

What is Structural 1?

Structural 1 is a panel grade designation used to distinguish higher structural properties for wood sheathing panels. In order to be stamped with the Structural 1 panel grade, sheathing panels are required to meet or exceed the performance criteria for racking shear and cross-panel strength and stiffness listed within the Voluntary Product Standard (PS2-10) for Wood-Based Structural-Use Panels. Because of the increase in panel strength, Structural 1 rated sheathing is beneficial for use in panelized roofs, diaphragms, shear wall applications and vertical orientation of wall sheathing. Shear walls constructed with Structural 1 rated sheathing can have up to 10% more allowable shear strength than rated sheathing with the same thickness and nailing pattern.

Huber Engineered Woods manufactures ZIP System® sheathing in the 7/16", 1/2" and 5/8" thicknesses. AdvanTech® sheathing is manufactured in the 1/2" and 5/8" thicknesses. Currently, the AdvanTech® and ZIP System® 1/2" and 5/8" panels are recognized as Structural 1, providing a structural performance advantage over standard OSB sheathing. 7/16" thick, long-length (4'x9', 4'x10') ZIP System sheathing panels are also stamped with a Structural 1 panel grade. Structural 1 7/16" (4'x8') ZIP System sheathing panels may be available by special order.



Increased Allowable Shear Capacity

Table 1: Allowable Shear (plf) for Wood Structural Panel Shear Walls for Wind or Seismic Loading^{A, B}

		Panel Edge Fastener Spacing	Fastener Diameter	Seismic		Wind	
				Structural 1 ZIP System® Panel	Wood Structural Panel	Structural 1 ZIP System® Panel	Wood Structural Panel
Panel Thickness	7/16"	6	8d	255	240	357.5	335
		4	8d	395	350	552.5	490
		3	8d	505	450	707.5	630
	1/2"	2	8d	670	585	937.5	820
		6	8d	280	260	392.5	365
		4	8d	430	380	602.5	532.5
		3	8d	550	490	770	685
	5/8"	2	8d	730	640	1022.5	895
		6	10d	340	340	475	475
		4	10d	510	510	715	715
		3	10d	665	665	930	930
			2	10d	870	870	1217.5

A. See Table 4.3A Nominal Unit Shear Capacities for Wood-Frame Shear Walls from the Special Design

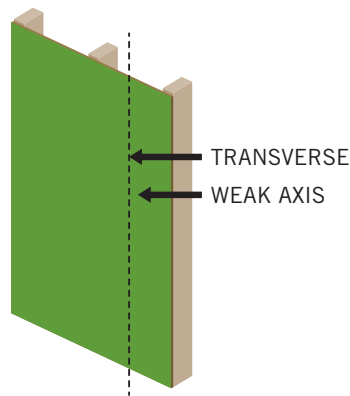
B. An ASD reduction factor of 2.0 has been applied to the tabulated values in accordance with Section 4.3.3 of the 2015 AWC SDPWS

Increased Weak Axis Bending

Structural 1 rated panels have a superior weak axis bending strength when compared to standard OSB and plywood. With an increase in bending strength, panels are able to withstand a higher transverse loading. Transverse loading is defined as the force applied perpendicularly to the longitudinal axis of a member. Therefore, when Structural 1 rated panels are installed parallel to the framing, they provide a higher allowable transverse loading. When installed perpendicular to supports, Structural 1 rated panels and rated sheathing can resist the same transverse wind load.

VERTICAL APPLICATION OF WALL SHEATHING

(Weak Axis Bending)



HORIZONTAL APPLICATION OF WALL SHEATHING

(Strong Axis Bending)

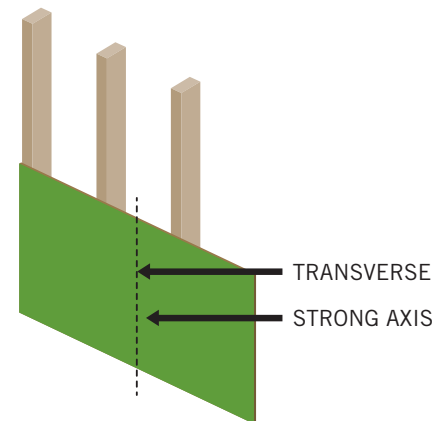


Table 2: Allowable Loading for OSB Sheathing Installed Parallel to Supports^C

Span Rating	Load Governed by	PARALLEL TO SUPPORTS (psf)					
		16 o.c.			24 o.c.		
		OSB	ZIP System® panels	AdvanTech® panels	OSB	ZIP System® panels	AdvanTech® panels
32/16 1/2" Thick) Structural 1	L/360	41	65	95	14	22	32
	L/240	61	98	142	21	33	48
	L/180	82	131	190	28	44	64
	Bending	77	116	188	28	41	67
	Shear	228	228	386	141	141	239

C. See Tables 2a and 2b in APA Form No. Q225G for a full list of allowable load capacities for Plywood and OSB panels

In addition to superior structural performance, the Structural 1 panel grade allows ZIP System sheathing to be used to meet APA Stucco recommendations referenced in APA Form No. Q370, Installation of Stucco Exterior Finish Over Structural Wood Panel Wall Sheathing. For further information on how ZIP System® sheathing can be used to meet these criteria, see the technical bulletin titled “Hard-Coat Stucco/Adhered Stone over ZIP System sheathing”, which can be found at HuberWood.com.



Please contact our technical services department at 800-933-9220 x 2716 for any questions or inquiries

