

# Structural Insulated Panel (SIP)

## Engineering Design Guide (SIP-EDG01-19)

### Supplement -- Design Values for Structural Insulated Panels

This Supplement provides reference design values for structural insulated panels. These reference design values are provided by SIP manufacturers, who are responsible for establishing design values for their products. Reference design values in this Supplement are provided as a courtesy for use with the SIP Engineering Design Guide.

While every precaution has been taken to ensure the accuracy of this document, errors may have occurred during development. Updates and/or Errata are posted to the SIPA website at [www.sips.org](http://www.sips.org). Technical inquiries may be addressed to [info@sips.org](mailto:info@sips.org).

**Table 1: Section Properties**

Panel Thickness, $h$ (in.)	Core Thickness, $c$ (in.)	Dead Weight, $w_d$ (psf)	Facing Area, $A_f$ (in. <sup>2</sup> /ft)	Shear Area, $A_v$ (in. <sup>2</sup> /ft)	Moment of Inertia, $I$ (in. <sup>4</sup> /ft)	Section Modulus, $S$ (in. <sup>3</sup> /ft)	Radius of Gyration, $r$ (in.)	Centroid-to-Facing Dist., $y_c$ (in.)
4.50	3.63	3.2	10.5	48.8	43.3	19.3	2.03	2.25
4.625	3.75	3.2	10.5	50.3	46.0	19.9	2.09	2.31
6.50	5.63	3.3	10.5	72.8	96.5	29.7	3.03	3.25
8.25	7.38	3.5	10.5	93.8	160.2	38.8	3.91	4.13
10.25	9.38	3.6	10.5	117.8	252.7	49.3	4.91	5.13
12.25	11.38	3.8	10.5	141.8	366.3	59.8	5.91	6.13

**Table 2: SIP Material Properties**

Manufacturer	Facing Tensile Stress, $F_t$ (psi)	Facing Comp. Stress, $F_c$ (psi)	SIP Bending Modulus, $E$ (psi)	SIP Shear Modulus, $G$ (psi)	Core Shear Strength, $F_v$ (psi)	Core Comp. Strength, $F_{cc}$ (psi)	Core Comp. Modulus, $E_c$ (psi)	Shear Reference Depth, $t_o$ (in.)	Shear Depth Exp., $m$
Min. (SAB) <sup>1</sup>	495	345	560000	350	3.0	14.0	360	4.50	1.00
SIPA report NER-1021 (SAB)	495	580	658800	405	5.0	14.0	360	4.625	0.86
SIPA report NER-1021 (WAB)	235	340	738900	270	4.5	14.0	360	4.625	0.84
R-Control	495	619	1515800	267	4.5	13.1	400	4.50	0.85

<sup>1</sup> Minimum values based on a survey of all manufacturer's published data; used in SIP Engineering Design Guide Design Examples.

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