Engineering Evaluation Report: SIPA060523-71r3
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Cottonwood, MN 56229

FischerSIPS
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Louisville, KY 40203

PorterCorp
4240 North 136th Avenue
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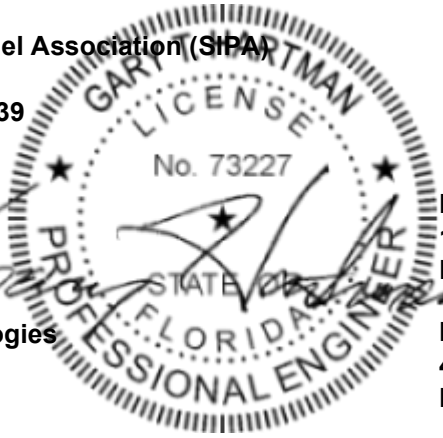

1. SUBJECT
1.1 ***Structural Insulated Panels*. Roof Panels in 8-ft to 24-ft long spans, 6-1/2-in. to 15-in. thick.**

2. SCOPE
The evaluator has evaluated the above product(s) for compliance with the applicable sections of the following codes:
2.1 8th Edition, 2023 Florida Building Code, Building (FBC)
2.2 State of Florida Product Approval Program Rule 61 G 20-3, FAC
2.3 Compliance Method: Evaluation Report from a Licensed Florida Professional Engineer

The evaluator has evaluated the following properties of the above product(s):
2.4 Structural performance under transverse and in-plane shear diaphragm loads
2.5 Use in High Velocity Hurricane Zones (HVHZ)
2.6 Surface burning characteristics

3. USES
3.1 General. *Structural Insulated Panels* are used as structural insulated wall panels capable of resisting transverse, axial and in-plane shear loads.
3.2 Construction Types. *Structural Insulated Panels* shall be considered combustible building elements when determining the Type of Construction in accordance with FBC Chapter 6.
3.3 Fire Resistive Assemblies. *Structural Insulated Panels* shall not be used as part of a fire-rated assembly unless suitable evidence and details are submitted and approved by the authority having jurisdiction.
3.4 High Velocity Hurricane Zones. *Structural Insulated Panels* with an overall thickness of at least 6-1/2-in. (165 mm) have demonstrated compliance with 8th Edition Florida Building Code, Building, Section 1626 for use in High Velocity Hurricane Zones in Risk Category 1, 2, and 3 when assembled in accordance with this report and the manufacturer's installation instructions.

4. DESCRIPTION
4.1 General. *Structural Insulated Panels* are factory-assembled, engineered-wood-faced, structural insulated panels (SIPs) with an expanded polystyrene (EPS) foam core. The product is intended for use as load-bearing roof panels. *Structural Insulated Panels* are available in 6-1/2-in. (165 mm) through 15-in. (381 mm) overall thicknesses and are custom-made to the specifications for each use. The maximum product size is 8-ft (2438 mm) wide and up to 24-ft (7315 mm) in length.

4.2 Materials.

4.2.1 Facing. The facing consists of two single-ply oriented strand board (OSB) facings a minimum of 7/16-in. (11.1 mm) thick conforming to the properties shown in Table 3. Additionally, facing materials shall conform to DOC PS 2, Exposure 1, Rated Sheathing with a span index of 24/16. Panels may be manufactured with the facing strength axis oriented in either direction with respect to the direction of product bending provided the appropriate design values are used.

4.2.2 Core. The core material is EPS foam plastic insulation conforming to ASTM C578, Types I or VIII. The foam core, up to 4-in. (101.6 mm) thickness, has a flame spread rating not exceeding 75 and a smoke-developed rating not exceeding 450 when tested in accordance with ASTM E84. Foam plastic in thicknesses greater than 4-in. (101.6 mm) has met the requirements found in 8th Edition FBC, Building 2603.3 Exception 4.

4.2.3 Adhesive. Facing materials are adhered to the core material using a thin-film adhesive. The adhesive is applied during the lamination process in accordance with the in-plant quality system documentation.

4.2.4 Material Sources. The facing, core and adhesive used in the construction of *Structural Insulated Panels* must be materials from approved sources as identified in the in-plant quality system documentation.

4.2.5 Splines. *Structural Insulated Panels* are interconnected with surface splines, block splines, or I-joist Splines (Figure 1). Connections using dimensional lumber splines or other engineered structural splines are not specifically addressed in this report and must be designed in accordance with accepted engineering practice to meet applicable code requirements.

4.2.5.1 Surface Splines. Surface splines (Figure 1) consist of 3-in. (72 mm) wide by 7/16-in. (11.1 mm) thick or thicker OSB. At each panel joint, one surface spline is inserted into each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.

4.2.5.2 Block Splines. Block splines (Figure 1) are manufactured in the same manner as the SIP except with an overall thickness that is 1-in. (25.4 mm) less than the overall thickness of the panels to be joined.

4.2.5.3 I-Joist Splines. Structural capacities for prefabricated wood I-joists splines (Figure 1) shall be established and monitored in accordance with ASTM D5055 with properties equal to or greater than those shown in Table 4. The overall depth of the joist is 1-in. (25.4 mm) less than the overall thickness of the panels to be joined.

5. DESIGN

5.1 Overall Structural System. The scope of this report is limited to the evaluation of the SIP component. Panel connections and other details related to incorporation of the product into the overall structural system of a building are beyond the scope of this report.

5.2 Design Approval. Where required by the authority having jurisdiction, structures using *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.

5.3 Design Loads. Design loads to be resisted by the product shall be as required under the applicable code. Loads on the panels shall not exceed the loads noted in this report. Where loading conditions result in superimposed stresses, the sum of the ratio of actual loads over allowable loads shall not exceed one. 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.

5.4 Allowable Loads. Allowable transverse and in-plane shear diaphragm loads may be calculated using the panel properties provided in Tables 1 through 4 or selected from Tables 5 through 8. For loading conditions not specifically addressed herein, structural members designed in accordance with accepted engineering practice shall be provided to meet applicable code requirements.

5.5 Openings. Openings in panels beyond the scope of this report 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 adopted code.

5.6 High Velocity Hurricane Zones. Panels with an overall thickness of at least 6-1/2-in. (165.1 mm) have met the requirements of 8th Edition FBC, Building, Section 1626, using the missile impact speed required for risk categories 1, 2 and 3. Panels used in High Velocity Hurricane Zones shall be constructed using a minimum of 0.131 x 2-1/2-in. (3.327 x 63.5 mm) smooth shank round head nails 6-in. (152.4 mm) on center at all spline connections and at panel facing to top and bottom plate connections. Top and bottom plates shall be a minimum of #2 SPF 2x dimensional lumber.

5.7 Horizontal Diaphragms. Horizontal diaphragms shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided herein. 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 3:1

5.8 Combined Loads. Panels subjected to a combination of transverse and in-plane shear loads shall be analyzed utilizing a straight-line interaction.

5.9 Panel Reinforcements. Allowable transverse loads for panels reinforced with I-joists meeting the minimum properties shown in Table 4 are presented in Table 7.

6. INSTALLATION

6.1 General. *Structural Insulated Panels* shall be fabricated, identified and erected in accordance with this report, the approved construction documents, the manufacturer's installation instructions uploaded as part of this product approval, and the applicable codes. In the event of a conflict between the manufacturer's installation instructions and this report, this report shall govern. Approved construction documents shall be available at all times on the jobsite during installation.

6.2 Splines. *Structural Insulated Panels* are interconnected at the panel edges through the use of a spline. The spline type may be of any configuration listed in Section 4.2.5 as required by the specific design. The spline shall be secured in place with not less than 0.131-in. x 2-1/2-in. (3.327 x 63.5 mm) nails, spaced 6-in. (152.4 mm) on center on both sides of the panel, or an approved equivalent fastener. All joints shall be sealed in accordance with the SIP manufacturer's installation instructions. Alternate spline connections may be required for panels subjected to in-plane shear forces. Such panels shall be interconnected exactly as required in Table 10 or as directed by the designer.

6.3 Plates. The end plates of the panels shall be dimensional or engineered lumber sized to match the core thickness of the panel. The plates shall be secured using not less than 0.131-in. x 2-1/2-in. (3.327 x 63.5 mm) nails, spaced 6-in. (152.4 mm) on center on both sides of the panel, or an approved equivalent fastener.

6.4 Cutting and Notching. No field cutting or routing of the panels shall be permitted except as shown on approved construction documents.

6.5 Protection from Decay. SIPs that rest on exterior foundation walls shall not be located within 8-in. (203.2 mm) of exposed earth. 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.

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

6.7 Heat-Producing Fixtures. Heat-producing fixtures shall not be installed in the panels 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.

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

6.9 Voids and Holes

6.9.1 Voids in Core. In lieu of openings designed in accordance with section 5.5, 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-in. (25.4 mm) maximum diameter hole. Such voids shall be spaced a minimum of 4-ft on center measured perpendicular to the panel span. Two 1/2-in. diameter holes may be substituted for the single 1-in. hole provided they are maintained parallel and within 2-in. of each other. Voids perpendicular to the panel span shall be limited to a single 1-in. maximum diameter hole placed not closer than 16-in. from the support. Additional voids in the same direction shall be spaced not less than 28-in. on center.

6.9.2 Holes in Panels. Holes may be placed in panels during fabrication at predetermined locations only. Holes shall be limited to 4-in. by 4-in. (101.6 x 101.6 mm) square. The minimum distance between holes shall not be less than 4-ft (1219.2 mm) on center measured perpendicular to the panel span and 24-in. (609.6 mm) on center measured parallel to the panel span. Not more than three holes shall be permitted in a single line parallel to the panel span. The holes may intersect voids permitted elsewhere in this report.

6.10 Panel Cladding

6.10.1 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.

6.11 Interior Finish. The SIP foam plastic core shall be separated from the interior of the building by an approved thermal barrier of 1/2-in. gypsum wallboard or equivalent thermal barrier where required by 8th Edition FBC Section 2603.4.

7. CONDITIONS OF USE

Structural Insulated Panels as described in this report comply with the codes listed in Section 2 above, subject to the following conditions:

7.1 Installation complies with this report and the approved construction documents.

7.2 This report applies only to the panel thicknesses specifically listed herein.

7.3 In-use panel heights/spans shall not exceed the values listed herein. Extrapolation beyond the values listed herein is not permitted.

7.4 The panels are manufactured in the production facilities listed in this report.

8. EVIDENCE SUBMITTED

The Evaluator has examined the following evidence to evaluate this product:

8.1 Test Reports:

8.1.1 ASTM E72-02 Section 11, Transverse Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:

8.1.1.1 PSC021208-23, 48x96x4.625, 6/30/2008
8.1.1.2 PSC031308-4, 48x144x4.625, 6/30/2008
8.1.1.3 PSC030508-8, 48x96x4.625, 6/30/2008
8.1.1.4 PSC031208-1, 48x96x12.375, 6/30/2008
8.1.1.5 PSC031208-2, 48x96x4.625, 6/30/2008
8.1.1.6 PSC031208-3, 48x96x12.375, 6/30/2008
8.1.1.7 PSC031208-4, 48x240x12.375, 6/30/2008
8.1.1.8 PSC031208-6, 48x192x10.375, Vertical, 6/30/2008
8.1.1.9 PSC031208-7, 48x148x4.625, Vertical, 6/30/2008

8.1.2 ASTM E72-05 Section 11, Transverse Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:

8.1.2.1 PSC021208-10, 48x96x8.375, 6/30/2008
8.1.2.2 PSC021508-19, 48x96x4.625, 6/30/2008

8.1.2.3 PSC031308-1, 48x240x8.375, 6/30/2008
8.1.2.4 PSC031308-2, 48x216x6.625, 6/30/2008
8.1.2.5 PSC120407-4, 48x96x8.375, 6/30/2008
8.1.2.6 FSH022709-15, 48x96x6.5, 11/9/2009
8.1.2.7 STI092508-32, 48x96x8.375, 11/19/2008
8.1.2.8 TPC032808-4, 48x96x8.25, 48x240x8.25 1/19/2010
8.1.2.9 PSC030110-8, 48x96x4.625, 12/21/2010
8.1.2.10 EHS082908-32, 48x96x8.25, 1/5/2009
8.1.2.11 EPS011209-20, 48x96x8.375, 5/28/2009
8.1.2.12 FRD070511-22, 48x96x6.5, 7/21/2011
8.1.2.13 IBP091409-14, 48x96x6.5, 12/20/2010
8.1.2.14 PSC042209-10, 48x96x4.625, 6/10/2009
8.1.2.15 PSC042209-11, 48x168x4.625, 6/10/2009
8.1.2.16 STI081209-16, 48x96x6.5, 11/6/2009
8.1.2.17 EHS111808-7, 48x96x8.375, 12/22/2008
8.1.2.18 PSC061008-1, 48x96x8.375, 8/15/2008
8.1.2.19 PSC061008-4, 48x240x8.375 8/15/2008
8.1.2.20 STI092508-32, 48x96x8.375, 11/19/2008
8.1.2.21 TPC041210-31, 48x96x8.25, 9/1/2010

8.1.3 ASTM E72-10 Section 11, Transverse Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.3.1 ATL061411-3, 48x96x6.5, 7/19/2011
8.1.3.2 ENR(688)100112-11, 48x96x4.625, 10/24/2012
8.1.3.3 ENR(688)100112-12, 48x168x4.625, 10/24/2012
8.1.3.4 EPS(3324)011315-46, 48x96x4.625, 48x168x4.625, 8/7/2015
8.1.3.5 FSH072412-5, 48x96x4.625, 48x168x4.625, 2/27/2013
8.1.3.6 EPS052512-3, 48x96x4.625, 48x122x4.625, 10/10/2012
8.1.3.7 MUR(660)022513-10, 48x96x4.625, 48x168x4.625, 11/2/2015
8.1.3.8 MUR083109-36, 48x96x6.5, 9/23/2011
8.1.3.9 EPS(549)123014-7, 48x96x4.625, 48x168x4.625, 8/28/2015
8.1.3.10 PPFMI(745)020613-4, 48x96x4.625, 48x168x4.625, 1/28/2014
8.1.3.11 STI030111-9, 48x96x6.5, 6/13/2011
8.1.3.12 TPC052912-15, 48x96x6.5, 3/4/2013
8.1.3.13 VNT050211-17, 48x96x4.625, 10/26/2011
8.1.3.14 VNT(679)120811-2, 48x96x6.5, 8/17/2012
8.1.3.15 EPT(677)021115-23, 48x96x4.5, 48x192x4.5, 10/22/2015

8.1.4 ASTM E72-15 Section 11, Transverse Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.4.1 ACP(647)062717-25, 48x96x4.625, 48x168x4.625, 9/19/2017
8.1.4.2 ATLC062717-24, 48x96x4.625, 48x96x168, 9/19/2017
8.1.4.3 EPS(549)091416-16, 48x96x4.625, 48x96x168, 11/29/2016
8.1.4.4 JDI(712)032717-15, 48x96x4.625, 48x96x168, 6/27/2017
8.1.4.5 TOIS030116-64, 48x96x4.625, 6/21/2016

8.1.5 ASTM E72-15 Section 11, Transverse Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.5.1 SIPA031918-30 48x288x8.25, 08/31/2018
8.1.5.2 SIPA031918-31 48x288x12.25, 08/31/2018
8.1.5.3 SIPA031918-32 48x288x15, 08/31/2018
8.1.5.4 SIPA031918-33 48x96x15, 08/31/2018

8.1.6 ASTM E72-15 Section 11, Transverse Load with I-joist, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.7 SIPA102116-5, I-Joist Spline Structural Reinforcement, 02/26/2019

8.1.8 ASTM E661 Section 7, Concentrated Load, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.8.1 PSC041608-43, 48x96x4.625, 06/30/2008
8.1.8.2 PSC041608-49, 48x96x12.375, 06/30/2008
8.1.8.3 SIPA031918-33 48x96x15, 08/31/2018

8.1.9 ASTM E455-10 Static Load Testing of Framed Floor or Roof Diaphragm, NTA Test Laboratory, IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.9.1 EPS040611-26 8x24x8.25, nails 6-in on center, 05/11/2011
8.1.9.2 EPS040611-27 8x24x8.25, nails 2-in on center, 05/11/2011
8.1.9.3 EPS041111-13 8x24x8.25, nails 4-in on center, 05/11/2011

8.1.10 NFPA 286-15 Contribution of Wall and Ceiling Interior Finish to Room Fire Growth, Intertek, York, PA IAS Lab Certification No. TL-144, Report Numbers:
8.1.10.1 I2616.01-121-24-R0 17-in. Thick SIPs, 05/24/2018 (Note: Revisions to NFPA 286 between the 2015 and 2019 versions would not change the method of performing the test on these materials or compliance with the test criteria)

8.1.11 TAS 201-94, TAS 202-94 and TAS 203-94, NTA, Inc., IAS Lab Certification No. TL-259, Test Report Numbers:
8.1.11.1 SIPA091518-1, TAS 201-94, TAS 202-94, TAS203-94, Florida P.E. Seal, Douglas Berger, FL 84578, 11/09/2018

Table 1: Basic Properties[1]

Property	Weak-Axis Bending	Strong-Axis Bending
Allowable Tensile Stress, F_t (psi)	245	495
Allowable Compressive Stress, F_c (psi)	340	580
Elastic Modulus (Bending), E_b (psi)	738,900	658,800
Shear Modulus, G (psi)	270	405
Allowable Core Shear Stress, F_v (psi)	4.5	5.0
Core Compressive Modulus, E_c (psi)	360	360
Reference Depth, h_o (in.)	4.625	4.625
Shear Depth Factor Exponent, m	0.84	0.86

For SI: 1 inch = 25.4 mm; 1 psi = 6894.8 Pa.
[1] All properties are based on a minimum panel width of 24-in.

Table 2: Section Properties

Panel Thickness, *h* (in.)	Core Thickness, *c* (in.)	Dead Weight, w_d (psf)	Facing Area, A_f (in.^{2}/ft)	Shear Area, A_v (in.^{2}/ft)	Moment of Inertia, *I* (in.^{4}/ft)	Section Modulus, *S* (in.^{3}/ft)	Radius of Gyration, r (in.)	Centroid -to- Facing Dist., y_c (in.)
6.50	5.625	3.3	10.5	72.8	96.5	29.7	3.03	3.25
8.25	7.375	3.5	10.5	93.8	160.2	38.8	3.91	4.13
10.25	9.375	3.6	10.5	117.8	252.7	49.3	--	--
12.25	11.375	3.8	10.5	141.8	366.3	59.8	--	--
15	14.125	4.0	10.5	174.8	556.7	74.2	--	--

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 47.88 Pa.; 1 in.^{2}/ft = 2116.66mm^2/m 1 in.^{3} = 16387.064 mm^3; 1 in.^{4}/ft = 1365588.67mm^4/m

Table 3: Minimum Facing Properties

Thickness (in.)	Product	Flatwise Stiffness (lb_f-in^2/ft)		Flatwise Strength (lb_f-in/ft)		Tension (lb_f/ft)		Density (pcf)
		Along	Across	Along	Across	Along	Across	
7/16	OSB	54,700	27,100	950	870	6,800	6,500	35

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 lbf = 4.448 N; 1 pcf = 0.006366 N/m^3; 1 lbf-in/ft = 370.833 N-mm/m; 1lbf/ft = 14.59 N/m; 1 lbf-in^2/ft = 9419.167 N-mm^2/m

Table 4: Minimum I-Joist Properties for Use as Reinforcements[1]

Depth (in.)	Stiffness, *EI* (lb_f-in^2) x 10^6	Moment Capacity, *M* (lb_f-ft)	Shear Capacity, *V* (lb_f)	Coefficient of Shear Deflection, *K* (lb_f) x 10^6
9.25	185	2715	1155	4.81
11.25	296	3410	1405	5.85
14	482	4270	1710	7.28

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 lbf = 4.448 N; 1 lbf-in^2 = 2870.9 N-mm^2

[1] Properties shall be established and monitored in accordance with ASTM D5055 or equivalent.

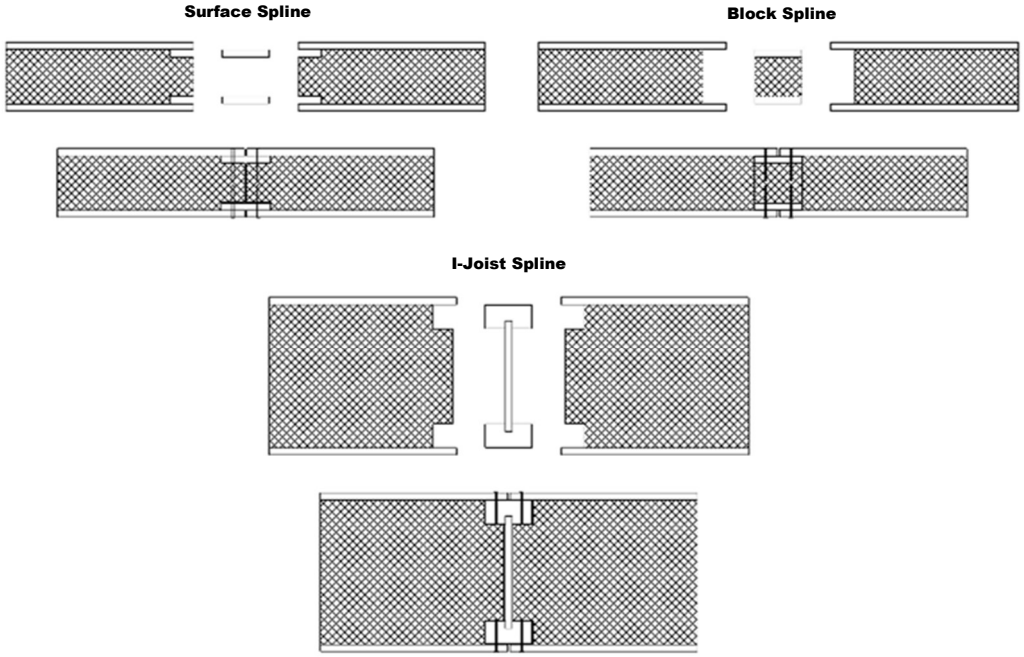

Figure 1: SIP Spline Types

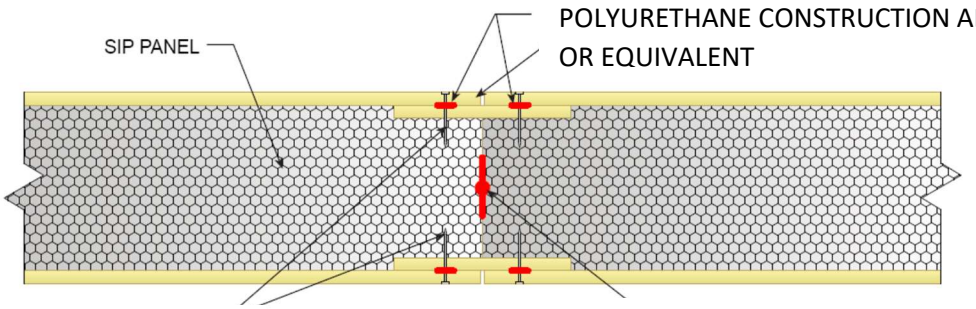

Figure 2: Sealing Joints between SIPs

Table 5: Allowable Uniform Transverse Loads (psf) [1, 4]

Panel Length (ft)	6-1/2-in. SIP thickness			8-1/4-in. SIP thickness		
	Deflection Limit[2]			Deflection Limit[2]		
	L/180	L/240	L/360	L/180	L/240	L/360
8 WAB[3]	73	64	43	80	80	58
8	82	82	56	90	90	78
10	63	57	38	68	68	54
12	51	40	27	55	55	39
14	39	29	19	46	43	29
16	29	22	14	40	33	22
18	22	16	--	34	25	17
20	--	--	--	26	20	13
22	--	--	--	21	15	--
24	--	--	--	17	12	--

See Table 6 for notes.

Table 6: Allowable Uniform Transverse Loads (psf) [1, 4]

Panel Length (ft)	10-1/4-in. SIP thickness			12-1/4-in. SIP thickness			15-in. SIP thickness		
	Deflection Limit[2]			Deflection Limit[2]			Deflection Limit[2]		
	L/180	L/240	L/360	L/180	L/240	L/360	L/180	L/240	L/360
8 WAB[3]	88	88	75	93	96	96	108	108	108
8	98	98	98	107	107	107	121	121	121
10	73	73	73	79	79	79	87	87	87
12	59	59	54	63	63	63	68	68	68
14	49	49	41	52	52	52	56	56	56
16	42	42	31	44	44	41	47	47	47
18	37	36	24	39	39	32	41	41	41
20	32	29	19	34	34	26	36	36	36
22	29	23	15	31	31	21	33	33	29
24	25	19	12	28	26	17	29	29	24

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 47.88 Pa.

[1] Table values assume a simply supported panel with 1-1/2-in. of continuous bearing on facing at supports and solid wood plates at bearing locations. Values do not include the dead weight of the panel.

[2] Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code. Values are based on loads of short duration only and do not consider the effects of creep.

[3] Tabulated values are based on the strong-axis of the facing material oriented parallel to the direction of panel bending. WAB indicates weak-axis bending of the facing material; the strong-axis of the facing material is oriented perpendicular to the direction of panel bending.

[4] Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

Table 7: Allowable Uniform Transverse Loads with I-Joist Reinforcements (psf) [1, 3, 4]

Panel Length (ft)	10-1/4-in. SIP thickness			12-1/4-in. SIP thickness			15-in. SIP thickness		
	Deflection Limit[2]			Deflection Limit[2]			Deflection Limit[2]		
	L/180	L/240	L/360	L/180	L/240	L/360	L/180	L/240	L/360
8	115	115	115	124	124	124	123	123	123
10	92	92	92	99	99	99	98	98	98
12	76	76	76	82	82	82	82	82	82
14	65	65	65	71	71	71	70	70	70
16	57	57	57	62	62	62	61	61	61
18	51	51	44	55	55	55	54	54	54
20	46	46	33	49	49	48	48	48	48
22	41	38	25	45	45	37	44	44	44
24	36	30	20	41	41	29	41	41	41

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 psf = 47.88 Pa.

[1] Table values require the use of I-joists with minimum properties specified in Table 4. Values assume a simply supported panel with 1-1/2-in. of continuous bearing on facing at supports. Values do not include the dead weight of the panel.

[2] Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code. Values are based on loads of short duration only and do not consider the effects of creep.

[3] Tabulated values are based on the strong-axis of the facing material oriented parallel to the direction of panel bending.

[4] Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

Table 8: Allowable In-Plane Shear Strength (Pounds per Foot) for Horizontal Diaphragms Subjected to Wind or Seismic Loading

Minimum Nominal SIP Thickness (in.)	Minimum Connections			Shear Strength (plf)	Max. Aspect Ratio
	Surface Spline[1] (Figure 3b)	Boundary Support Element (Figure 3c)	Interior Support Spline[2,3] (Figure 3a)		
8-1/4	0.131-in. x 2-1/2-in. nails, 6-in. on center 7/16-in. x 3-in. OSB Surface Spline	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	3:1
	0.131-in. x 2-1/2-in. nails, 4-in. on center 7/16-in. x 3-in. OSB Surface Spline	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	3:1
	0.131-in. x 2-1/2-in. nails, 2-in. on center, two rows staggered 3/8-in. 7/16-in. x 3-in. OSB Surface Spline	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, two rows staggered 3/8-in.	575	3:1

For SI: 1 inch = 25.4 mm, 1 plf = 14.59 N/m

[1]Surface 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 3b.

[2]Interior support 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 3c.

[3]Attachment of panels to interior supports is the responsibility of the designer and are not included with the shear strength capacities in this table.