



# ICC-ES Evaluation Report ESR-4524

Reissued February 2023

Revised January 2025

This report is subject to renewal February 2025.

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

**Section: 06 12 00—Structural Panels**

**REPORT HOLDER:**

**PREMIER BUILDING SYSTEMS, LLC**

**EVALUATION SUBJECT:**

**PREMIER STRUCTURAL INSULATED PANELS (SIPS)**

**ADDITIONAL LISTEES:**

**BIG SKY INSULATION, INC.**

**EXTREME PANEL TECHNOLOGIES**

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2024, 2021 and 2018 *International Building Code*® (IBC)
- 2024, 2021 and 2018 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-4524 City of LA Supplement](#).

For evaluation for compliance with codes adopted by the State of California see ESR-4524 CA Supplement w/ Exterior Wildfire Exposure.

Premier SIP use in Fire Hazard Severity Zone is addressed in ESR-4524 IWUIC Supplement.

**Properties evaluated:**

- Structural
- Fire resistance
- Thermal Barrier

## 2.0 USES

Premier Structural Insulated Panels (Premier SIPS) are structural insulated roof, wall and floor panels capable of resisting transverse, axial and in-plane shear loads. The Premier SIPS are combustible materials when considering construction type in accordance with IBC Chapter 6. The SIPS may be used in fire-rated assemblies when installed in accordance with Section 4.2.11.

## 3.0 DESCRIPTION

### 3.1 General:

Premier SIPS are factory-assembled, engineered-wood-faced, structural insulated panels (SIP) with an expanded polystyrene (EPS) foam core. Premier SIPS are intended for use as load-bearing or non-load bearing wall panels, roof panels, floor panels and headers. Premier SIPS are available in 4<sup>1</sup>/<sub>2</sub>-inch (114 mm) through 12<sup>1</sup>/<sub>4</sub>-inch (311 mm) thicknesses. Premier SIPS are custom made to the specifications for each use and are assembled under factory-controlled conditions. The maximum Premier SIPS size is 8 feet (2.44 m) wide and up to 24 feet (7.32 m) in length.

### 3.2 Materials:

**3.2.1 Facing:** The facing material is either <sup>7</sup>/<sub>16</sub>, 5/8, 23/32 or <sup>3</sup>/<sub>4</sub>-inch-thick, Exposure 1 oriented strand board (OSB) with a 24/16 span rating and complying with DOC PS2. The OSB facings are continuous for each SIP.

**3.2.2 Expanded Polystyrene (EPS) Core:** The EPS foam plastic core complies with ASTM C578, Type I. The EPS foam plastic has a flame spread rating not exceeding 25 and a smoke-developed rating not exceeding 450 when tested in accordance with ASTM E84. The EPS cores for SIPS up to 12<sup>1</sup>/<sub>4</sub>-inch (311 mm) thickness, comply with IBC Section 2603.3 Exception 4.

**3.2.3 Adhesive:** Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination process in accordance with the in-plant quality system documentation.

**3.2.4 Material Sources:** The facing, core, adhesive, and accessories used in the construction of Premier SIPS shall be composed only of materials from approved sources as identified in the in-plant quality system documentation.

**3.2.5 Splines:** Premier SIPS are interconnected with Box/Block splines, I-Beam splines (Type I) or Lumber splines (Type L).

**3.2.5.1 Box/Block Splines:** Box/Block splines (Figure 1) are manufactured in the same manner as the Premier SIPS except with an overall thickness that is 1 inch (25.4 mm) less than the overall thickness of the panel to be joined. Box/Block splines are a minimum of 3 inches (76.2mm) wide.

**3.2.5.2 I-Beam Spline:** I-Beam Splines (Figure 1) consist of pre-fabricated wood I-joists consisting of top and bottom chords held together by a structural web member. Only Premier approved I-Beam splines may be used with Premier SIPs.

**3.2.5.3 Lumber Splines:** Lumber splines consist of one or more plies of dimensional lumber. Equivalent engineered wood material may be used when justified by a registered design professional.

### 3.2.6 Accessories

**3.2.6.1 Premier SIPs Screws:** Premier SIP Screws are used to fasten Premier SIPs to underlying structural supports and SIP to SIP intersections as shown in the manufacturer's details. The minimum shank diameter is 0.166 inch (4.7 mm) and a minimum head diameter of 0.620 inch (15.5 mm). Screws are available in lengths from 6 to 18 inches (152.4 to 457.2 mm) measured from the tip. The thread length for all screws is 2 ¾ inches (70 mm) measured from the tip.

**3.2.6.2 Premier SIPs Low VOC Sealant:** Premier SIPs Low VOC Sealant is specified as a sealant during installation of Premier SIPs. Premier SIPs Low VOC Sealant is applied to splines, plates and SIP to SIP intersections as shown in the manufacturer's details.

**3.2.6.3 Premier SIPs Tape:** Premier SIPs Tape is specified as a joint sealing tape during installation of Premier SIPs. Premier SIPs Tape is applied to joints, termination boundaries and SIP to SIP spline connections as shown in the manufacturer's details.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

**4.1.1 General:** The scope of this report is limited to the evaluation of Premier SIPs. Panel connections and other details related to incorporation of the panel into the overall structural system of a building are outside the scope of this report.

**4.1.2 Design Approval:** Where required by the authority having jurisdiction, structures using Premier SIPs shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details, and connector details, shall be submitted to the code official when application is made for a permit. The individual preparing such documents shall possess the necessary qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken. Approved construction documents shall be available at all times on the jobsite during installation.

**4.1.3 Design Loads:** Design loads to be resisted by the Premier SIPs shall be as required under the applicable building code. Loads on the Premier SIPs shall not exceed the loads noted in this report.

**4.1.4 Allowable Loads:** Allowable axial, transverse, and in-plane shear loads shall be selected from Tables 1 through 10. Calculations demonstrating that the loads applied are less than the allowable loads described in this report shall be submitted to the code official for approval. For loading conditions not specifically addressed herein, structural members designed in accordance with accepted engineering practice shall be provided to meet applicable code requirements.

**4.1.5 Concentrated Load:** Axial loads shall be applied to the Premier SIPs through continuous members such as structural insulated roof or floor panels or repetitive members spaced at regular intervals of 24 inches (610 mm) on center or less. Such members shall be fastened to a rim

board, cap plate or similar member to distribute the load to the Premier SIPs. Where a rim board, cap plate or similar member is not provided, the reaction at the end of each member shall not exceed the concentrated loads provided in Tables 5 through 7.

**4.1.6 Eccentric and Side Loads:** Axial loads shall be applied concentrically to the top of the Premier SIPs. Loads shall not be applied eccentrically or through framing attached to one side of the panel (such as balloon framing) except where additional engineering documentation is provided.

**4.1.7 Openings:** Except as provided in Tables 8 and 9, openings in panels shall be reinforced with wood or steel designed in accordance with accepted engineering practice to resist all loads applied to the opening as required by the applicable code. Details for door and window openings shall be provided to clarify the manner of supporting axial, transverse and/or in-plane shear loads at openings. Such details shall be shown on approved design documents and subject to approval by the local authority having jurisdiction.

**4.1.8 In-Plane Shear Design:** Shear walls utilizing box/block or lumber splines shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided in Table 10. Shear wall chords, hold-downs and connections to transfer shear forces between the wall and surrounding structure shall be designed in accordance with accepted engineering practice. The allowable loads provided in Table 10 as published, are limited to assemblies with height-to-width ratios not exceeding those published in Footnote 1 of Table 10. The allowable loads for shear walls with height: width ratios exceeding 2:1 using dimensional lumber splines must be adjusted in accordance with Footnote 5 of Table 10.

**4.1.8.1 Seismic Design Categories A, B and C:** The shear wall configurations in Table 10 were monotonically tested to determine performance. These shearwalls are limited to structures in Seismic Design Categories A, B and C.

**4.1.8.2 Seismic Design Categories A through F:** The shear wall configurations in Table 11 were tested cyclically in shear with a combined vertical load. These shearwalls may be used in structures in Seismic Design Categories A through F.

**4.1.9 Horizontal Diaphragms:** Horizontal diaphragms utilizing box/block splines shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided in Table 12. Diaphragm chords and connections to transfer shear forces between the diaphragm and surrounding structure shall be designed in accordance with accepted engineering practice. The maximum diaphragm length-to-width ratio shall not exceed those specified in Table 12.

**4.1.10 Combined Loads:** When loading conditions result in the panels resisting combined stresses, the sum of the ratios of actual load over allowable load must be less than 1.0.

### 4.1.11 SIP Protection:

**4.1.11.1 Thermal Barrier at Wall, Roof and Floor:** Premier SIPs must be separated from the interior of the building by an approved thermal barrier of ½-inch (12.7 mm) gypsum wallboard or equivalent thermal barrier complying with and installed in accordance with IBC Section 2603.4 or IRC Section R316.4 as applicable.

When used as the thermal barrier, gypsum wallboard must be fastened to the face of the panels with minimum 1¼-inch-long (31.7 mm), No. 6, Type W drywall screws spaced in accordance with ASTM C840 for use under the

IBC or Table R702.3.5 of the IRC, using 16-inch-on-center (406.4 mm) framing spacing guidelines.

**4.1.11.2 Thermal Barrier at Floor Surface:** An approved thermal barrier must be installed over the top surface of the floor panels, such as minimum  $7/16$ -inch-thick (76 mm) wood-based structural use sheathing installed in accordance with the applicable code.

## 4.2 Installation:

**4.2.1 General:** Premier SIPs shall be fabricated, identified and installed in accordance with this report, the approved construction documents and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. Approved construction documents shall be available at all times on the jobsite during installation.

**4.2.2 Splines:** Premier SIPs are interconnected at the panel edges through the use of a spline. The spline type may be of any configuration listed in Section 3.2.5 as required by the specific design. The spline shall be, secured in place with not less than 0.113-inch x 2.375-inch (2.9 mm x 63.5 mm) smooth shank nails, [0.275 inch (7 mm) head diameter], 6 inches (152 mm) on center on both sides of the Premier SIPs or an approved equivalent fastener. All joints shall be sealed in accordance with the Premier SIPs manufacturer's installation instructions. Alternate spline connections may be required for Premier SIPs subjected to in-plane shear forces. Such Premier SIPs shall be interconnected exactly as required in Table 10, Table 11 or Table 12 or as directed by the designer.

**4.2.3 Plates:** The top and bottom plates of the panels shall be dimensional lumber or engineered wood sized to match the core thickness of the panel. The plates shall be secured using not less than 0.113-inch x 2.375-inch (2.9 mm x 63.5 mm) nails, [0.275-inch (7 mm) head diameter], spaced 6 inches (152 mm) on center on both sides of the panel or an approved equivalent fastener. Alternate plate connections may be required for panels subjected to in-plane shear forces and shall be interconnected as required in Table 10, 11 or Table 12 or as directed by the designer.

**4.2.4 Cutting and Notching:** No field cutting or routing of the panels shall be permitted except as shown on approved drawings.

**4.2.5 Protection from Decay:** Premier SIPs that rest on exterior foundation walls shall not be located within 8 inches (203 mm) of exposed earth. Premier SIPs supported by concrete or masonry that is in direct contact with earth shall be protected from the concrete or masonry by a moisture barrier.

**4.2.6 Protection from Termites:** In areas subject to damage from termites, Premier SIPs shall be protected from termites using an approved method. Premier SIPs shall not be installed below grade or in contact with earth.

**4.2.7 Heat-producing Fixtures:** Heat-producing fixtures shall not be installed in the Premier SIPs unless protected by a method approved by the code official or documented in test reports. This limitation shall not be interpreted to prohibit heat-producing elements with suitable protection.

**4.2.8 Plumbing Installation Restrictions:** Plumbing and waste lines may extend at right angles through the wall panels but are not permitted vertically within the core. Lines shall not interrupt splines or panel plates unless approved by a registered design professional.

### 4.2.9 Voids and Holes:

**4.2.9.1 Voids in Core:** In lieu of openings designed in accordance with Section 4.1.7, the following voids are

permitted. Voids may be provided in the panel core during fabrication at predetermined locations only. Voids parallel to the panel span shall be limited to a single  $1\frac{1}{2}$ -inch (38.1 mm) maximum diameter hole. Such voids shall be spaced a minimum of 4 feet (1.22 m) on center, measured perpendicular to the panel span. Two  $\frac{1}{2}$ -inch-diameter (12.7 mm) holes may be substituted for the single  $1\frac{1}{2}$ -inch-diameter (38.1 mm) hole provided they are maintained parallel and within 2 inches (50.8 mm) of each other. Voids perpendicular to the panel span shall be limited to a single  $1\frac{1}{2}$ -inch-maximum-diameter (38.1 mm) hole placed not closer than 16 inches (406 mm) from the support. Additional voids in the same direction shall be spaced not less than 28 inches (711.2 mm) on center.

**4.2.9.2 Holes in Panels:** Holes may be placed in Premier SIPs during fabrication at predetermined locations only. Except as noted herein, holes shall be limited to 4-inches x 4-inches (102 mm x 102 mm) square. The minimum distance between holes shall not be less than 4 feet (1.22 m) on center measured perpendicular to the panel span and 24 inches (610 mm) on center measured parallel to the panel span. Not more than three holes shall be provided in a single line of holes parallel to the panel span. The holes may intersect voids permitted elsewhere in this report.

When Premier SIPs with a  $10\frac{1}{4}$ -inch (260 mm) or  $12\frac{1}{4}$ -inch (311 mm) thickness are used horizontally, holes shall be limited to a maximum 8-inch (203 mm) diameter. The minimum distance between holes shall not be less than 4 feet (1.22 m) on center measured perpendicular to the panel span and 4 feet (1.22 m) on center measured parallel to the panel span. The minimum distance from the edge of any hole to the support of any Premier SIPs shall not be less than 24 inches (610 mm) and the minimum distance from the edge of any hole to any edge of an individual Premier SIPs shall not be less than 19 inches (483 mm). When more than three holes are present in a single line parallel to the panel span, the allowable loads in Tables 1 through 3 shall be reduced by 25 percent.

### 4.2.10 Panel Cladding:

**4.2.10.1 Roof Covering:** The roof covering, underlayment and flashing shall comply with the applicable codes. All roofing materials must be installed in accordance with the manufacturer's installation instructions. The use of roof coverings requiring the application of heat during installation shall be reviewed and approved by a registered design professional.

**4.2.10.2 Exterior Wall Covering:** Panels shall be covered on the exterior by a water-resistive barrier as required by the applicable code. The water-resistive barrier shall be attached with flashing in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer. The exterior facing of the Premier SIPs wall shall be covered with weather protection as required by the applicable building code or other approved materials.

### 4.2.11 Fire-resistance-rated Assemblies:

**4.2.11.1 Fire-resistance-rated, limited load-bearing, restrained and unrestrained, floor and ceiling assembly using Premier SIPs with Box/Block Splines (Type S) – 1 hour (Figure 5).**

**4.2.11.1.1 (Item No. 1) Structural Insulated Panels:** Premier SIPs with minimum thickness of  $8\frac{1}{4}$  inches (210 mm). Panels shall bear the ICC-ES Evaluation Report number. Maximum uniform transverse load shall not exceed 77 percent of the allowable load in Table 1.

**4.2.11.1.2 (Item No. 2) Gypsum Board:** For ceiling (exposed side), U.S. Gypsum, *Firecode* (Type X)  $\frac{5}{8}$ -inch-

thick (15.9 mm), 4-foot-wide (1.22 m) by 10-foot-long (3.05 m), applied in two layers. Inner layer installed with gypsum long dimension parallel to Premier SIPs spline and offset a minimum of 24 inches (610 mm) from the Premier SIPs spline joints. Gypsum joints perpendicular to Premier SIPs spline shall be staggered in adjacent panels not less than 7 feet (2.1 m). Inner layer shall be secured to the OSB with No. 6 x 1<sup>1</sup>/<sub>4</sub>-inch (31.8 mm), Type S, bugle head drywall screws spaced 12 inches (305 mm) on center and in rows 24 inches (610 mm) on center. Second layer installed at right angles to inner layer with all joints offset not less than 24 inches (610 mm) from the inner layer. Second layer secured with No. 7 x 2-inch (50.8 mm), Type S, bugle head drywall screws spaced 12 inches (305 mm) on center and in rows spaced 16 inches (406 mm) on center. Gypsum board joints in the second layer shall be covered with paper joint tape and joint compound. Screw heads shall be covered with joint compound.

**4.2.11.1.3 (Item No. 3) Box/Block Spline:** Minimum 3-inch (76.2 mm) Box/Block spline placed in preformed spline pockets at the edge of the SIP. Spline secured with not less than 0.113 inch diameter (2.87 mm) x 2 <sup>3</sup>/<sub>8</sub> inch (60 mm) long nailspaced 6 inches (152 mm) on center on each side of Premier SIPs joint.

**4.2.11.2 Fire-resistance-rated, limited load-bearing wall assembly using Premier SIPs with Lumber Splines (Type L) – 1 hour (Figure 6):**

**4.2.11.2.1 (Item No. 1) Structural Insulated Panels:** Premier SIPs with minimum thickness of 6<sup>1</sup>/<sub>2</sub> inches (165 mm). Panels shall bear the ICC-ES Evaluation Report number. Maximum axial compression load shall not exceed 37 percent of the allowable axial load in Table 6.

**4.2.11.2.2 (Item No. 2) Gypsum Board:** Standard Gypsum's Type SG-C, *TE generation 3* (Type C) <sup>5</sup>/<sub>8</sub>-inch-thick (15.9 mm), 4-foot-wide (1.22 m) by 10-foot-long (3.05 m), applied vertically in a single layer on both sides of the Premier SIPs. Vertical gypsum joints offset a minimum of 12 inches (305 mm) from Premier SIPs spline joints. Gypsum secured to the OSB with 1<sup>5</sup>/<sub>8</sub>-inch-long (41.3 mm) PC cupped head drywall nails spaced 12 inches (305 mm) on center vertically and 16 inches (406 mm) on center horizontally. Gypsum board joints are covered with paper joint tape and joint compound. Nail heads are covered with joint compound.

**4.2.11.2.3 (Item No. 3) Spline:** Double 2x6 #2 Hem-Fir dimensional lumber. Double lumber members shall be nailed together with 0.148-inch x 3<sup>1</sup>/<sub>4</sub>-inch (3.76 mm x 82.6 mm) coated sinker nails (16d) spaced 24 inches (610 mm) on center staggered along the spline length. The double lumber spline shall be installed in the recesses between adjacent Premier SIPs and secured to the OSB with not less than 0.122-inch x 2-inch (3.1 mm x 50.8 mm) (6d common) nails spaced 6 inches (152 mm) on center. Caulk complying with ASTM C834 shall be applied to the spline surfaces in contact with the EPS.

**4.2.11.2.4 (item No. 4) Wall Top Plate:** Double 2x6 #2 Hem-Fir dimensional lumber. The first plate shall be installed in a 3-inch-deep (76.2 mm) recess at the top of the Premier SIPs and secured to the OSB facings with 0.122-inch x 2-inch (3.1 mm x 50.8 mm) (6d common) nails spaced 6 inches (152 mm) on center. The first plate shall also be secured to each spline with two 0.148-inch x 3<sup>1</sup>/<sub>4</sub>-inch (3.76 mm x 82.6 mm) (16d common) nails. The second plate shall be placed above the first plate and secured to the OSB facings with 0.122-inch x 2-inch (3.1 mm x 50.8 mm) (6d common) nails spaced 6 inches (152 mm) on center. The second plate shall also be secured to the first plate with 0.148-inch x 3<sup>1</sup>/<sub>4</sub>-inch (3.76 mm x 82.6 mm) coated sinker nails (16d) spaced 16 inches

(406 mm) on center staggered along the plate length. Caulk complying with ASTM C834 shall be applied to the plate surfaces in contact with the EPS.

**4.2.11.2.5 (Item No.5) Wall Bottom Plate:** Single 2x6 No. 2 Hem-Fir dimensional lumber. The plate shall be installed in a 1<sup>1</sup>/<sub>2</sub>-inch-deep (38.1 mm) recess at the bottom of the panel and secured to the OSB facings with 0.122-inch x 2-inch (3.1 mm x 50.8 mm) (6d common) nails spaced 6 inches (152 mm) on center. The plate shall also be secured to each spline with two 0.148-inch x 3<sup>1</sup>/<sub>4</sub>-inch (3.76 mm x 82.6 mm) (16d common) nails. Caulk complying with ASTM C834 shall be applied to the plate surfaces in contact with the EPS.

**4.2.11.3 One-hour Limited Load-bearing Wall Assembly Using Premier SIPs with Box/Block Splines (Type S) - 1 hour (Figure 7):**

**4.2.11.3.1 (Item No. 1) Structural Insulated Panels:** Premier SIPs with thicknesses of 4 <sup>1</sup>/<sub>2</sub>, 6 <sup>1</sup>/<sub>2</sub>, or 8 <sup>1</sup>/<sub>4</sub> inches (114, 165, or 210 mm) are used to construct a one-hour fire resistance rated wall assembly. The SIP core is recessed 1<sup>1</sup>/<sub>2</sub> inches (38mm) from the bottom sip edge and 1<sup>1</sup>/<sub>2</sub> inches (38 mm) from the top SIP edge. The recesses receive nominally 2-by lumber bottom and top plates with a depth to match the core thickness.

**4.2.11.3.2 (Item No. 2) Splines:** The SIP core is recessed on the vertical sides to receive Box/Block Splines in accordance with Section 3.2.5.1 of this report. A <sup>1</sup>/<sub>2</sub> inch (13mm) diameter bead of Premier Low VOC Sealant is applied at all foam to foam and foam to wood interface per the manufacturer's details. The splines must be connected to the SIPs by fastening through the SIP OSB facing with not less than 0.113 inch diameter (2.87 mm) x 2 <sup>3</sup>/<sub>8</sub> inch (60 mm) long nails spaced 6 inches (152 mm) on center.

**4.2.11.3.3 (Item No. 3) Gypsum Board:** The SIPs must be covered with two layers of <sup>5</sup>/<sub>8</sub> inch thick (15.9 mm) Type X gypsum wallboard, complying with ASTM C1396, on each side. Where the panels are exposed to the exterior, the exterior layers of gypsum boards must be 5/8-inch-thick (15.9 mm), Type X gypsum sheathing complying with ASTM C1396. The vertical joints of the first layer of gypsum board must be offset a minimum of 16 inches (406 mm) from the spline joint. The first layer of gypsum board must be fastened to the panel facing with 1<sup>5</sup>/<sub>8</sub> inch long (41.28 mm), Type W, self-piercing tapping screws complying with ASTM C1002, spaced 24 inches (610 mm) on center vertically and 16 inches (406 mm) on center horizontally. The second layer of gypsum board must be installed with 2 inch long (50.8 mm), Type W, self-piercing tapping screws complying with ASTM C1002, spaced 12 inches (305 mm) on center vertically, in rows offset 12 inches (305 mm) from screws securing the first layer of gypsum board, and 16 inches (406 mm) on center horizontally, in rows offset 8 inches (203 mm) from screws securing the first layer of gypsum board. The vertical joints in the second layer of gypsum board must be offset a minimum of 16 inches (406 mm) from vertical joints of the first layer of gypsum board.

Exposed gypsum board joints must be covered with joint tape and joint compound and the exposed screw heads covered with joint compound in accordance with ASTM C840.

**4.2.11.3.4 (item No. 4) Wall Top Plate:** The wall top plate consists of nominal 2-by spruce-pine-fir No. 2 or better lumber with a depth to match the core thickness. The plate is connected to the SIPs by fastening through the SIP OSB facing with 8d box nails spaced 6 inches (152 mm) on center, on each side of the SIP.

**4.2.11.3.5 (Item No.5) Wall Bottom Plate:** The wall bottom plate consists of nominal 2-by spruce-pine-fir No. 2 or better lumber with a depth to match the core thickness. The plate is connected to the SIPs by fastening through the SIP OSB facing with 8d box nails spaced 6 inches (152 mm) on center, on each side of the SIP.

**4.2.11.3.6** This fire-resistance-rated wall assembly is limited to the heights shown in Table 5. The maximum superimposed allowable axial compression load shall be no greater than the lesser of 1800 plf (26 kN/m) or 39% of the loads in Table 5.

**5.0 CONDITIONS OF USE**

Premier SIPs as described in this report comply with the codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation complies with this report and the approved construction documents.
- 5.2 This report applies only to the panel thicknesses specifically listed herein.
- 5.3 In use panel heights/spans shall not exceed the values listed herein. Extrapolation beyond the values listed herein is not permitted.
- 5.4 The panels are produced in the production facilities in Puyallup, Washington, Belgrade, Montana, and Cottonwood, Minnesota under a quality control program with inspections by ICC-ES.

**6.0 EVIDENCE SUBMITTED**

- 6.1 Data in accordance with ICC-ES AC04 Acceptance Criteria for Sandwich Panels Approved June 2019 (editorially revised December 2020).
- 6.2 Reports of tests conducted in accordance with ASTM E119.
- 6.3 Reports of tests conducted in accordance with ASTM E455.

6.4 Reports of test conducted in accordance with NFPA 286.

**7.0 IDENTIFICATION**

7.1 Premier SIPs are identified with the following information:

- 7.1.1 The ICC-ES Evaluation Report number (ESR-4524)
- 7.1.2 In-plant quality assurance stamp
- 7.1.3 Company name (Premier Building Systems, LLC), or name of listees (Big Sky Insulations, Inc., or Extreme Panel Technologies)
- 7.1.4 Project or batch number

7.2 Premier SIPs Low VOC Sealant is labeled with the words “for use with Premier SIPs (ESR-4524).”

7.3 Premier SIPs Screws are labeled with the words “for use with Premier SIPs (ESR-4524).”

7.4 Premier SIPs Tape is labeled with the words “for use with Premier SIPs (ESR-4524).”

7.5 I-beam splines are labeled with the words “for use with Premier SIPs (ESR-4524).”

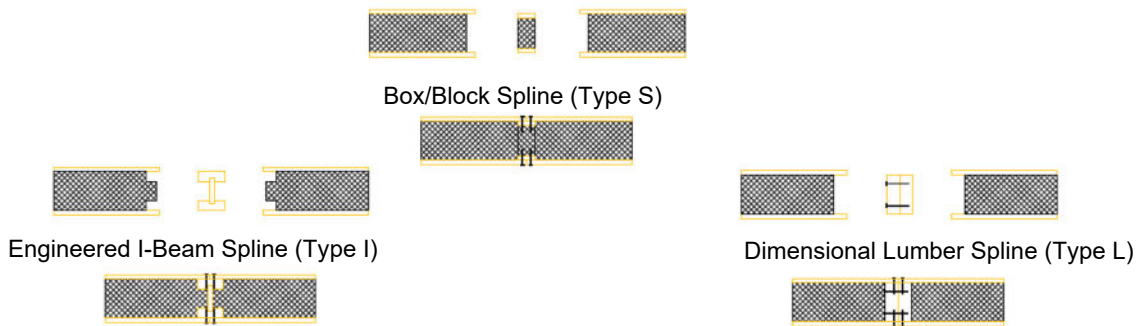
7.6 The report holder’s contact information is the following:

**PREMIER BUILDING SYSTEMS, LLC  
18504 CANYON ROAD EAST  
PUYALLUP, WASHINGTON 98375**

7.7 The Additional Listees’ contact information is the following:

**BIG SKY INSULATION, INC.  
15 ARDEN DRIVE  
BELGRADE, MONTANA 59714**

**EXTREME PANEL TECHNOLOGIES  
475 EAST 4TH STREET NORTH  
COTTONWOOD, MINNESOTA 56229**



**FIGURE 1—PREMIER SIP SPLINE TYPES**

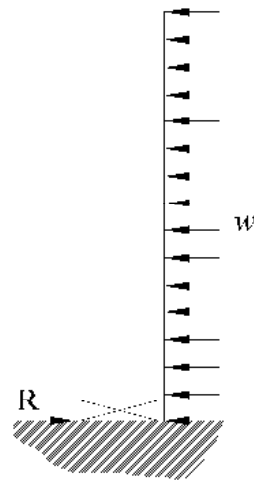


FIGURE 2—ZERO BEARING SUPPORT

TABLE 1—MAXIMUM ALLOWABLE UNIFORM TRANSVERSE LOAD, ROOF/FLOOR (psf) – TYPE S SPLINE<sup>1,3</sup>

PANEL THICKNESS <sup>5</sup> (inches)	DEFLECTION LIMIT <sup>2</sup>	PANEL SPAN (feet)									
		4 <sup>4</sup>	8	10	12	14	16	18	20	22	24
4.5	L/360	100	32	23	18	14	11				
	L/240	143	48	35	27	21	16				
	L/180	143	63	47	36	28	22				
6.5	L/360	105	51	38	29	23	19	15	12		
	L/240	162	76	57	44	35	28	23	19		
	L/180	191	80	61	50	42	36	30	24		
8.25	L/360	120	67	51	40	32	26	22	18	15	13
	L/240	179	94	71	57	48	40	33	27	23	19
	L/180	179	94	71	57	48	41	36	32	26	22
10.25	L/360	131	86	66	52	43	35	29	25	21	18
	L/240	168	94	75	63	54	47	41	36	32	27
	L/180	168	94	75	63	54	47	41	36	33	28
12.25	L/360	132	94	75	63	53	44	37	32	27	23
	L/240	163	94	75	63	54	47	42	37	34	31
	L/180	163	94	75	63	54	47	42	37	34	31

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa.

<sup>1</sup> Table values assume a simply supported panel with 1 1/2-inches (38.1 mm) of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Values do not include the dead weight of the panel.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only and do not consider the effects of creep.

<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis oriented parallel to the span direction.

<sup>4</sup> Panels spanning 4 feet (1.22 m) shall be a minimum of 8-foot (2.44 m) long spanning two 4-foot (1.22 m) spans.

<sup>5</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 2—MAXIMUM ALLOWABLE UNIFORM TRANSVERSE LOAD, WALL (psf) – TYPE S SPLINE<sup>1,3</sup>**

PANEL THICKNESS <sup>4</sup> (inches)	DEFLECTION LIMIT <sup>2</sup>	PANEL SPAN (feet)								
		8	10	12	14	16	18	20	22	24
4.5	L/360	32	23	18	14	11				
	L/240	48	35	27	21	16				
	L/180	55	44	36	28	22				
6.5	L/360	51	38	29	23	19	15	12		
	L/240	67	53	44	35	28	23	19		
	L/180	67	53	44	38	33	29	24		
8.25	L/360	67	51	40	32	26	22	18	15	13
	L/240	75	60	50	42	37	33	27	23	19
	L/180	75	60	50	42	37	33	30	26	22
10.25	L/360	83	66	52	43	35	29	25	21	18
	L/240	83	66	55	47	41	36	33	30	27
	L/180	83	66	55	47	41	36	33	30	27
12.25	L/360	89	72	60	51	44	37	32	27	23
	L/240	89	72	60	51	45	40	36	32	30
	L/180	89	72	60	51	45	40	36	32	30

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa.

<sup>1</sup> Table values assume an end-supported panel with zero bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code. Values are based on loads of short duration only and do not consider the effects of creep.

<sup>3</sup> Table values for 8-foot (2.44 m) spans apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to span direction. Table values for other spans are based on the OSB strength axis oriented parallel to the span direction.

<sup>4</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 3—MAXIMUM ALLOWABLE UNIFORM TRANSVERSE LOAD (psf) – TYPE I SPLINE<sup>1,3</sup>**

PANEL THICKNESS <sup>5</sup> (inches)	DEFLECTION LIMIT <sup>2</sup>	PANEL SPAN (feet)									
		4 <sup>4</sup>	8	10	12	14	16	18	20	22	24
8.25	L/360	132	136	93	60	50	40	31	21	19	16
	L/240	318*	148*	107*	91	75	59	45	31	27	23
	L/180	318*	148*	107*	92*	87	78	60	41	36	30
10.25	L/360	197	164*	124*	72	67	61	48	34	29	24
	L/240	336*	164*	124*	107*	96	84*	70	49	43	36
	L/180	336*	164*	124*	107*	96	84*	76	65	56	47
12.25	L/360	258	143*	103*	86	83	77*	61	42	37	32
	L/240	318*	143*	103*	93*	85	77*	68	59*	54	46
	L/180	318*	143*	103*	93*	85	77*	68	59*	54	49*

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa.

<sup>1</sup>Table values assume a simply supported panel with 1 1/2-inches (38.1 mm) of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of one wood I-beam, 2 1/4-inch (57.2 mm) wide flange (minimum) with a depth equal to the core thickness, spaced not to exceed 48 inches (1219.2 mm) on center.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

<sup>3</sup> Tabulated values for 8-foot (2.44 m) walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports. Tabulated values for other lengths are based on the strong-axis of the facing material oriented parallel to the span direction.

<sup>4</sup> Panels spanning 4 feet (1.22 m) shall be a minimum of 8 foot (2.44 m) long spanning a minimum of two 4-foot (1.22 m) spans. No single span condition is allowed.

<sup>5</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

\*An asterisk (\*) indicates the value shown is governed by the average peak load divided by 3.

**TABLE 4—MAXIMUM ALLOWABLE UNIFORM TRANSVERSE LOAD (psf) – TYPE L SPLINE<sup>1,3</sup>**

PANEL THICKNESS <sup>5</sup> (inches)	DEFLECTION LIMIT <sup>2</sup>	PANEL SPAN (feet)									
		4 <sup>4</sup>	8	10	12	14	16	18	20	22	24
4.5	L/360	103	45	33	24	18	11				
	L/240	225	68	47	34	26	17				
	L/180	297*	91	61	45	34	23				
6.5	L/360	307*	129	57	42	34	25	20	15		
	L/240	307*	182*	87	61	49	37	30	22		
	L/180	307*	182*	112*	80	65	49	39	29		
8.25	L/360	253	171	82	66	54	41	32	23		
	L/240	288*	188*	128	100	81	61	48	35		
	L/180	288*	188*	133*	117*	105	80	63	45		
10.25	L/360	286	188*	117	101	80	58	47	36	32	27
	L/240	326*	188*	147*	134*	120	90	71	52	47	41
	L/180	326*	188*	147*	134*	121	108*	93	68	61	53
12.25	L/360	327*	188*	167*	141	116	91	75	58	47	36
	L/240	327*	188*	167*	153*	132	110*	97	83*	69	53
	L/180	327*	188*	167*	153*	132	110*	97	83*	83	70

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa.

<sup>1</sup>Table values assume a simply supported panel with 1 1/2-inches (38.1 mm) of continuous bearing on facing at supports. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load. Splines consist of No. 2 or better, Hem-Fir, 1 1/2 inches (38.1 mm) wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 inches (1219.2 mm) of panel width.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

<sup>3</sup> Tabulated values for 8-foot (2.44 m) walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports. Tabulated values for other lengths are based on the strong-axis of the facing material oriented parallel to the span direction.

<sup>4</sup> Panels spanning 4 feet (1.22 m) shall be a minimum of 8 foot (2.44 m) long spanning a minimum of two 4-foot (1.22 m) spans. No single span condition is allowed.

<sup>5</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

\*An asterisk (\*) indicates the value shown is governed by the average peak load divided by 3.



**TABLE 5—MAXIMUM ALLOWABLE UNIFORM AXIAL LOAD (plf) – TYPE S SPLINE<sup>1,2,3,4,5</sup>**

PANEL THICKNESS <sup>6</sup> (inch)	PANEL SPAN (feet)					
	8	10	12	16	20	24
4.5	3,500	2,553	2,453	2,117		
6.5	4,250	4,043	3,373	3,923	2,817	2,183
8.25	4,917	4,327	4,473	4,197	3,497	3,067
10.25	4,600	4,414	4,228	4,417	3,389	3,248
12.25	3,889	3,959	4,028	4,408	3,837*	3,333

For **SI**: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa; 1 plf = 14.6 N/m.

<sup>1</sup> Splines consist of Box/Block splines not less than 7/16 inch (11.1 mm) thick inserted below the facing on each side of the panel. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Uniform axial loads may be applied in accordance with Section 4.1.4. Concentrated point loads shall be addressed in accordance with Section 4.1.5 and Table 6.

<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports.

\* Limited by 1/8 inch (3.2 mm) deflection (compression)

<sup>5</sup> The maximum allowable axial load is limited to 71% of the reported allowable axial load when used as shear walls in Table 11.

<sup>6</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 6—MAXIMUM ALLOWABLE UNIFORM AXIAL LOADS (plf) – TYPE L SPLINE<sup>1,2,3,4,5</sup>**

PANEL THICKNESS <sup>6</sup> (inch)	PANEL SPAN (feet)					
	8	10	12	16	20	24
4.5	4,723	3,903	3,273	2,623		
6.5	5,850	5,890	4,277	4,310	2,933	2,837
8.25	6,807	6,110	5,557	5,180	4,837	4,083
10.25	5,473	5,709	5,946	5,948	4,729*	4,250
12.25	5,667	5,474	5,281	5,775*	4,729*	4,223

For **SI**: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa; 1 plf = 14.6 N/m.

<sup>1</sup> Splines consist of No. 2 or better, Hem-Fir, 1 1/2-inches (38.1 mm) wide with a depth equal to the core thickness, spaced to provide not less than two members for every 48 inches (1219.2 mm) of panel width. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Axial loads shall be applied concentrically to the top of the panel through repetitive members spaced not more than 24 inches (609.6 mm) on center. Such members shall be fastened to a rim board, cap plate or similar member to distribute along the top of the Premier SIPs panel.

<sup>3</sup> Both facings must bear on the supporting foundation or structure.

<sup>4</sup> Tabulated values for 8-foot (2.44 m) walls apply to panels constructed with the OSB strength axis oriented either parallel or perpendicular to supports.

\* Limited by 1/8 inch (3.2 mm) deflection (compression)

<sup>5</sup> The maximum allowable axial load is limited to 51% of the reported allowable axial load when used as shear walls in Table 11.

<sup>6</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 7—MAXIMUM ALLOWABLE AXIAL COMPRESSION POINT LOADS (lbs) – TYPE S SPLINE<sup>1,2,3,4</sup>**

TOP PLATE CONFIGURATION	1 1/2" MINIMUM BEARING WIDTH	3" MINIMUM BEARING WIDTH
Single 2x4 No. 2 or Better Hem-Fir Plate	2,040	2,450
Single 2x4 No. 2 or Better Hem-Fir Top Plate with 1 1/8 in. minimum thickness Cap Plate <sup>5,6</sup>	4,030	4,678

For **SI**: 1 inch = 25.4 mm; 1 lb = 4.45 N.

<sup>1</sup> Top plate secured to facings as required in Section 4.2.3.

<sup>2</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>3</sup> Concentrated loads shall be applied concentrically to the top of the panel.

<sup>4</sup> Tabulated values are based on the strong-axis of the facing material oriented parallel to the span direction.

<sup>5</sup> See Figure 3.

<sup>6</sup> Cap plate shall have a minimum stiffness of 1.3E and span the full width of the SIP.

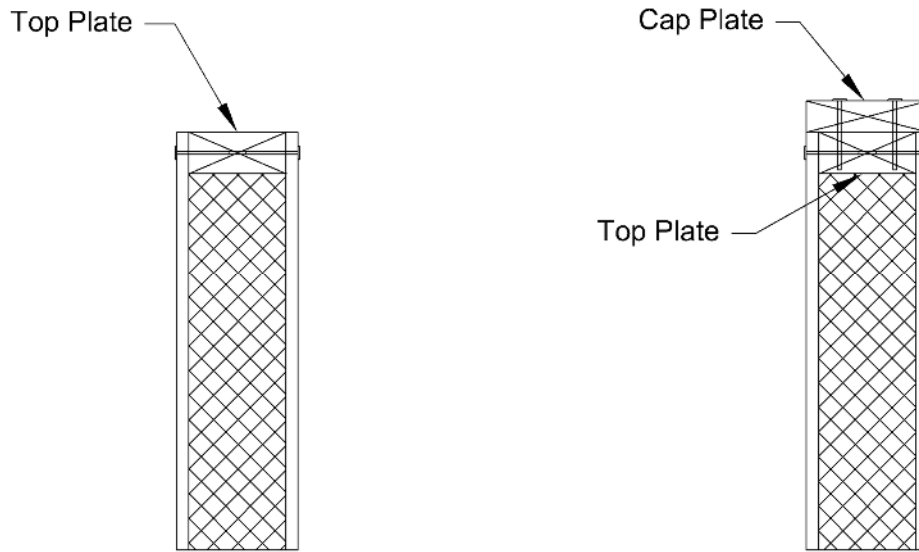


FIGURE 3—TOP PLATE CONFIGURATIONS

TABLE 8—MAXIMUM ALLOWABLE UNIFORM PREMIER SIP HEADER VERTICAL LOADS (plf)  
4 1/2 INCH THROUGH 12 1/4 INCH THICKNESS<sup>1,2</sup>

HEADER DEPTH <sup>3,5</sup> (inches)	DEFLECTION LIMIT <sup>4</sup>	HEADER SPAN (feet)			
		4	6	8	10
12	L/480	740	384	228	142
	L/360	740	384	229	142
	L/240	740	384	229	142
18	L/480	798	574	385	311
	L/360	798	574	385	311
	L/240	798	574	385	311
24	L/480	886	629	429	361
	L/360	886	629	429	361
	L/240	886	629	429	361

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa; 1 plf = 14.6 N/m.

<sup>1</sup> Vertical loads only. Lateral loads shall be transferred to the edges of the openings through continuous plate(s) designed in accordance with accepted engineering practice. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Tabulated values are based on the strong-axis of the facing material oriented perpendicular to the direction of header span.

<sup>3</sup> Minimum depth of facing above opening.

<sup>4</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

<sup>5</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 9—MAXIMUM ALLOWABLE UNIFORM HEADER LOADS (plf)  
(PANEL SPLICE A MINIMUM OF 6 INCH FROM EDGE OF OPENING) 4 1/2 INCH THROUGH 12 1/4 INCH THICKNESS<sup>1,2</sup>**

HEADER DEPTH <sup>3,5</sup> (inches)	DEFLECTION LIMIT <sup>4</sup>	HEADER SPAN (feet)			
		4	6	8	10
12	L/480	345	243	156	99
	L/360	450	295	190	125
	L/240	630	382	236	153
18	L/480	705	388	254	235
	L/360	750	482	302	281
	L/240	750	482	302	281
24	L/480	698	556	368	350
	L/360	896	556	368	350
	L/240	896	556	368	350

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 0.0479 kPa; 1 plf = 14.6 N/m.

<sup>1</sup> Vertical loads only. Lateral loads shall be transferred to the edges of the openings through continuous plate(s) designed in accordance with accepted engineering practice. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

<sup>2</sup> Tabulated values are based on the strong-axis of the facing material oriented perpendicular to the direction of header span.

<sup>3</sup> Minimum depth of facing above opening.

<sup>4</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of applicable building code.

<sup>5</sup> Panel thicknesses are based on overall (outside of facing to outside of facing) with a 7/16 inch OSB. When thicker facings are used, the core remains the same thickness and the overall panel thicknesses increase.

**TABLE 10—ALLOWABLE IN-PLANE RACKING SHEAR STRENGTH  
FOR PREMIER SIPS SHEAR WALLS 4 1/2 INCH THROUGH 12 1/4 INCH THICKNESS  
WIND AND SEISMIC LOADS IN SEISMIC DESIGN CATEGORIES A, B AND C<sup>1</sup>**

SPLINE TYPE <sup>3</sup>	FRAMING MINIMUM SG <sup>4</sup>	MINIMUM FACING CONNECTIONS <sup>4</sup>			ALLOWABLE SHEAR LOAD <sup>5</sup> (plf)
		Chord <sup>2,3</sup>	Plate <sup>2</sup>	Spline <sup>3</sup>	
Box/Block or Lumber Spline (Type S or Type L)	0.50	0.113"x 2-1/2" nails, 6" on center	0.113"x 2-1/2" nails, 6" on center	(7/16" OSB Faced x 3" wide Box/Block Spline) 0.113"x 2-1/2" nails, 6" on center	410
	0.50	0.113"x 2-3/8" nails, 6" on center stagger (2 rows)	0.113"x 2-3/8" nails, 6" on center	(7/16" OSB Faced x 3" wide Box/Block Spline) 0.113"x 2-3/8" nails, 6" on center	460
	0.42	0.113"x 2-3/8" nails, 6" on center stagger (2 rows)	0.113"x 2-3/8" nails, 4" on center stagger (2 rows)	(7/16" OSB Faced x 3" wide Box/Block Spline) 0.113"x 2-3/8" nails, 4" on center	700
	0.42	0.148"x 2-3/8" nails, 6" on center stagger (2 rows)	0.148"x 2-3/8" nails, 3" on center	(23/32" OSB Faced x 3" wide Box/Block Spline) 0.148"x 2-3/8" nails, 3" on center stagger (2 rows)	1000

For SI: 1 inch = 25.4 mm; 1 plf = 14.6 N/m.

<sup>1</sup> Shear strength values, as published in this table, are limited to assemblies resisting wind or seismic forces when the aspect ratio (height:width) does not exceed 2:1.

<sup>2</sup> Chords, hold-downs and connections to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.

<sup>3</sup> Spline type at interior panel-to-panel joints only, solid chord members are required at each end of each shear wall segment.

<sup>4</sup> Required connections must be made on each side of the SIP. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.

<sup>5</sup> For design to resist seismic forces, shear wall height-width ratios greater than 2:1, but not exceeding 3.5:1, are permitted for assemblies using lumber splines provided the allowable shear strength values in this table are multiplied by 2w/h.

**TABLE 11—ALLOWABLE IN-PLANE SHEAR FOR PREMIER SIPS SHEAR WALLS 4<sup>1</sup>/<sub>2</sub> INCH THROUGH 12<sup>1</sup>/<sub>4</sub> INCH THICKNESS IN SEISMIC DESIGN CATEGORIES A THROUGH F<sup>1, 2, 3, 4, 5</sup>**

SPLINE TYPE	BOTTOM PLATE	TOP PLATE	END POSTS	PLATES TO POSTS	FACING NAIL TYPE	ALLOWABLE LOADS (plf)
<sup>6</sup> Surface, Box/Block (23/32 OSB Faced) or Lumber, 3" wide	Single 2x bottom plate (0.50 SG)	Double 2x lumber (0.50 SG) 0.131 x 3-1/4" nails 2 rows, 5 inch on center	Double 2x lumber or Single 4x (0.50 SG) 0.131 x 3-1/4" nails 2 rows, 5 inch on center	(2) 0.162 x 3 Nails	0.113"x 2-3/8" nails, 6" on center (3/4" edge distance)	360
<sup>6</sup> Surface, Box/Block (23/32 OSB Faced) or Lumber, 3" wide	Single 2x bottom plate (0.50 SG)	Double 2x lumber (0.50 SG) 0.148 x 3" nails 2 rows, 6 inch on center	Double 2x lumber or Single 4x (0.50 SG) 0.131 x 3" nails 2 rows, 5 inch on center	(2) 0.162 x 3 Nails	0.113"x 2-3/8" nails, 2 rows, 4" on center, staggered (3/8" and 3/4" edge distance)	540
<sup>6</sup> Surface, Box/Block (23/32 OSB Faced) or Lumber, 3" wide	Single 2x bottom plate (0.50 SG)	Double 2x lumber or Single 4x (0.50 SG) 0.148 x 3" nails 2 rows, 6 inch on center	Double 2x lumber or Single 4x (0.50 SG) 0.131 x 3" nails 2 rows, 5 inch on center	(2) 0.162 x 3 Nails	0.113"x 2-3/8" nails, 2 rows, 3" on center, staggered (3/8" and 3/4" edge distance)	720
<sup>6</sup> Surface, Box/Block (23/32 OSB Faced) or Lumber, 3" wide	Single 2x bottom plate (0.50 SG)	Double 2x lumber or Single 4x (0.50 SG) 0.148 x 3" nails 2 rows, 5 inch on center	Double 2x lumber or Single 4x (0.50 SG) 0.131 x 3-1/4" nails 2 rows, 5 inch on center	(2) 0.162 x 3 Nails	0.113"x 2-3/8" nails, 2 rows, 2" on center, staggered (3/8" and 3/4" edge distance)	920

For SI: 1 inch = 25.4 mm; 1 plf = 14.6 N/m.

<sup>1</sup>End posts and splines must be framed to provide full end bearing in accordance with IBC Section 2304.3. OSB facings must be fully bearing on structural supports. A hold-down device must be attached to the vertical studs at each end of the shear wall assembly.

<sup>2</sup>Installation of the hold-down devices must be in accordance with the hold-down device manufacturer's instructions and as designed by the registered design professional.

<sup>3</sup>The tabulated allowable racking shear loads are for SIPs installed with the strong axis of the OSB SIP facings in either the vertical or horizontal direction.

<sup>4</sup>Splines must be as described in Section 3.2.5 of this report.

<sup>5</sup>Nails shall be installed on both sides of spline joint, bottom plate, top plate, and vertical boundary members (end posts) of the SIP shearwall. Nails must comply with ASTM F1667 and have a minimum bending yield strength of 100 ksi (689 MPa).

<sup>6</sup>This installation configuration is recognized for use as both load-bearing and nonload-bearing shearwalls in Seismic Design Categories A, B, C, D, E, and F with the seismic design coefficients of R=6.5; System Overstrength Factor,  $\Omega_0=3.0$ ; Deflection Amplification Factor,  $C_d=4.0$  under the following provisions:

- a. For design to resist seismic forces, shear wall height-width ratios greater than 2:1, but not exceeding 3.5:1, are permitted for assemblies using lumber splines provided the allowable shear strength values in this table are multiplied by 2w/h.
- b. The shear walls are supported by a rigid support, such as a concrete foundation.
- c. The wall SIPs must be installed in a manner such that both facings of the wall SIPs are equally and uniformly restrained at the top and bottom of the SIPs. The member, element or structure supporting the shear wall and the vertical restraint provided to the facers of the SIPs at the top and bottom of the wall SIP must be designed and detailed by a registered design professional.
- d. When used as load-bearing SIPs, the allowable axial load must be determined in accordance with Table 5 or 6 of this report.
- e. End posts must be designed by registered design professional.

**TABLE 12—MAXIMUM ALLOWABLE IN-PLANE SHEAR FOR DIAPHRAGMS SUBJECTED TO WIND OR SEISMIC LOADING<sup>1, 5</sup>**

MINIMUM CONNECTIONS <sup>2</sup>				ALLOWABLE SHEAR LOAD (plf)	G' APPARENT SHEAR STIFFNESS (lbf/in)	MAXIMUM ASPECT RATIO
Interior Supports <sup>2</sup> (Figure 4A)	Box/Block Spline <sup>3</sup> (Figure 4B)	Boundary <sup>4</sup> (Figure 4C)				
		Support	Spline			
PBS No. 14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 3" on center 7/16" x 3" OSB Spline	PBS No.14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 6" on center	430	24000	4:1
PBS No.14 SIP Screw with 1" penetration 12" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Spline	PBS No.14 SIP Screw with 1" penetration 3" on center	0.113" x 2.5" nails, 4" on center	460	30300	4:1
PBS No.14 SIP Screw with 1" penetration 2" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Spline	PBS No.14 SIP Screw with 1" penetration 2" on center	0.113" x 2.5" nails, 1.5" on center	655	41300	4:1
PBS No.14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 3" on center, 2 rows, staggered 7/16" x 3" OSB Spline	PBS No.14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 3" on center	795	93700	3:1
PBS No.14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 6" on center, 2 rows, staggered 23/32" x 4" OSB Spline	PBS No.14 SIP Screw with 1" penetration 4" on center	0.113" x 2.5" nails, 6" on center	1130	110600	3:1

For SI: 1 inch = 25.4 mm; 1 lb = 4.45 N; 1 plf = 14.6 N/m.

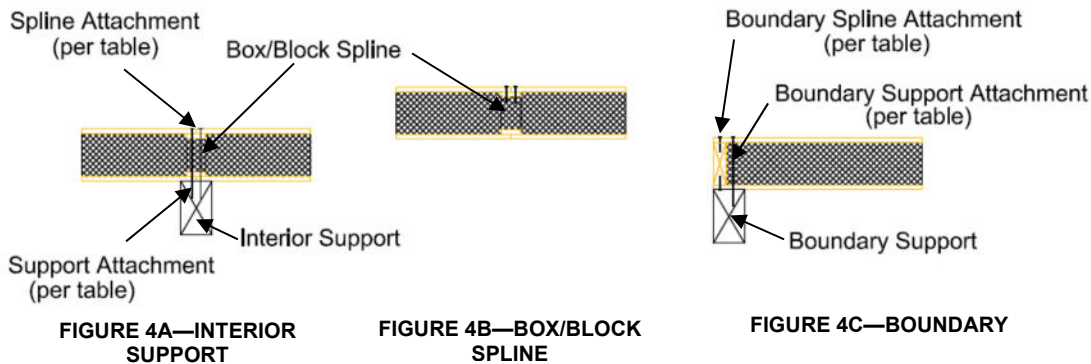
<sup>1</sup> The maximum diaphragm length-to-width ratio shall not exceed 4:1. Load may be applied parallel to continuous panel joints.

<sup>2</sup> Ends of individual panels are required to be supported as required in Tables 1, 3 and 4. Specified fasteners are required through both faces of panels on both sides of joint where panels are joined over a support. See Figure 4A.

<sup>3</sup> At unsupported interior panel-to-panel joints, specified fasteners are required on the top of the panels on both sides of panel joint. See Figure 4B.

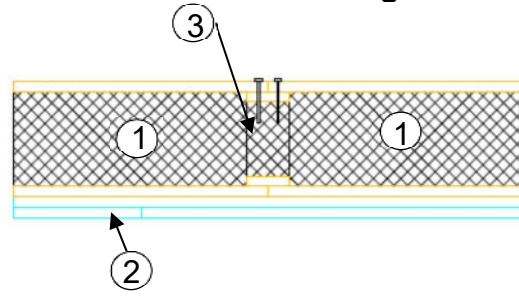
<sup>4</sup> Boundary spline shall be solid 1 1/2 inches (38.1 mm) wide, minimum, and have a specific gravity of 0.42 or greater. Specified spline fasteners are required through both facings. See Figure 4C. Ends of individual panels are required to be supported as required in Tables 1, 3 and 4.

<sup>5</sup> Diaphragms shall be designed by a registered design professional in accordance with accepted engineering practice.



**FIGURE 4—DIAPHRAGM CONNECTION TYPES**

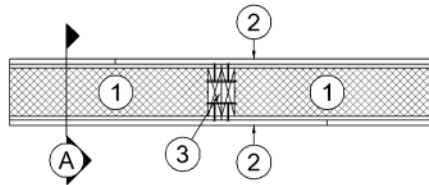
**Load-Bearing, Restrained Floor/Ceiling Assembly Rating – 1 Hour**  
**Load-Bearing, Unrestrained Floor/Ceiling Assembly Rating – 1 Hour**



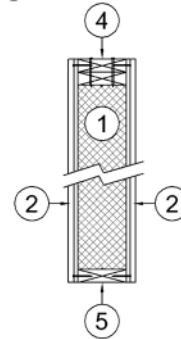
Vertical Section

FIGURE 5—ASSEMBLY DRAWING FOR FIRE RESISTANCE SECTION 4.2.11.1

**Load-Bearing Wall Assembly Rating – 1 Hour**



Horizontal Section



Section A

FIGURE 6—ASSEMBLY DRAWING FOR FIRE RESISTANCE SECTION 4.2.11.2

**Load-Bearing Wall Assembly Rating – 1 Hour**

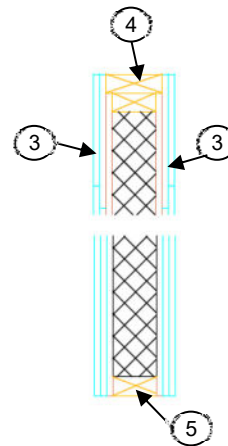
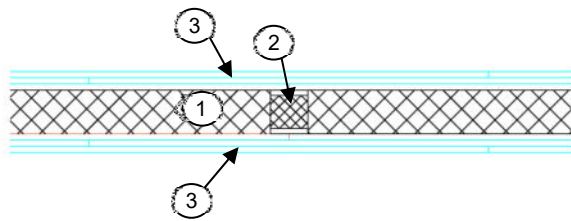


FIGURE 7—ASSEMBLY DRAWING FOR FIRE RESISTANCE SECTION 4.2.11.3

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES  
Section: 06 12 00—Structural Panels

**REPORT HOLDER:**

PREMIER BUILDING SYSTEMS, LLC

**EVALUATION SUBJECT:**

PREMIER STRUCTURAL INSULATED PANELS (SIPS)

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Premier SIPS, described in ICC-ES evaluation report [ESR-4524](#), have 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 Premier SIPS, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4524](#), comply with the LABC Chapters 7, 23 and 26, and the LARC, and are subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Premier SIPS described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4524](#).
- The design, installation, conditions of use and identification are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-4524](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.
- Premier SIPS may be used in the construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area, provided installation is in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, the additional requirements of LABC Sections 701A.3, 705A and 707A, as applicable, and the following conditions:
  - The Premier Structural Insulated Panels (SIPS) may be used as a component of a Class A classified roof assembly when installed in accordance with LABC Section 705A and specifically recognized in an ASTM E108 or UL 790 listing approved by the code official.
  - The Premier Structural Insulated Panels (SIPS) may be used as a component in exterior wall construction in accordance with LABC Section 707A when installed as described in Sections 4.2.11.2 and 4.2.11.3 of the evaluation report ESR-4524 or when specifically recognized in an ASTM E119 or UL 263 listing approved by the code official for a minimum 1-hour fire-resistance-rated (from the exterior side) wall assembly.
- Premier SIPS may be used in the construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area, provided installation is in accordance with the 2021

*International Residential Code*® (IRC) provisions noted in the evaluation report, the additional requirements of LARC Sections R337.1.3, R337.5 and R337.7 of the LARC, as applicable, and the following conditions:

- The Premier Structural Insulated Panels (SIPS) may be used as a component of a Class A classified roof assembly when installed in accordance with LARC Section R337.5 and specifically recognized in an ASTM E108 or UL 790 listing approved by the code official.
- The Premier Structural Insulated Panels (SIPS) may be used as a component in exterior wall construction in accordance with LARC Section R337.7 when installed as described in Sections 4.2.11.2 and 4.2.11.3 of the evaluation report ESR-4524 or when specifically recognized in an ASTM E119 or UL 263 listing approved by the code official for a minimum 1-hour fire-resistance-rated (from the exterior side) wall assembly.

This supplement expires concurrently with the evaluation report, reissued February 2023 and revised January 2025.



**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES****Section: 06 12 00—Structural Panels****REPORT HOLDER:****PREMIER BUILDING SYSTEMS, LLC****EVALUATION SUBJECT:****PREMIER STRUCTURAL INSULATED PANELS (SIPS)****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Premier SIPS, described in ICC-ES evaluation report ESR-4524, have 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 Premier SIPS, described in Sections 2.0 through 7.0 of the evaluation report ESR-4524, comply with CBC Chapters 7, 16, and 26, 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 and 26, as applicable.

Premier SIPS may be used in the construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area, provided installation is in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Sections 701A.3, 705A and 707A, as applicable, and the following conditions.

- The Premier Structural Insulated Panels (SIPS) may be used as a component of a Class A classified roof assembly when installed in accordance with CBC Section 705A and specifically recognized in an ASTM E108 or UL 790 listing approved by the code official.
- The Premier Structural Insulated Panels (SIPS) may be used as a component in exterior wall construction in accordance with CBC Section 707A when installed as described in Sections 4.2.11.2 and 4.2.11.3 of the evaluation report ESR-4524 or when specifically recognized in an ASTM E119 or UL 263 listing approved by the code official for a minimum 1-hour fire-resistance-rated (from the exterior side) wall assembly.

**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 Premier SIPs, described in Sections 2.0 through 7.0 of the evaluation report ESR-4524, comply with CRC Sections R301 and R316, provided the design and installation are in accordance with the 2021 *International Residential Code*<sup>®</sup> (IRC) provisions noted in the evaluation report.

Premier SIPs may be used in the construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area, provided installation is in accordance with the 2021 *International Residential Code*<sup>®</sup> (IRC) provisions noted in the evaluation report and the additional requirements of CRC Sections R337.1.3, R337.5 and R337.7, as applicable, and the following conditions:

- The Premier Structural Insulated Panels (SIPS) may be used as a component of a Class A classified roof assembly when installed in accordance with CRC Section R337.5 and specifically recognized in an ASTM E108 or UL 790 listing approved by the code official.
- The Premier Structural Insulated Panels (SIPS) may be used as a component in exterior wall construction in accordance with CRC Section R337.7 when installed as described in Sections 4.2.11.2 and 4.2.11.3 of the evaluation report ESR-4524 or when specifically recognized in an ASTM E119 or UL 263 listing approved by the code official for a minimum 1-hour fire-resistance-rated (from the exterior side) wall assembly.

This supplement expires concurrently with the evaluation report, reissued February 2023 and revised January 2025.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES  
Section: 06 12 00—Structural Panels

**REPORT HOLDER:**

PREMIER BUILDING SYSTEMS, LLC

**EVALUATION SUBJECT:**

PREMIER STRUCTURAL INSULATED PANELS (SIPS)

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Premier Structural Insulated Panels (SIPS), described in ICC-ES evaluation report ESR-4524, has also been evaluated for compliance with the codes noted below:

**Applicable code editions:**

- 2024, 2021 and 2018 *International Wildland-Urban Interface Code (IWUIC)*

**2.0 CONCLUSIONS**

The Premier Structural Insulated Panels (SIPS), described in Sections 2.0 through 7.0 of the evaluation report ESR-4524, may be used in the design and construction of new buildings located in Wildland-Urban Interface areas under the *International Wildland-Urban Interface Code (IWUIC)* Sections 504, 505, and 506, provided the design and installation are in accordance with the 2024, 2021 and 2018 *International Wildland-Urban Interface Code (IWUIC)*, the design and installation provisions noted in the evaluation report ESR-4524, as applicable, and the following conditions:

1. The Premier Structural Insulated Panels (SIPS) may be used as a component of a classified roof assembly in accordance with IWUIC Sections 504.2, 505.2 and 506.2 and specifically recognized in an ASTM E108 or UL 790 listing approved by the code official.
2. The Premier Structural Insulated Panels (SIPS) may be used as a component in exterior wall construction in accordance with IWUIC Sections 504.5, Item 1 or 505.5, Item 1 when installed as described in Sections 4.2.11.2 and 4.2.11.3 of the evaluation report ESR-4524 or when specifically recognized in an ASTM E119 or UL 263 listing approved by the code official for a minimum 1-hour fire-resistance-rated (from the exterior side) wall assembly.

This supplement expires concurrently with the evaluation report ESR-4524, reissued February 2023 and revised January 2025.