

Joint Evaluation Report

ESR-1040

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Subject to renewal September 2025.

This report also contains:

- LABC Supplement

- FBC Supplement

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DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES Section: 06 17 13— Laminated Veneer Lumber	REPORT HOLDER: BOISE CASCADE WOOD PRODUCTS, LLC	EVALUATION SUBJECT: VERSA-LAM® LAMINATED VENEER LUMBER	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, 2012, 2009 and 2006 [International Residential Code® \(IRC\)](#)

For evaluation for compliance with codes adopted by the [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-1040 LABC and LARC Supplement](#).

For evaluation for compliance with codes adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architects (DSA), see [ESR-1040 CBC and CRC Supplement](#).

Property evaluated:

- Structural
- Fire resistance
- Fireblocking material

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™ \(ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008\)](#)

Attributes verified:

- See Section 3.0

2.0 USES

Versa-Lam® Laminated Veneer Lumber (LVL) is used for structural applications such as beams, headers, joists, rafters, wall studs and rim joists.

3.0 DESCRIPTION

Versa-Lam® LVL is structural composite lumber products complying with ASTM D5456 and is manufactured with the wood fibers primarily oriented parallel to the length of the member, such that the veneers are vertical

when the member is installed in its primary application (joist orientation). Qualified adhesives, veneer species and veneer grades are as specified in the approved Quality Control Manual.

Versa-Lam[®] LVL is available in various grades as indicated in [Table 1](#). Versa-Lam[®] LVL is produced in thicknesses from minimum 1 inch (25.4 mm) up to 7 inches (178 mm), with depths up to 48 inches (1219 mm) and lengths up to 66 feet (20.1 m).

Versa-Lam[®] LVL is also distributed under the proprietary name of Versa-Stud[®] and Versa-Lam Plus[®] that are manufactured to match commonly available solid-sawn lumber sizes.

Versa-Lam[®] LVL is also distributed under the proprietary name of VersaWorks[™] that is manufactured in sizes for use in mass timber construction. VersaWorks[™] used as mass/heavy timber structural members shall meet the minimum dimension requirements specified in IBC Section 2304.11.

The attributes of Versa-Lam[®] LVL have been verified as conforming to the provisions of (i) CALGreen Sections A4.404.3.1 or A4.404.3.2 for resource-efficient materials; (ii) ICC 700-2020 Sections 608.1(2), 11.608.1(2) and 13.104.3.1(4); (iii) ICC 700-2015 Sections 608.1, 11.608.1(2) and 12.1(A).608.1(b); (iv) ICC 700-2012 Sections 608.1(2), 11.608.1(2) and 12.1(a).608.1(b) or (c); and (v) ICC 700-2008 Section 607.1(2) for resource-efficient materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 DESIGN AND INSTALLATION

4.1 General:

The design provisions for structural composite lumber in the ANSI/AWC National Design Specification[®] for Wood Construction (NDS) are applicable to Versa-Lam[®] LVL unless otherwise noted in this report. Reference design values for dry conditions of use of Versa-Lam[®] LVL are indicated in [Table 1](#).

4.2 Connections:

The design of connections for Versa-Lam[®] LVL must be in accordance with the NDS as for solid wood members using an equivalent specific gravity for nail or bolt design for dry-use conditions given in [Table 4](#). Allowable nail spacing is indicated in [Table 3](#).

4.3 Fire Blocking:

Versa-Lam[®] LVL may be substituted for solid-sawn lumber fireblocking provided the minimum sizes of Versa-Lam[®] LVL, as indicated in this report, are as specified by the applicable code for solid-sawn material.

4.4 Rim Board:

For the purposes of this evaluation report, rim boards are defined as continuously supported structural members (except as noted in the last sentence of Section 4.4 of this report), located at the joist elevation either perpendicular to, or parallel to the joist framing, that are the full depth of the joist space and that are used for the following purposes:

1. Transfer, from above to below, of vertical loads at the rim board location. Allowable vertical loads are noted in [Table 2](#).
2. Providing diaphragm attachment (sheathing to top edge of rim board).
3. Transferring in-plane lateral loads from the diaphragm to the wall plate below.
4. Providing lateral support to the joist or rafter (resistance against rotation) through attachments to the joist or rafter.
5. Providing closure for ends of joists or rafters.
6. Providing an attachment base for siding or exterior deck ledger.

Allowable vertical and lateral load transfer capacities for Versa-Lam[®] LVL are provided in [Table 2](#). Rim board must be installed in accordance with the prescriptive provisions of the applicable code. Design of rim board installed over wall openings must be based on the reference design values noted in [Table 1](#).

4.5 Calculated Fire Resistance:

For applications under the 2021, 2018, 2015, 2012 and 2009 IBC, the fire resistance of exposed Versa-Lam[®] LVL members may be calculated in accordance with Chapter 16 of the NDS.

4.6 Wall Studs:

4.6.1 General: Versa-Lam[®] LVL manufactured in White City, Oregon, and Alexandria, Louisiana may be used as wall stud material in accordance with the prescriptive requirements in Section 2308.5 of the 2021, 2018 and 2015 IBC, Section 2308.9 of the 2012, 2009 and 2006 IBC and Section R602 of the IRC, subject to the following conditions:

1. Versa-Lam[®] LVL used as wall studs must have a thickness of 1½ inches (38 mm) or greater.
2. Cutting, notching and boring of nominally 2-by-4 and 2-by-6 Versa-Lam[®] LVL studs is permitted in accordance with Sections 2308.5.9 and 2308.5.10 of the 2021, 2018 and 2015 IBC, Sections 2308.9.10 and 2308.9.11 of the 2012, 2009 and 2006 IBC and Section R602.6 of the IRC.

Allowable shear values for nailed wood structural panel shear walls utilizing Versa-Lam[®] LVL framing members may be determined using Section 2306.3 of the 2021, 2018, 2015 and 2012 IBC, Table 2306.3 of the 2009 IBC or Table 2306.4.1 of the 2006 IBC, for shear walls with framing of Douglas fir-Larch, subject to the following conditions:

1. For Versa-Lam[®] LVL studs with thickness less than 3½ inches (89 mm), a double Versa-Lam[®] LVL stud must be used at adjoining wood structural panel edges. Studs must be stitch nailed together with two staggered rows of 0.148 inch (3.8 mm) diameter (10d common) nails spaced at 8 inches on center in each row.
2. Nails at panel edges must be staggered along two nailing lines spaced approximately ½ inch (12.7 mm) apart. Nails at panel edges must also be at least ⅜ inch (9.5 mm) from the edges of the Versa-Lam[®] LVL stud and the wood structural panel.
3. The tabulated shear values for nailed wood structural panel shear walls using 8d or 10d box or common nails at a panel edge nail spacing of 2 inches (51 mm) must be multiplied by a factor of 0.90.
4. The tabulated shear values for nailed wood structural panel shear walls using 10d box or common nails at a panel edge nail spacing of 3 inches (76 mm) must be multiplied by a factor of 0.90.

4.6.2 Fire-resistance-rated Wall Construction: Versa-Lam[®] LVL is permitted to be used in fire-resistance-rated wall construction as follows:

1. For conventional light-frame construction, Versa-Lam[®] LVL is permitted to be used as a direct replacement for solid-sawn lumber in any 1-hour fire-resistance-rated wall assembly listed in Table 721.1(2) of the 2021, 2018, 2015, 2012 IBC, and Table 720.1(2) of the 2009 and 2006 IBC, provided the following conditions are met:
 - a. The Versa-Lam[®] LVL studs have a minimum depth of 3½ inches (89 mm) (nominal 2-by-4).
 - b. Tape and joint compound must be applied to fastener heads and gypsum wallboard joints on the exposed surface(s).
2. For engineered, load-bearing wall construction, Versa-Lam[®] LVL is permitted to be used in 1-hour fire-resistance-rated wall assemblies provided the following conditions are met:
 - a. The Versa-Lam[®] LVL studs have a minimum depth of 5½ inches (140 mm) (nominal 2-by-6).
 - b. Studs must be spaced no more than 16 inches (406 mm) on center.
 - c. Minimum ⅝-inch (15.9 mm) Type X gypsum wallboard must be attached with 2¼-inch-long (57 mm) Type S drywall screws spaced 7 inches (178 mm) on center along each stud.
 - d. Tape and joint compound must be applied to fastener heads and gypsum wallboard joints on the exposed surface(s).
 - e. The design axial compressive stress within the studs must not exceed the least of the following:
 - i. 525 psi (3620 kPa).

- ii. $0.46F_c'$, where F_c' is the compression design value parallel-to-grain, adjusted by all applicable adjustment factors in accordance with the NDS, including the column stability factor, C_P .
- iii. $0.46 F_c'$, where F_c' is calculated in accordance with the NDS assuming a slenderness ratio, l_e/d , of 21.

4.7 Installation:

Versa-Lam[®] LVL products must comply with this report and the wood construction requirements noted in the applicable code, as indicated in this report.

5.0 CONDITIONS OF USE:

The Versa-Lam[®] LVL products described in this report comply with, or are suitable alternatives to what is specified in those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Versa-Lam[®] LVL products are manufactured by Boise Cascade Wood Products, LLC, in White City, Oregon, Alexandria, Louisiana and Thorsby, Alabama, under a quality-control program with inspections by ICC-ES and APA—The Engineered Wood Association (AA-649).
- 5.2 The service conditions for the Versa-Lam[®] LVL products described in this report must be a covered, dry condition of use. Dry conditions of use are those conditions of use represented by sawn lumber at which the moisture content is less than 16 percent.
- 5.3 Calculations and details for specific applications, demonstrating that the use of Versa-Lam[®] LVL products comply with this report, must be submitted to the code official upon request. The documents in question must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.4 Duration-of-load adjustments, as provided for wood members and their connections, may be applied in accordance with the limitations specified in the applicable code, as indicated in this report.
- 5.5 The use of treatments on the products listed in this report, such as preservatives and fire retardants, is outside the scope of this report.
- 5.6 Cutting and notching of Versa-Lam[®] LVL products is outside the scope of this report except when used as wall studs.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with [ICC-ES Acceptance Criteria for Structural Wood-based Products \(AC47\)](#), dated June 2017 (editorially revised February 2021).
- 6.2 Data in accordance with [ICC-ES Acceptance Criteria for Rim Board Products \(AC124\)](#), dated October 2019 (editorially revised February 2021).
- 6.3 Data in accordance with [ICC-ES Acceptance Criteria for Wood-based Studs \(AC202\)](#), dated June 2009 (editorially revised February 2021).
- 6.4 Reports of fire tests conducted in accordance with ASTM E119.

7.0 IDENTIFICATION

- 7.1 Versa-Lam[®] LVL products are identified with a stamp noting the manufacturer's name (Boise Cascade) and plant location, the product name (including MOE, design flexural stress and design axial tensile stress, as applicable), the species, the date of manufacture, the evaluation report number (ESR-1040), and the name of the inspection agency (APA-The Engineered Wood Association). Unless otherwise identified, all products from White City, Oregon, are manufactured from primarily Douglas fir and all products from Alexandria, Louisiana and Thorsby, Alabama are manufactured from primarily southern yellow pine.
- 7.2 The report holder's contact information is the following:

BOISE CASCADE WOOD PRODUCTS, LLC
POST OFFICE BOX 2400
WHITE CITY, OREGON 97503-0400
(541) 826-0200
www.bc.com/ewp

TABLE 1—REFERENCE DESIGN VALUES FOR Versa-Lam[®] LVL (pounds per square inch)^{1,2,11}

TRUE E		APPARENT E		FLEXURAL STRESS, F _b		TENSION PARALLEL TO GRAIN ⁵ , F _t	COMP. PARALLEL TO GRAIN, F _c	COMPRESSION PERPENDICULAR TO GRAIN, F _{c⊥}		HORIZONTAL SHEAR, F _v	
PRODUCT GRADE ⁷	MOE ⁷ E (×10 ⁶ psi)	PRODUCT GRADE ⁸	MOE ^{6,8} E (×10 ⁶ psi)	Joist ³	Plank ⁴			Perp. to Narrow Face (Plank)	Parallel to Narrow Face (Joist)	Parallel to Narrow Face (Plank)	Perp. to Narrow Face (Joist)
1.4E 1600/1100	1.4	1.3E 1600 ⁹	1.3	1,600	1,600	1,100	2,500	450	525	150	225
1.4E 1750/1100	1.4	1.3 1750 ⁹	1.3	1,750	1,600	1,100	2,500	450	525	150	225
1.5E 1800	1.5	1.4 1800/1100	1.4	1,800	1,800	1,100	2,500	450	525	150	225
1.5E 1800 _{Plank}	1.5	1.4 1800/1200	1.4	1,500	1,800	1,200	2,500	450	525	150	225
1.5E 1950	1.5	1.4 1950/1100	1.4	1,950	1,800	1,100	2,500	450	525	150	225
1.5E 1800/1250	1.5	1.4 1800 ⁹	1.4	1,800	1,800	1,250	2,500	450	525	150	225
1.5E 1950/1250	1.5	1.4 1950 ⁹	1.4	1,950	1,800	1,250	2,500	450	525	150	225
1.6E 2050	1.6	1.5 2050/1250	1.5	2,050	2,050	1,250	2,500	450	525	150	225
1.6E 2250	1.6	1.5 2250/1250	1.5	2,250	2,050	1,250	2,500	450	525	150	225
1.6E 2050/1400	1.6	1.5 2050 ⁹	1.5	2,050	2,050	1,400	2,500	450	525	150	225
1.6E 2250/1400	1.6	1.5 2250 ⁹	1.5	2,250	2,050	1,400	2,500	450	525	150	225
1.7E 2250	1.7	1.6 2250/1400	1.6	2,250	2,250	1,400	2,500	450	525	150	225
1.7E 2450	1.7	1.6 2450/1400	1.6	2,450	2,250	1,400	2,500	450	525	150	225
1.7E 2250/1500	1.7	1.6 2250 ⁹	1.6	2,250	2,250	1,500	2,500	450	525	150	225
1.7E 2450/1500	1.7	1.6 2450 ⁹	1.6	2,450	2,250	1,500	2,500	450	525	150	225
1.8E 2400	1.8	1.7 2400/1500	1.7	2,400	2,400	1,500	3,000	610 ¹⁰	750	190	285
1.8E 2650	1.8	1.7 2650/1500	1.7	2,650	2,400	1,500	3,000	610 ¹⁰	750	190	285
1.8E 2400/1650	1.8	1.7 2400 ⁹	1.7	2,400	2,400	1,650	3,000	610 ¹⁰	750	190	285
1.8E 2650/1650	1.8	1.7 2650 ⁹	1.7	2,650	2,400	1,650	3,000	610 ¹⁰	750	190	285
1.9E 2500	1.9	1.8 2500/1650	1.8	2,500	2,500	1,650	3,000	610 ¹⁰	750	190	285
1.9E 2750	1.9	1.8 2750/1650	1.8	2,750	2,500	1,650	3,000	610 ¹⁰	750	190	285
1.9E 2500/1825	1.9	1.8 2500 ⁹	1.8	2,500	2,500	1,825	3,000	610 ¹⁰	750	190	285
1.9E 2750/1825	1.9	1.8 2750 ⁹	1.8	2,750	2,500	1,825	3,000	610 ¹⁰	750	190	285
2.0E 2600	2.0	1.9 2600/1825	1.9	2,600	2,600	1,825	3,000	610 ¹⁰	750	190	285
2.0E 2850	2.0	1.9 2850/1825	1.9	2,850	2,600	1,825	3,000	610 ¹⁰	750	190	285
2.0E 2600/1950	2.0	1.9 2600 ⁹	1.9	2,600	2,600	1,950	3,000	610 ¹⁰	750	190	285
2.0E 2850/1950	2.0	1.9 2850 ⁹	1.9	2,850	2,600	1,950	3,000	610 ¹⁰	750	190	285
2.1E 2800	2.1	2.0 2800/1950	2.0	2,800	2,800	1,950	3,000	610 ¹⁰	750	190	285
2.1E 3100	2.1	2.0 3100/1950	2.0	3,100	2,800	1,950	3,000	610 ¹⁰	750	190	285
2.1E 2800/2150	2.1	2.0 2800 ⁹	2.0	2,800	2,800	2,150	3,000	610 ¹⁰	750	190	285
2.1E 3100/2150	2.1	2.0 3100 ⁹	2.0	3,100	2,800	2,150	3,000	610 ¹⁰	750	190	285
2.2E 2900	2.2	2.1 2900/2150	2.1	2,900	2,900	2,150	3,000	610 ¹⁰	750	190	285
2.2E 3200	2.2	2.1 3200/2150	2.1	3,200	2,900	2,150	3,000	610 ¹⁰	750	190	285
2.2E 2900/2250	2.2	2.1 2900 ⁹	2.1	2,900	2,900	2,250	3,000	610 ¹⁰	750	190	285
2.2E 3200/2250	2.2	2.1 3200 ⁹	2.1	3,200	2,900	2,250	3,000	610 ¹⁰	750	190	285
2.3E 3100	2.3	2.2 3100/2250	2.2	3,100	3,100	2,250	3,000	610 ¹⁰	750	190	285
2.3E 3400	2.3	2.2 3400/2250	2.2	3,400	3,100	2,250	3,000	610 ¹⁰	750	190	285
2.3E 3100/2425	2.3	2.2 3100 ⁹	2.2	3,100	3,100	2,425	3,000	610 ¹⁰	750	190	285
2.3E 3400/2425	2.3	2.2 3400 ⁹	2.2	3,400	3,100	2,425	3,000	610 ¹⁰	750	190	285

For SI: 1 psi=0.00689 MPa.,

¹Reference design values are based on dry conditions of use where the in-service moisture content of the Versa-Lam[®] LVL is less than 16 percent.²Reference design values must be adjusted, as applicable, in accordance with Section 8.3 of the NDS.³The tabulated reference flexural stress, F_b, is for Versa-Lam[®] LVL with a 12-inch (305 mm) depth. For other depths, when thickness is less than or equal to 7 inches (178 mm), multiply by the volume factor C_v = (12/d)^{1/9}, where d is the member depth in inches. When thickness is greater than 7 inches (178 mm), multiply by the volume factor C_v = (12/d)^{1/5}, where d is the member depth in inches.⁴For plank members greater than 7 inches (178 mm) in depth, the tabulated reference flexural stress, F_b, shall be multiplied by the volume factor C_v = (7/d)^{1/5}, where d is the member depth in inches.⁵The tabulated reference tension stress, F_t, is for Versa-Lam[®] LVL with a 4-foot (1219 mm) length. For lengths longer than 4 feet (1219 mm), multiply F_t by the length factor of (4/L)^{1/8}, where L is the member length in feet.⁶The reference modulus of elasticity for beam stability and column stability calculations, E_{min}, must be calculated using E_{apparent} in accordance with Appendix D of the NDS. When calculating E_{min}, the coefficient of variation of modulus of elasticity, COV_E, may be taken as 0.10.⁷Values are true E (E_{true}).⁸Values are apparent E (E_{apparent}).⁹Product may also be labeled according to both F_b and F_t. Example: 2.0 2800 is equivalent to 2.0 2800/2150.¹⁰Minimum thickness = 1½ inches (38.1 mm). For thickness less than 1½ inches (38.1 mm) use 450 psi.¹¹For uniformly loaded, simple span beams, deflection is calculated as follows:

$$D_{true} = \frac{270WL^4}{E_{true}bd^3} + \frac{28.8WL^2}{E_{true}bd} \quad D_{apparent} = \frac{270WL^4}{E_{apparent}bd^3}$$

where:

D = Deflection (inches)
 W = Uniform load (plf)

b = Beam width (inches)
 d = Beam depth (inches)

L = Span (feet)
 E = Modulus of elasticity (psi)

TABLE 2—Versa-Lam[®] LVL ALLOWABLE RIM BOARD DESIGN CAPACITIES

MODULUS OF ELASTICITY, E (x10 ⁶ psi)		MINIMUM THICKNESS (inches)	ALLOWABLE VERTICAL LOAD ^{1,2}						LATERAL CAPACITY ^{5,6,7} (lb/ft)	CONTAINS CROSS-PLY VENEER
			Distributed Load (lb/ft)			Concentrated Load (lb) (4½ in. Min. Width)				
True	Apparent		d ≤ 16	16 < d ≤ 20	20 < d ≤ 24	d ≤ 16	16 < d ≤ 20	20 < d ≤ 24		
1.4–1.7	1.3-1.6	1	2,000	N/A	-	N/A	N/A	-	190	No
		1 ¹ / ₁₆	2,000	N/A	-	N/A	N/A	-	205	No
		1 ¹ / ₈	2,000	N/A	-	N/A	N/A	-	220	No
		1 ³ / ₁₆	2,000	N/A	-	N/A	N/A	-	230	No
		1 ¹ / ₄	3,250	3,250	-	2,250	2,250	-	See Note 3	No
		1 ⁵ / ₁₆	6,000	5,450	5,200	4,450	4,450	3,850	See Note 3	Yes
		1 ¹ / ₂	6,480	5,600	5,600	4,600	4,450	4,450	See Note 3	Yes
		2 ¹ / ₄	3,250	3,250	-	2,250	2,250	-	See Note 4	No
1.8–2.3	1.7-2.2	1	4,250	3,700	-	3,700	3,500	-	190	No
		1 ¹ / ₁₆	4,250	3,700	-	3,700	3,500	-	205	No
		1 ¹ / ₈	4,250	3,700	-	3,700	3,500	-	220	No
		1 ³ / ₁₆	4,250	3,700	-	3,700	3,500	-	230	No
		1 ¹ / ₄	4,250	3,700	-	3,700	3,500	-	See Note 3	No
		1½	4,250	3,700	1,490	3,700	3,500	3,300	See Note 3	No
		1¾	4,250	3,700	2,350	3,700	3,500	3,500	See Note 3	No
		3½	4,250	3,700	3,700	6,000	6,000	6,000	See Note 4	No
2.1–2.3	2.0-2.2	1 ¹ / ₂	5,450	4,300	1,490	4,300	3,900	3,300	See Note 3	No
		1¾	5,700	4,300	2,350	4,300	3,900	3,630	See Note 3	No
		2¼	5,700	4,300	2,350	4,300	3,900	3,630	See Note 4	No
		3½	5,700	4,300	4,300	6,000	6,000	6,000	See Note 4	No

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 lbf/ft = 0.0146 kN/m.

¹Allowable loads given in this table are not permitted to be increased by the load duration factor, C_D .² d = member depth (inches).³The lateral capacity (in-plane shear) is as permitted in the applicable code for solid-sawn lumber framing in horizontal wood diaphragms with nominally 2-inch-thick framing.⁴The lateral capacity (in-plane shear) is as permitted in the applicable code for solid-sawn lumber framing in horizontal wood diaphragms with nominally 3-inch-thick framing.⁵Versa-Lam[®] LVL used as rim joist may be substituted for solid-sawn framing in horizontal wood diaphragms as shown in Tables 4.2A, 4.2B and 4.2C of the 2021 and 2015 ANSI/AWC SDPWS, Tables 2306.2(1) and 2306.2(2) of the 2021, 2018, 2015, 2012 and 2009 IBC and Table 2306.3.1 of the 2006 IBC (maximum horizontal shear values must be limited as noted).⁶Toe-nailed connections are not limited by the 150 plf lateral load capacity noted for Seismic Design Categories D, E, and F in Section 4.1.10 and Section 4.1.7 of the 2021 and 2015 ANSI/AWC SDPWS respectively, and Section 2305.1.4 of the 2006 IBC.⁷See Table 3 for minimum nail spacing requirements.TABLE 3—ALLOWABLE NAIL SPACING FOR Versa-Lam[®] LVL (inches)^{1,2}

CONNECTOR SIZE	NAILS PARALLEL TO THE GLUE LINE										NAILS PERP. TO THE GLUE LINE	
	Minimum Thickness 1 inch		Minimum Thickness 1 1/4 inches		Minimum Thickness 1 1/2 inches		Minimum Thickness 1 3/4 inches		Minimum Thickness 3 1/2 inches		All Thicknesses ³	
	o.c.	End ⁴	o.c.	End ⁴	o.c.	End ⁴	o.c.	End ⁴	o.c.	End ⁴	o.c.	End ⁴
8d box	3	1 1/2	3	1 1/2	3	1 1/2	2	1	2	1 1/2	2	1
8d common	4	3	3	2	3	2	3	2	2	1	2	1
10d & 12d box	4	3	3	2	3	2	3	2	2	1	2	1
16d box	4 (5) ⁵	3	3 (5) ⁵	2 (2 1/2) ⁵	3 (5) ⁵	2 (2 1/2) ⁵	3 (5) ⁵	2 (2 1/2) ⁵	2 (3) ⁵	1 (2 1/2) ⁵	2	2
10d & 12d common	6	4	4 (5) ⁵	3	4 (5) ⁵	3	4 (5) ⁵	3	2 (3) ⁵	2 (3) ⁵	2	2
16d sinker	6	4	4 (6) ⁵	3	4 (6) ⁵	3	4 (6) ⁵	3	2 (4) ⁵	2 (3) ⁵	2	2
16d common	6 (8) ⁵	4	6 (8) ⁵	4	6 (8) ⁵	4	6 (8) ⁵	3 (4) ⁵	2 (4) ⁵	2 (3) ⁵	2 (3) ⁵	2 (2 1/2) ⁵

For SI: 1 inch = 25.4 mm.

¹Spacing requirements and maximum nail size for panel edge nailing of wall sheathing at adjoining panels must also be in accordance with Section 4.6.

²Edge distances must be sufficient to prevent splitting.

³For multiple rows of fasteners, the rows must be offset 1/2 inch or more from each other, equally spaced from the centerline of the Versa-Lam[®] LVL member and staggered.

⁴"End" refers to the minimum distance between the nail and the end(s) of the piece(s) being connected.

⁵Nail spacings in the parentheses are applicable only to Versa-Lam LVL manufactured in Thorsby, Alabama. All other spacings without parentheses are also applicable to Thorsby LVL.

TABLE 4—EQUIVALENT SPECIFIC GRAVITIES FOR CONNECTOR DESIGN

PRODUCT	MODULUS OF ELASTICITY, E ¹ (x10 ⁶ psi)	NAILS AND WOOD SCREWS					
		Lateral Installed into Wide Face		Lateral Installed into Narrow Face		Withdrawal	
		Loaded Parallel to Length	Loaded Perpendicular to Length	Loaded Parallel to Length	Loaded Perpendicular to Length	Installed into Wide Face	Installed into Narrow Face
Versa-Lam [®]	1.3 – 2.3	0.50	0.50	0.50	0.50	0.50	0.50 (0.43) ²

PRODUCT	MODULUS OF ELASTICITY, E ¹ (x10 ⁶ psi)	BOLTS AND WOOD SCREWS			
		Lateral Installed into Wide face		Lateral Installed into Narrow Face	
		Loaded Parallel to Length	Loaded Perpendicular to Length	Loaded Parallel to Length	Loaded Perpendicular to Length
Versa-Lam [®]	1.3 – 2.3	0.50	0.50	0.50	0.50

¹Values are true E (E_{true}) or apparent E (E_{apparent}).

²Equivalent specific gravity in the parenthese is applicable only to Versa-Lam LVL manufactured in Thorsby, Alabama. All other equivalent specific gravities without parentheses are also applicable to Thorsby LVL.

DISCLAIMER

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ICC-ES Evaluation Report

ESR-1040 LABC and LARC Supplement

Reissued September 2023

Revised November 2023

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A Subsidiary of the International Code Council®

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

REPORT HOLDER:

BOISE CASCADE WOOD PRODUCTS, LLC

EVALUATION SUBJECT:

VERSA-LAM® LAMINATED VENEER LUMBER

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that VERSA-LAM® laminated veneer lumber, described in ICC-ES evaluation report [ESR-1040](#), has also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 *City of Los Angeles Building Code* (LABC)
- 2023 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The VERSA-LAM® laminated veneer lumber, described in Sections 2.0 through 7.0 of the master evaluation report [ESR-1040](#), complies with the LABC Chapter 23, and the LARC, and is subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The VERSA-LAM® laminated veneer lumber, described in this evaluation report supplement, must comply with all of the following conditions:

- All applicable sections in the master evaluation report [ESR-1040](#).
- The design, installation, conditions of use and identification are in accordance with the 2021 *International Building Code*® (IBC) and 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-1040](#), as applicable.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16, 17 and 23, as applicable.
- Cutting, notching and boring of members used as wall studs in accordance with Section 4.5.1 of the evaluation report ESR-1040 must also comply with the additional requirements in the City of Los Angeles Department of Building and Safety Information Bulletin P/BC 2020-007.

This supplement expires concurrently with the evaluation report, reissued September 2023 and revised November 2023.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

Section: 06 17 13—Laminated Veneer Lumber

REPORT HOLDER:

BOISE CASCADE WOOD PRODUCTS, LLC

EVALUATION SUBJECT:

VERSA-LAM® LAMINATED VENEER LUMBER

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Versa-Lam® Laminated Veneer Lumber (LVL), described in ICC-ES evaluation report ESR-1040, has also been evaluated for compliance with the code(s) noted below.

Applicable code edition(s):

■ 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

■ 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Versa-Lam® Laminated Veneer Lumber (LVL), described in Sections 2.0 through 7.0 of the evaluation report ESR-1040, complies with CBC Chapter 23, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, ESR-1040, and the additional requirements of CBC Chapters 16, 17 and 23, as applicable.

The Versa-Lam® Laminated Veneer Lumber (LVL) has not been evaluated under Chapter 7A for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

2.1.1 OSHPD:

The Versa-Lam® Laminated Veneer Lumber (LVL), described in Sections 2.0 through 7.0 of the evaluation report ESR-1040, complies with CBC amended Chapters 16, 17 and 23, and Chapters 16A and 17A provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, and the additional requirements in Section 2.1.1.1 and 2.1.1.2 of this supplement:

2.1.1.1 Conditions of Use:

1. All loads applied shall be determined by the registered design professional and shall comply with applicable loads and load combinations from CBC Chapter 16 and amendments [OSHPD 1R, 2, 3 and 5] and 16A [OSHPD 1 and 4].
2. Conventional light-frame construction under Section 2308 is permitted in accordance with CBC Section 2308.2.7 [OSHPD 1R, 2 & 5].
3. Seismic Design Category shall be in accordance with CBC amended Section 1613.1 Exception 6 [OSHPD 1R, 2 & 5].
4. Construction documents shall include detailing and limitations for notches and bored holes in accordance with CBC amended Sections 2304.3.4 and 2304.4.1 [OSHPD 1, 1R, 2, 4 and 5].

2.1.1.2 Special Inspection Requirement: Special inspection of wood structural elements are required in accordance with CBC amended Section 1705A.5.4 [OSHDP 1 & 4].

2.1.2 DSA:

The Versa-Lam® Laminated Veneer Lumber (LVL), described in Sections 2.0 through 7.0 of the evaluation report ESR-1040, complies with CBC amended Chapters 16 and 23, and Chapters 16A and 17A provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, and the additional requirements in Section 2.1.2.1 and 2.1.2.2 of this supplement:

2.1.2.1 Conditions of Use:

1. All loads applied shall be determined by the registered design professional and shall comply with applicable loads and load combinations from CBC amended sections in Chapter 16 [DSA-SS/CC] and 16A [DSA/SS].
2. Conventional light-frame construction under Section 2308, if applicable, shall comply with CBC Section 2308.2.7 [DSA-SS and DSA-SS/CC]
3. Construction documents shall include detailing and limitations for notches and bored holes in accordance with CBC amended Sections 2304.3.4 and 2304.4.1 [DSA-SS and DSA-SS/CC].

2.1.2.2 Special Inspection Requirement: Special inspection of wood structural elements are required in accordance with CBC amended Section 1705A.5.4 [DSA-SS and DSA-SS/CC].

2.2 CRC:

The Versa-Lam® Laminated Veneer Lumber (LVL), described in Sections 2.0 through 7.0 of the evaluation report ESR-1040, complies with CRC Chapters 5, 6, and 8, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report, ESR-1040.

The Versa-Lam® Laminated Veneer Lumber (LVL) has not been evaluated under CRC Section R337 for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

The Versa-Lam® Laminated Veneer Lumber (LVL) described in this supplement has not been evaluated for compliance with the *International Wildland-Urban Interface Code*®.

This supplement expires concurrently with the evaluation report, reissued September 2023 and revised November 2023.

ICC-ES Evaluation Report

ESR-1040 FBC Supplement

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A Subsidiary of the International Code Council®

DIVISION: 06 00 00—WOOD, PLASTICS, AND COMPOSITES

Section: 06 17 13—Laminated Veneer Lumber

REPORT HOLDER:

BOISE CASCADE WOOD PRODUCTS, LLC

EVALUATION SUBJECT:

VERSA-LAM® LAMINATED VENEER LUMBER

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that VERSA-LAM® Laminated Veneer Lumber (LVL) described in ICC-ES evaluation report ESR-1040, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 and 2020 *Florida Building Code—Building*
- 2023 and 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The VERSA-LAM® LVL, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report ESR-1040, complies with the *Florida Building Code—Building* and the *Florida Building Code-Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code-Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-1040 for the 2021 and 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code-Residential*, as applicable.

Use of the VERSA-LAM® LVL for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued September 2023 and revised November 2023.