

ICC-ES Evaluation Report



ESR-4133

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<p>DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES</p> <p>Section: 06 16 00— Sheathing</p>	<p>REPORT HOLDER: WEYERHAEUSER</p>  <p>Weyerhaeuser</p>	<p>EVALUATION SUBJECT:</p> <p>DIAMOND™ FLOOR PANELS AND DIAMOND™ SHEATHING PANELS</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Property evaluated:

- Structural

2.0 USES

The Diamond™ Floor Panels and Diamond™ Sheathing Panels (Diamond™ Panels) described in this evaluation report are Exposure 1 oriented strand board (OSB) products designed and manufactured for prescriptive and engineered applications.

3.0 DESCRIPTION

The Diamond™ Panels are manufactured to comply with proprietary property requirements and with performance requirements specified in the U.S. Voluntary Product Standard PS-2 as outlined in the approved quality assurance manual.

The Diamond™ Panels are manufactured with wood strands blended with the exterior type of adhesive as specified in the approved quality assurance manual. The panels are typically produced in nominal 4-foot-wide-by-8-foot-long (1219mm by 2438mm) sheets. Diamond™ Floor Panels are produced with tongue and groove along the long-edge of the panels, while Diamond™ Sheathing Panels are produced without the tongue and groove along the long-edge of the panels. Diamond™ Panels have the span rating and thickness as shown in [Table 1](#) in this evaluation report.

4.0 DESIGN AND INSTALLATION

4.1 Design:

Design capacities provided in this evaluation report supplement the design capacities prescribed in Chapter 23 of the IBC for wood structural panels. [Table 2](#) provides product design capacities for Weyerhaeuser's

Diamond™ Panels. [Table 3](#) provides section properties for Weyerhaeuser's Diamond™ Panels. [Table 4](#) provides equivalent specific gravities for the Weyerhaeuser's Diamond™ Panels for use in design of nailed connections (withdrawal and lateral) under Chapter 12 of the 2018 and 2015 ANSI/AWC *National Design Specification® for Wood Construction* (NDS).

4.2 Installation:

Diamond™ Panels must be installed in accordance with the applicable code and the manufacturer's published installation requirements.

5.0 CONDITIONS OF USE:

The DIAMOND™ Panels 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 Panels are installed in accordance with the applicable building code, this report and supplemented by the manufacturer's installation instructions.
- 5.2 Panels are manufactured in Elkin, North Carolina, under a quality control program with inspections conducted by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Wood Structural Panels \(AC182\)](#), dated April 2001, (Editorially revised April 2022).

7.0 IDENTIFICATION

- 7.1 Weyerhaeuser Diamond™ Panels are identified with a stamp that includes the product name, span rating, thickness category, exposure category, product standard, manufacturer name and address, mill number (537), date of manufacture, and evaluation report number (ESR-4133).
- 7.2 The report holder's contact information is the following:

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TABLE 1—SPAN RATING FOR DIAMOND FLOOR PANELS AND DIAMOND SHEATHING PANELS

SPAN RATING	PS-2 GRADE	PERFORMANCE CATEGORY
24 o.c.	Structural I Rated Sturd-I-Floor	23/32 inch
48/24	Structural I Rated Sheathing	23/32 inch

TABLE 2—DESIGN CAPACITIES FOR DIAMOND FLOOR PANELS AND DIAMOND SHEATHING PANELS⁽¹⁾

PERFORMANCE CATEGORY (in.)	STRENGTH AXIS ⁽²⁾	BENDING STIFFNESS EI (lbf-in ² /ft)	BENDING STRENGTH F _b S (lbf-in/ft)	PLANAR SHEAR F _s (lb/Q) (lbf/ft)	AXIAL STIFFNESS EA x10 ⁶ (lbf/ft)
23/32	Parallel	395,000	1,360	380	6.5
	Perpendicular	170,000	790	380	4.6

⁽¹⁾ Design capacities are single values that represent the allowable capacities per 1-foot of width.

⁽²⁾ Primary strength axis corresponds to the long panel dimension.

TABLE 3—SECTION PROPERTIES DIAMOND FLOOR PANELS AND DIAMOND SHEATHING PANELS⁽¹⁾

NOMINAL THICKNESS		PANEL WEIGHT (psf)	AREA A (in ² /ft)	MOMENT OF INERTIA I (in ⁴ /ft)	SECTION MODULUS S (in ³ /ft)	STATICAL MOMENT Q (in ³ /ft)	SHEAR CONSTANT lb/Q (in ² /ft)
Performance category (in.)	Average (in.)						
23/32	0.730	2.6	8.760	0.389	1.066	0.799	5.840

⁽¹⁾ Section properties represent 1-foot of width.

TABLE 4—EQUIVALENT SPECIFIC GRAVITY VALUES FOR DIAMOND FLOOR PANELS AND DIAMOND SHEATHING PANELS⁽¹⁾

PERFORMANCE CATEGORY (in.)	NAIL RESISTANCE	
	Lateral	Withdrawal
	Equivalent Specific Gravity	
23/32	0.51	0.45

⁽¹⁾ Equivalent specific gravity values are provided for use in design of nailed connections (lateral and withdrawal) in accordance with Chapter 12 of the 2018 and 2015 *National Design Specification[®] for Wood Construction* (NDS) (Chapter 11 of the 2012 NDS for the 2012 IBC and IRC).