

Technical Bulletin

Insulspan SIP System for use in Roof or Floor Diaphragm Assemblies ICC ES Listing Report ESL-1347

This bulletin addresses use of the **Insulspan® SIP System** for constructing diaphragm assemblies typically used for roof or floor applications that are required to provide resistance to seismic or wind loads. ICC ES Listing Report ESL-1347 provides diaphragm assemblies for **Insulspan SIP (structural insulating panel)** assemblies with a minimum 8 ¼" (210 mm) **Insulspan SIP** (7 3/8"/187 mm EPS core thickness) based upon the applicable sections of ASTM E455 Standard, *Test Method for Static Load Testing of Framed Floor or Roof Diaphragm Constructions for Buildings*.

Determination of the intended load condition is essential to developing the proper fastening patterns for panel to panel connection splines and panel to support attachments. The engineer of record for the project is the source for this design information.

General descriptions of the **Insulspan SIP System** diaphragm assemblies are provided in Table 1. Refer to the attached copy of ICC ES Listing Report ESL-1347 for detailed requirements for **Insulspan SIP System** diaphragm assemblies.

Table 1 – ICC ES Assembly Report - Insulspan SIP System General Description

Panel to Panel Connection	Boundary Splines	Boundary Support Connection	Spline Nail Spacing
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 6" on center 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 6" on center
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 4" on center 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 4" on center
OSB Spline or Insulated Spline Interior panel to panel joints	2" x	SIP screws @ 2" oc 0.190" shank diameter 0.255" thread o.d. Min. 2.750" thread length 0.625" head diameter	0.131" x 2-1/2" nails @ 2" on center staggered 3/8"



ICC-ES Listing Report

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ESL-1347

This listing is subject to renewal April 2025.

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

Product Certification System:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: INSULSPAN STRUCTURAL INSULATED ROOF PANELS

Insulspan Structural Insulated Roof Panels are factory-assembled, laminated sandwich panels consisting of expanded polystyrene (EPS) foam plastic core with wood-based structural-use sheathing facings.

Listee: PLASTI-FAB LTD.

Evaluation: Insulspan Structural Insulated Roof Panels Panels were evaluated when tested in accordance with the following standard:

- ASTM E455-10, Standard Test Method for Static Load Testing of Framed Floor or Roof Diaphragm Constructions for Buildings, ASTM International.

Components of Construction: Panel Assembly (See Figure 1):

- **STRUCTURAL INSULATED PANELS:** Insulspan Structural Insulated Panels consisting of minimum nominal $7\frac{3}{8}$ -inch-thick (187.3 mm) expanded polystyrene (EPS) core laminated between two sheets of minimum $7\frac{1}{16}$ -inch-thick (11.1 mm) oriented strand board (OSB). SIP Panels shall be labeled in accordance with [ESR-1295](#).
- **SPLINES:** Insulspan Structural Insulated Panels for use in diaphragm assemblies are interconnected with insulated OSB (Block) splines, 3 inches wide (76.2 mm) and thickness equal to the core thickness of the SIP, along the full length of the spline connection. Surface splines consisting of $7\frac{1}{16}$ -inch-thick (11.1 mm) OSB may also be used.
- **CHORDS AND BOUNDARY SPLINES:** Diaphragm assemblies recognized in this report shall use solid lumber $1\frac{1}{2}$ inches (38.1 mm) wide minimum with a specific gravity of 0.42 or greater for chords and boundary support members.
- **FASTENERS:** See Table 2 and Figure 1 for fastener type and application.

Findings: Insulspan Structural Insulated Roof Panels have the following allowable in-plane shear loads as specified in Table 2 below, based on testing in accordance with ASTM E455.

Identification:

1. The panels must have a label containin the name and address of the sandwich panel manufacturer, the plant identifier, the product panel number, the ICC-ES evaluation report number ([ESR-1295](#)) and / or ICC-ES listing number (ESL-1347), and when applicable, the ICC-ES listing mark. Bundles of Block Splines are delivered to the jobsite with shipping documents from the sandwich panel manufacturers noted in Table 1.

2. The report holder's contact information is the following:

PLASTI-FAB LTD.
300, 2891 SUNRIDGE WAY NE
CALGARY, ALBERTA T1Y 7H9
CANADA
www.insulspan.com

Installation: Insulspan Structural Insulated Roof Panels shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code.

Conditions of Listing:

1. Additional attributes and their applications can be found in the ICC-ES evaluation report ESR-1295.
2. The listing report addresses only conformance with the standard noted above.
3. Approval of the product's use is the sole responsibility of the local code official.
4. The listing report applies only to the materials tested and as submitted for review by ICC-ES.
5. The Insulspan Structural Insulated Roof Panels are manufactured at Blissfield, Michigan and Delta, British Columbia facilities noted in Table 1, under a quality control program with inspections by ICC-ES.

TABLE 1—MANUFACTURING LOCATIONS

INSULSPAN SIP MANUFACTURING PLANTS	PLANT IDENTIFICATION NUMBER
PFB Manufacturing, LLC 245 N. Jipson Street Blissfield, MI 49228-1167	81
Plasti-Fab Ltd. Unit 1, 600 Chester Road Annacis Business Park Delta, British Columbia V3M 5Y3 Canada	80

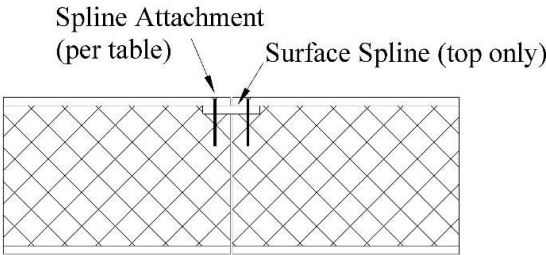
**TABLE 2—ALLOWABLE IN-PLANE SHEAR LOADS (POUNDS PER FOOT)
FOR HORIZONTAL DIAPHRAGMS**

MINIMUM NOMINAL SIP CORE THICKNESS (in.)	Minimum Connections			Allowable In-plane Shear Load (plf)	Apparent Shear Stiffness, G_a (kips/in.)	Max. Aspect Ratio
	Surface Spline ¹ (Figure 1a)	Support Element (Figure 1b)	Boundary Spline ² (Figure 1c)			
7 ³ / ₈	0.131-in. x 2-1/2-in. nails, 6-in. O.C.	10-in. length, 0.190-in. shank diameter, 0.255-in. thread O.D., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 6-in. O.C.	0.131-in. x 2-1/2-in. nails, 6-in. O.C.	265	13	3:1
	0.131-in. x 2-1/2-in. nails, 4-in. O.C.	10-in. length, 0.190-in. shank diameter, 0.255-in. thread O.D., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 4-in. O.C.	0.131-in. x 2-1/2-in. nails, 4-in. O.C.	330	21	3:1
	0.131-in. x 2-1/2-in. nails, 2-in. O.C. staggered 3/8-in. (Figure 1c)	10-in. length, 0.190-in. shank diameter, 0.255-in. thread O.D., 2.750-in. thread length, 0.625-in. head diameter SIP screw, 3-in. O.C.	0.131-in. x 2-1/2-in. nails, 2-in. O.C. staggered 3/8-in. (Figure 1c)	575	34	3:1

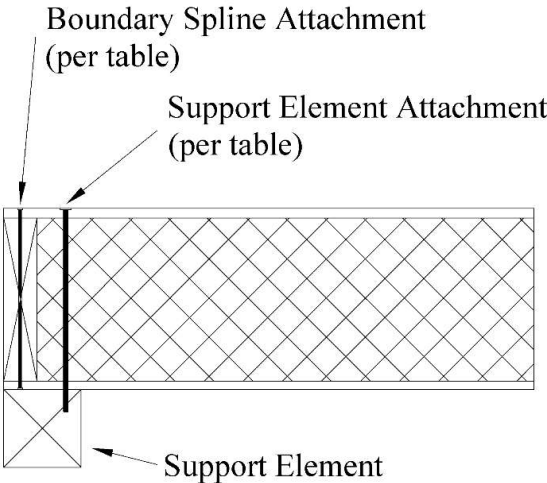
For **SI**: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 Kip = 453.6 kg; 1 plf = 14.6 kN/m; 1 psf = 47.9 Pa;

¹Surface or block spline only at interior panel-to-panel joints. Specified fasteners are required on both sides of panel joint through the top surface only, as shown in Figure 1a.

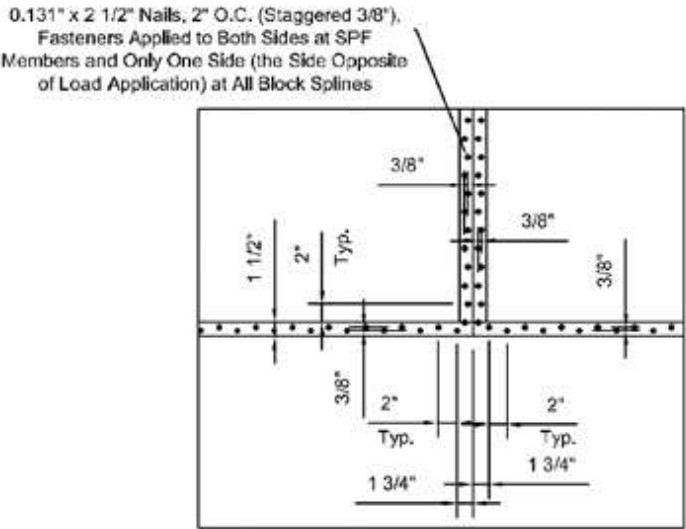
²Boundary spline shall be solid sawn lumber 1-1/2-in. wide minimum and have a specific gravity of 0.42 or greater. Specified fasteners are required through both facings as shown in Figures 1b and 1c.



(1A): SURFACE SPLINE



(1B): SUPPORT ELEMENT



(1C): BOUNDARY SPLINES

FIGURE 1—INSULSPAN STRUCTURAL INSULATED ROOF PANELS - ASSEMBLIES