

Technical Bulletin

Insulspan SIP System for use in Roof or Floor Diaphragm Assemblies

3 pages attached

This bulletin addresses use of the *Insulspan*® **SIP System** for diaphragm applications in structures. Diaphragm applications are typically roof or floor assemblies that are used to provide resistance to seismic or wind loads. The diaphragm assemblies listed below are appropriate for *Insulspan SIP System* with a minimum 8 ¼" (210 mm) thickness.

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 assembly listings are provided in Table 1.

Table 1 – NTA Assembly Reports - Insulspan SIP System

NTA Assembly Listing	Panel to Panel Connection	Boundary Splines	Boundary Support Connection	Spline Nail Spacing
INS072412-35	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
INS072412-35	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
INS072412-35	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"

Refer to the attached NTA Assembly Report INS072412-35 for detailed requirements.



CSI 06 12 00
PRODUCT: Structural Insulated Panels (SIP)
DIVISION: Wood, Plastics and Composites
SECTION: Structural Panels

Report Holder
Plasti-Fab Ltd.
100, 2886 Sunridge Way NE
Calgary, Alberta T1Y 7H9

Manufacturing Locations

PFB Manufacturing, LLC (Insulspan SIP Plant)
(NTA Plant #603)
245 N. Jipson St.
Blissfield, MI 49228-1167

Plasti-Fab Ltd. (Insulspan SIP Plant) (NTA Plant #626)
#1, 600 Chester Road, Annacis Business Park
Delta, BC V3M 5Y3

1. SUBJECT

1.1 *Insulspan Structural Insulated Roof Panels* for use in diaphragm assemblies

2. SCOPE

NTA, Inc. has evaluated the above product in accordance with:

2.1 NTA IM 014 Structural Insulated Panel Evaluation
2.1.1 Addressable Condition of Use #18

To obtain the most current NTA Listing Report, visit www.ntainc.com/report.

3. CONSTRUCTION COMPONENTS

3.1 Structural Insulated Panels. *Insulspan Structural Insulated Panels* consisting of minimum nominal 7-3/8 inch thick expanded polystyrene (EPS) core laminated between two sheets of minimum 7/16 inch thick oriented strand board (OSB). SIP Panels shall be labeled in accordance with ESR-1295.

3.2 Splines. *Insulspan Structural Insulated Panels* for use in diaphragm assemblies are interconnected with insulated OSB (Block) splines, 3-in. wide and thickness equal to the core thickness of the SIP, along the full length of the spline connection. Surface splines consisting of 7/16 inch thick OSB may also be used.

3.3 Chords and Boundary Splines. Diaphragm assemblies recognized in this report shall use solid lumber 1.5-in. wide minimum with a specific gravity of 0.42 or greater for chords and boundary support members

3.4 Fasteners. Assemblies shall be fastened in accordance with Figure 1 and Table 1.

4. DESIGN

4.1 Design Approval. Where required by the authority having jurisdiction, structures using *Insulspan Structural Insulated Panels* 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.^(IM 014 NACU⁴)

4.2 Connection to Structure. Designed in accordance with accepted engineering practice to transfer forces to the structure.

4.3 Design Loads. Design loads to be resisted by the SIP panels shall be as required under the applicable building code. Loads on the panels shall not exceed the loads noted in this report.

This listing report is intended to indicate that NTA, Inc. has evaluated the product described and found it to be eligible for labeling. Product not labeled as specified herein is not covered by this report. NTA, Inc. makes no warranty, either expressed or implied, regarding the product covered by this report.

**Table 1: Allowable In-Plane Shear Strength (Pounds per Foot)
 for Horizontal Diaphragms Subjected to Wind or Seismic Loading**

Minimum Nominal SIP Core Thickness (in.)	Minimum Connections			Shear Strength (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. on center	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. on center	0.131-in. x 2-1/2-in. nails, 6-in. on center	265	13	3:1
	0.131-in. x 2-1/2-in. nails, 4-in. on center	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. on center	0.131-in. x 2-1/2-in. nails, 4-in. on center	330	21	3:1
	0.131-in. x 2-1/2-in. nails, 2-in. on center 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. on center	0.131-in. x 2-1/2-in. nails, 2-in. on center staggered 3/8-in. (Figure 1c)	575	34	3:1

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 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 Figure 1b.

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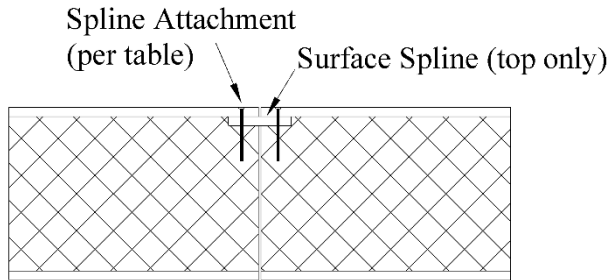


Figure 1a: Surface Spline

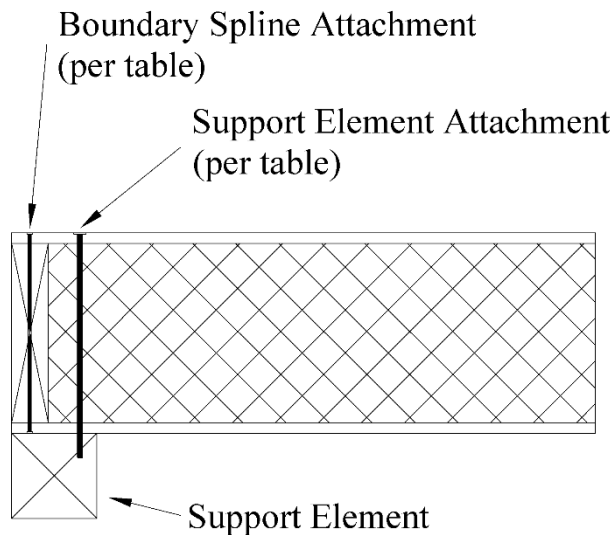


Figure 1b: Support Element

0.131" x 2 1/2" Nails, 2" O.C. (Staggered 3/8"),
 Fasteners Applied to Both Sides at SPF
 Members and Only One Side (the Side Opposite
 of Load Application) at All Block Splines

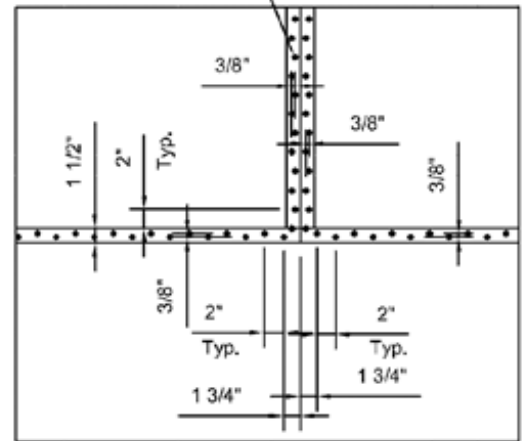


Figure 1c: Boundary Splines

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