

ICC-ES Evaluation Report

ESR-5360

Issued April 2026

This report also contains:

- [CA Supplement](#)

Subject to renewal April 2027

- [FL Supplement](#)

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DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES Section: 06 17 13— Laminated Veneer Lumber	REPORT HOLDER: EVOLUTION INDUSTRIES, LLC	EVALUATION SUBJECT: EVOLUTION LAMINATED VENEER LUMBER (LVL) EVOLUTION TREATED LVL EVOLUTION LVL EVO- BEAM	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Structural

2.0 USES

Evolution Laminated Veneer Lumber (LVL) products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, are used as an alternative to sawn lumber for structural applications including beams, headers, joists, rafters and wall plates.

Evolution Treated LVL is allowed to be used in above ground structures constructed with structural components that are difficult to maintain, repair or replace and are critical to the structural performance and safety of the entire structures.

3.0 DESCRIPTION

3.1 General

The Evolution LVL products comply with the requirements noted in Section 2303.1.10 of the 2021, 2018 and 2015 IBC (Section 2303.1.9 of the 2012 IBC). Evolution LVL products may also be used in structures regulated under the IRC when an engineered design is submitted in accordance with IRC Section R301.1.3. Evolution LVL products have been evaluated by testing in accordance with the performance requirements outlined in ASTM D5456 for LVL and is available in grades provided in Table 1.

3.2 Evolution LVL: The Evolution LVL is manufactured with layers of wood veneers laminated together using an exterior-type structural phenol-formaldehyde adhesive, conforming to ASTM D2559 and ASTM D5456. The wood veneer properties and species, adhesive, manufacturing parameter and finished product dimensions and tolerances are as specified in the approved quality documentation and manufacturing standard. The Evolution LVL is available in thickness from 1½ inches (38 mm) to 3½ inches (89 mm), depth from 3½ inches (89 mm) to 24 inches (610mm), and length up to 64 feet (19.2 m). The Evolution LVL “Evo-beam” is available by face-laminating individual thicknesses of Evolution LVL billets up to a maximum thickness of 7 inches (178 mm).

3.3 Evolution Treated LVL: The Evolution Treated LVL is fabricated with wood veneers that are treated with Propiconazole Tebuconazole Imidacloprid (PTI) through a spraying process during the LVL manufacturing for fungal and decay resistance to wood destroying insects, including Formosan termites, to a retention level at least 0.018 pounds per cubic foot (0.29 kg/m³), as specified in AWPAC P45 for the Use Categories UC1 through UC3B. The Evolution Treated LVL must be limited to above ground applications including, but not limited to, structural members that are hard to maintain, repair or replace and are critical to the performance and safety of the structure system. The wood veneer properties and species, PTI treated veneers, manufacturing parameters, and finished product dimensions and tolerances are as specified in the approved quality documentation and manufacturing standard.

4.0 DESIGN AND INSTALLATION

4.1 General:

Design and installation of the Evolution LVL products must be in accordance with this report, the applicable code provisions and the manufacturer's published installation instructions. The requirements specified for allowable stress design in accordance with the 2021 and 2018 IBC Section 2302.1(1) and 2015 and 2012 IBC Section 2301.2(1), and the design provisions for structural composite lumber in the 2018 American Wood Council *National Design Specification (NDS) for Wood Construction* are applicable to Evolution LVL products. Reference design values are noted in [Table 1](#).

4.2 Connections:

The design of mechanical connections in the Evolution LVL products must be in accordance with the NDS. Equivalent specific gravities for the design of nail and bolt connections under dry use conditions are given in [Table 2](#). Minimum spacing, edge and end distance for nails and bolts in the faces and edges of the Evolution LVL products must comply with the 2018 NDS, as applicable.

4.3 Installation

The Evolution LVL products must be installed in accordance with this evaluation report, applicable codes and the specifications of design professional responsible for the design of structure. Drawings and/or the manufacturer's published installation instructions must be available at the jobsite at all times

5.0 CONDITIONS OF USE:

The Evolution LVL products described in this report comply with, or are suitable alternatives to what is specified in those codes listed in Section 1.0, subject to the following conditions:

- 5.1 Installation, fabrication, identification, and connection restrictions must be in accordance with the applicable building code, this evaluation report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 Calculations and drawings demonstrating compliance with this report must be submitted to the code official. The calculations and drawings must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3 Evolution LVL products described in this report are limited to use in dry, interior applications where the in-service average moisture content in sawn lumber is less than 16 percent. Except for Evolution PTI Treated LVL products, uses where the in-service average moisture content equals and exceeds 16 percent, the tabulated reference design values in Table 1 must be adjusted by the wet service factor, C_m , in accordance with 2024 or 2018 NDS Section 4.3.3.
- 5.4 Evolution Treated LVL may be used in exterior construction above ground applications as specified in AWPAC P45 for the Use Categories UC1 through UC3B, including structural members that are hard to maintain, repair or replace and are critical to the performance and safety of the structure system.
- 5.5 Connections other than nailed and bolted connections described in this report, are outside of this report.
- 5.6 Use of treatments on Evolution LVL products, such as fire retardants, is outside of the scope of this report. For the surface burning characteristics of Evaluation LVL products treated with fire-retardant treatment, please reference ICC-ES ESR-1683.
- 5.7 Evolution LVL products are manufactured under an approved quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Structural Wood-based Products \(AC47\)](#), dated May 2023.

- 6.2 Data and Engineering Analysis in Accordance with Section 4.9 of the ICC-ES Acceptance Criteria for Proprietary Wood Preservative System-Common Requirements for Treatment Process, Test Methods and Performance (AC326), dated October 2021 (editorially revised August 2022).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5360) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 Evolution LVL and Evolution “Evo-beam” must be identified with a product label bearing the product designation (Evolution LVL or Evolution “Evo-beam”), grade, and production date and shift.
- 7.3 Evolution Treated LVL must be identified with a product label bearing the product designation (Evolution Treated LVL, grade, and production date and shift.
- 7.4 The report holder's contact information is the following:

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TABLE 1—REFERENCE DESIGN VALUES FOR EVOLUTION LVL PRODUCTS^{1,2}

GRADE DESIGNATION	BEAM ORIENTATION ³					PLANK ORIENTATION ³					AXIAL	
	Modulus of Elasticity		Bending ^{7,8} F _b (psi)	Shear ^{7,8} F _v (psi)	Compression Perp-to-Grain F _{c⊥} ¹⁰ (psi)	Modulus of Elasticity		Bending F _b (psi)	Shear F _v (psi)	Compression Perp-to-Grain F _{c⊥} ¹⁰ (psi)	Compression F _c (psi)	Tension F _t ⁹ (psi)
	E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)				E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)					
3100F _b -2.1E	2.1	2.0	3,100	300	500	2.1	2.0	3,500	200	500	2,200	2,100
3100F _b -2.1E-PTI	2.1	2.0	3,100	300	650	2.1	2.0	3,500	200	500	2,200	2,100
3200F _b -2.3E	2.4	2.3	3,200	300	600	2.4	2.3	3,600	200	700	3,200	2,200
3200F _b -2.3E-PTI	2.4	2.3	3,200	300	750	2.4	2.3	3,600	200	800	3,200	2,200

For SI: 1 inch = 25.4 mm, 1 psi = 6894.8 Pa.

¹The tabulated reference design values are for normal duration of load and must be adjusted by the applicable adjustment factors in accordance with 2018 NDS Section 8.3. Modulus of elasticity and compression perpendicular-to-grain must not be adjusted for duration of load.

²The tabulated reference design values are limited to dry, interior conditions of use, where the in-service moisture content in lumber is less than 16 percent. Except for Evolution Treated LVL, uses where in-service average moisture content equals and exceeds 16 percent, the tabulated reference design values must be adjusted by the wet service factors in accordance with 2018 NDS Section 4.3.3.

³Refer to Figure 1 for LVL orientations.

⁴Reference E_{true} values are the shear-free modulus of elasticity, which do not include the effects of the shear deformation. When calculating the total deflection, both bending and shear deformations must be considered. Equations for various span and load conditions are available in engineering references. The following deflection equation is an example for a simply-supported beam under uniform load:

$$\Delta = \frac{270wL^4}{Ebd^3} + \frac{28.8wL^2}{Ebd}$$

where:

Δ = Deflection in inches (in).
w = Uniform load in pounds per lineal foot (plf).
L = Design span in feet (ft).
b = Beam width in inches (in).
d = Beam depth in inches (in).
E = Shear Free Modulus of Elasticity, E_{true}, in pounds per square inch (psi).

⁵Reference E_{apparent} values are the apparent modulus of elasticity, which include the effects of shear deformation. When calculating the total deflection, standard engineering formulae for the pure bending deflection are sufficient.

⁶Reference modulus of elasticity, E_{min}, used for beam stability calculations, must be calculated using the tabulated E_{apparent} in accordance with Appendix D of the 2018 NDS. The COV_E may be taken as 0.10 when calculating E_{min}.

⁷Reference bending design values in the beam orientation, F_b, may be increased by 4% when the member qualifies as a repetitive member, in accordance with Section 8.3.7 of the 2018 NDS.

⁸Reference bending design value in beam orientation is based on a reference depth of 12 inches. For other depths, the allowable bending stress, F_b, must be adjusted by multiplying F_b by (12/d)^{0.25}, where d is the depth members in inches. For depths 3 1/2 inches or less, multiply F_b by 1.361.

⁹Reference tension design values, F_t, is assigned for a standard length of 3 feet. For lengths longer than 3 feet, multiply F_t by (3/L)^{0.125}, where L is the length in feet. For lengths less than 3 feet, use the reference tension design value given in the table above.

¹⁰The bearing area factor, C_b, is permitted to be applied to the reference compression perpendicular-to-grain design values, F_{c⊥}, in accordance with the 2018 NDS.

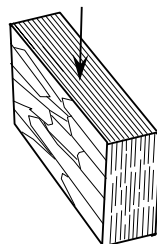
TABLE 2—EQUIVALENT SPECIFIC GRAVITY FOR FASTENER DESIGN^{1,2}

GRADE DESIGNATION	EQUIVALENT SPECIFIC GRAVITY					
	Nails				Bolts ³	
	Withdrawal		Dowel bearing		Dowel bearing (Installation in face)	
	Installed in edge	Installed in face	Installed in edge	Installed in face	Load applied parallel to grain	Load applied perpendicular to grain
3100F _b -2.1E	0.43	0.47	0.48	0.55	0.55	0.55
3100F _b -2.1E-PTI	0.44	0.44	0.50	0.55	0.55	0.55
3200F _b -2.3E	0.41	0.50	0.50	0.60	0.60	0.60
3200F _b -2.3E-PTI	0.40	0.50	0.50	0.60	0.60	0.60

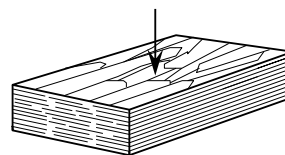
¹Fastener lateral and withdrawal design values calculated using the tabulated equivalent specific gravities for nail and bolt connections must be adjusted by the applicable adjustment factors specified in the 2018 NDS, as applicable. Fastener types and orientations that are not specifically described in Table 2 are outside the scope of this report.

²Minimum spacing, end and edge distance for nails and bolts must comply with the specified distances in the 2018 NDS, as applicable.

³Equivalent specific gravities apply only to bolts installed into face of LVL, such that the bolt axis is perpendicular to the wide face of the veneer.



Beam Orientation



Plank Orientation

FIGURE 1—BEAM AND PLANK ORIENTATION AS NOTED IN TABLE 1

ICC-ES Evaluation Report

ESR-5360 CA 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:

EVOLUTION INDUSTRIES, LLC

EVALUATION SUBJECT:

EVOLUTION LAMINATED VENEER LUMBER (LVL), EVOLUTION TREATED LVL AND EVOLUTION LVL EVO-BEAM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Evolution Laminated Veneer Lumber (LVL) products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, described in ICC-ES evaluation report [ESR-5360](#), have also been evaluated for compliance with the codes 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 Evolution LVL products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report [ESR-5360](#), comply 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 and the additional requirements of CBC Chapters 16, 17 and 23, as applicable.

The Evolution LVL products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, have 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 applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Evolution LVL products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report [ESR-5360](#), complies with CRC Chapter 3, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapter 3, as applicable.

The Evolution LVL products, including Evolution LVL, Evolution Treated LVL, and Evolution LVL “Evo-beam”, have 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 products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the ICC-ES evaluation report, [ESR-5360](#), issued April 2026.

ICC-ES Evaluation Report

ESR-5360 FL Supplement

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

Section: 06 17 13—Laminated Veneer Lumber

REPORT HOLDER:

EVOLUTION INDUSTRIES, LLC

EVALUATION SUBJECT:

**EVOLUTION LAMINATED VENEER LUMBER (LVL), EVOLUTION PTI TREATED LVL AND
EVOLUTION LVL EVO-BEAM**

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Evolution Laminated Veneer Lumber (LVL) products, including Evolution LVL, Evolution PTI Treated LVL, and Evolution LVL “Evo-beam”, described in ICC-ES evaluation report [ESR-5360](#), have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 CONCLUSIONS

The Evolution LVL products, including Evolution LVL, Evolution PTI Treated LVL, and Evolution LVL “Evo-beam”, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report [ESR-5360](#), comply 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 evaluation report [ESR-5360](#) for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Evolution LVL products, including Evolution LVL, Evolution PTI Treated LVL, and Evolution LVL “Evo-beam”, 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 supplement.

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). Florida Rule 61G20-3 is applicable to products and/or systems which comprise the building envelope and structural frame for compliance with the structural requirements of the Florida Building Code.

This supplement expires concurrently with the ICC-ES evaluation report, [ESR-5360](#), issued April 2026.