
SUBJECT: SHEAR WALL & DIAPHRAGM CAPACITY OF PREMIER SIPS

Premier SIPS have been evaluated for use as shear walls and diaphragms in structures. Shear wall and diaphragm applications include both wall and roof assemblies that are subjected to seismic or wind loads. Through large and small-scale testing conducted at the APA laboratories, overseen by an independent structural consultant, it was determined that Premier SIPS can develop design diaphragm capacities of up to 850 lbs./ft. Please refer to the Premier SIPS Load Chart #7A (Page 2) for Premier SIPS Wood Screw and nail spacing required to obtain this capacity.

These tests have allowed for the determination of design capacities for Premier SIPS Wood Screws and nails when used in diaphragms. The following lateral load capacities are recommended:

- Premier SIPS Wood Screws: 250 lbs.
- 8d nails @ surface splines: 62.5 lbs.

DESIGN VALUES INCLUDE A SAFETY FACTOR OF THREE ON THE ULTIMATE LOAD.

In all shear wall and diaphragm applications, the design of the lateral load resisting system must be engineered to provide a load path for the forces that the structure experiences. This is provided by the engineer of record on the specific project.

Current Premier SIPS Load Charts and the Premier SIPS Resource Manual can be found at www.premiersips.com.

LOAD CHART #7A						
Roof/Floor Diaphragms Loads - PLF ¹⁻⁶						
Type S Spline						
Minimum Connections ²				Allowable Shear Load (PLF)	G' Apparent Shear Stiffness (lbf/in)	Maximum Aspect Ratio
Interior Supports ²	Spline ³	Boundary ⁴				
		Support	Spline			
SIP Screw 12" on center ⁵	0.113"x 2-1/2" nails 3" on center	SIP Screw 12" on center ⁵	0.113"x 2-1/2" nails, 6" on center	430	24000	4:1
SIP Screw 12" on center ⁵	0.113"x 2-1/2" nails 3" on center 2 rows, Staggered	SIP Screw 3" on center ⁵	0.113"x 2-1/2" nails, 4" on center	530	30300	4:1
SIP Screw 2" on center ⁵	0.113"x 2-1/2" nails 3" on center 2 rows, Staggered	SIP Screw 2" on center ⁵	0.113"x 2-1/2" nails, 1-1/2" on center	750	41300	4:1
SIP Screw 4" on center ⁵	0.113"x 2-1/2" nails 3" on center 2 rows, Staggered	SIP Screw 4" on center ⁵	0.113"x 2-1/2" nails, 3" on center	915	93700	3:1
SIP Screw 4" on center ⁵	0.113"x 2-1/2" nails 6" on center 2 rows, Staggered ⁶	SIP Screw 4" on center ⁵	0.113"x 2-1/2" nails, 6" on center	1130	110600	3:1

¹ The maximum diaphragm length-to-width ratio shall not exceed 4:1. Load may be applied parallel to continuous SIP joints.

² Interior supports shall be spaced not to exceed 12 feet (3.66 m) on center and have a minimum width of 3-1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified fasteners are required on both side of the SIP joint where SIPs are joined over a support.

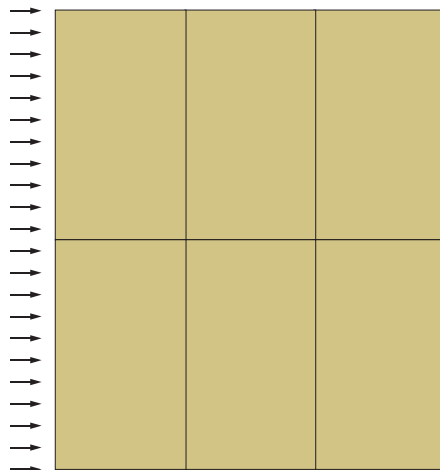
³ Top splines only, at interior SIP-to-SIP joints. Specified fasteners are required on both sides of the SIP joint.

⁴ Boundary spline shall be solid 1-1/2 inches (38.1 mm) wide, minimum, and have a specific gravity of 0.42 or greater. Boundary supports shall have a minimum width of 3-1/2 inches (88.9 mm) and a specific gravity of 0.42 or greater. Specified spline fasteners are required through both facings.

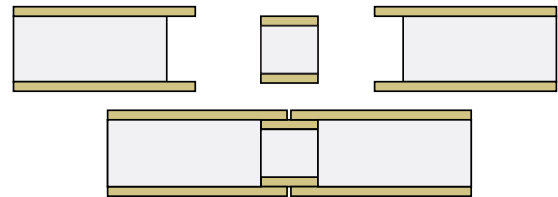
⁵ 1 inch (25.4 mm) penetration.

⁶ 4 inch (101.6 mm) 23/32 in (18.25 mm) thick facing.

DIAPHRAGM LOAD



TYPE S SPLINE



NOTE:
 Load Chart #7A provides maximum allowable uniformly distributed pounds per square foot (PLF) diaphragm load based on fastening pattern with Type S spline.