in accordance with the NDS.

The fire-resistance of exposed Pollmeier Spruce LVL members may be calculated in accordance with Chapter 16 of the NDS.

5.0 CONDITIONS OF USE

The Pollmeier Spruce LVL described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The Pollmeier Spruce LVL must be installed in accordance with this report and the approved plans. In the case of a conflict between the approved plans and this report, the more restrictive requirements govern.

5.2 Applied stresses for the Pollmeier Spruce LVL must not exceed the reference design values given in this report, adjusted by all applicable factors in accordance with the NDS.

5.3 Construction documents and calculations demonstrating that the design loads do not exceed the available strengths must be submitted to the code official. The calculations must be prepared by a registered design professional when required by statutes of the jurisdiction in which the project is to be constructed.

5.4 Use of the Pollmeier Spruce LVL is limited to dry service conditions where the moisture content will not exceed 16 percent.

5.5 The Pollmeier Spruce LVL is manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Structural Wood-based Products (AC47), dated June 2017 (editorially revised March 2018).

7.0 IDENTIFICATION

7.1 The Pollmeier Spruce LVL is identified by a stamp bearing the manufacturer's name (Pollmeier), the name of the inspection agency (PFS TECO), the LVL grade, the plant number and lot number, and the evaluation report number (ESR-4618).

7.2 The report holder's contact information is the following:

POLLMEIER FURNIERWERKSTOFFE GMBH
PFERSDORFER WEG 6
99831 CREUZBURG
GERMANY
+49-369-26-945-0
www.pollmeier.com

TABLE 1—ALLOWABLE DESIGN PROPERTIES FOR POLLMEIER SPRUCE LVL 2.1E

PROPERTY	DESIGN STRESS (psi) [1]	
	Edgewise Orientation (Joist)	Flatwise Orientation (Plank)
Bending Strength (F_b)	3080 [2]	3675
Apparent Modulus of Elasticity, MOE	2.0×10^6	2.0×10^6
True (Shear Free) Modulus of Elasticity, MOE	2.1×10^6	2.1×10^6
Tensile Stress (F_t)	2285 [3]	
Compression Parallel to Grain (F_c)	3080	
Compression Perpendicular to Grain ($Fc_\perp$)	600	460
Longitudinal Shear (F_v)	320	175

For **SI:** 1 psi = 6.89 kPa, 1 inch = 25.4 mm
[1]See Figure 1 for load orientation diagrams.
[2]Design value is for 12-inch depth. For depths ranging from 4 to 24 inches, edgewise bending strength must be adjusted by a volume factor, C_V, of $(12/d)^{0.21}$, where d is the member depth in inches. Depth factors for common LVL depths are shown in Table 2.
[3]Design value is for a 6-foot member length. For other lengths (minimum of 3 feet), adjust values by $(6/L)^{0.10}$, where L is the member length in feet.

TABLE 2—VOLUME FACTORS FOR POLLMEIER SPRUCE LVL 2.1E

VOLUME FACTOR (C_V) FOR EDGEWISE BENDING[1]								
Beam Depth (inches)	4	5.5	9.25	12	14	16	20	24
Volume Factor	1.26	1.18	1.06	1.00	0.97	0.94	0.90	0.86
VOLUME FACTOR (C_V) FOR AXIAL TENSION[2]								
Member Length (feet)	3	4.5	6	8	10	12	16	20
Volume Factor	1.07	1.03	1.00	0.97	0.95	0.93	0.91	0.89

For **SI:** 1 inch = 25.4 mm

[1]For beam depths of at least 4 inches which are not tabulated, the volume factor is $(12/d)^{0.21}$, where d is the member depth in inches.
[2]For lengths of at least 3 feet which are not tabulated, the volume factor is $(6/L)^{0.10}$, where L is the member length in feet.

TABLE 3—EQUIVALENT SPECIFIC GRAVITIES FOR CONNECTION DESIGN

FASTENER TYPE	LOADING CONDITION	EQUIVALENT SPECIFIC GRAVITY	
		Face (Inserted perpendicular to the wide face)	Edge (Inserted perpendicular to narrow face)
Carbon steel nails (uncoated or galvanized)	Withdrawal	0.58	0.51
	Lateral	0.58	n/a
Bolts	Loaded parallel to grain	0.58	n/a
	Loaded perpendicular to grain	0.55	n/a

NOTE: See Figure 1 for illustration of fastener orientation.

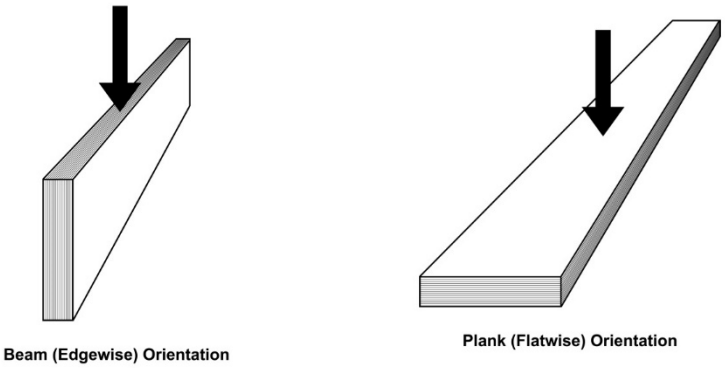

FIGURE 1—BENDING LOAD ORIENTATION