

**ALLOWABLE SHEAR (pf) FOR
HORIZONTAL WOOD STRUCTURAL
PANEL DIAPHRAGMS WITH FRAMING OF
DOUGLAS FIR, LARCH OR SOUTHERN
PINE FOR WIND OR SEISMIC LOADING^{1,2}**

BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
Nail spacing (in.) at diaphragm boundaries (all Cases) at continuous panel edges parallel to load (Cases 3 and 4)				Nails spaced 6 inches maximum at supported edges	

Package Sizes

Thickness	Pieces Per Bundle
3/8"	85
7/16"	75
15/32"	70
1/2"	65
5/8"	55
19/32"	55
23/32"	47

Panel Grade	Common Nail Size	Minimum Nail Penetration In Framing (inch)	Minimum Nominal Panel Thickness (inch)	Minimum Nominal Width of Framing Member (inch)	Nail spacing (in.) at diaphragm boundaries (all Cases) at continuous panel edges parallel to load (Cases 3 and 4)				Case 1 ⁴	Cases 2, 3, and 4
					6	4	2-1/2 ³	2 ³		
					Nail spacing (inches) at other panel edges					
Sheathing Span [®] Structural I (Exposure 1)	6d	1-1/4	5/16	2 3	185 210	250 280	375 420	420 475	165 185	125 140
	8d	1-1/2	3/8	2 3	270 300	360 400	530 600	600 675	240 265	180 200
	10d ²	1-5/8	15/32	2 3	320 360	425 480	640 720	730 820	285 320	215 240
Sheathing Span [®] , Floor Span [®] (Exposure 1 or 2)	6d	1-1/4	5/16	2 3	170 190	225 250	335 380	380 430	150 170	110 125
			3/8	2 3	185 210	250 280	375 420	420 475	165 185	125 140
	8d	1-1/2	3/8	2 3	240 270	320 360	480 540	545 610	215 240	160 180
			7/16	2 3	255 285	340 380	505 570	575 645	230 255	170 190
			15/32	2 3	270 300	360 400	530 600	600 675	240 265	180 200
			15/32	2 3	290 325	385 430	575 650	655 735	255 290	190 215
	10d ³	1-5/8	15/32	2 3	320 360	425 480	640 720	730 820	285 320	215 240

Roof Diaphragm Requirements

Maximum Distance Between Shearwalls	90 mph	100 mph	110 mph
	Shear Capacity of Sheathing Material (pf)		
W	120	150	180
2W	120	150	180
3W	150	185	220
4W	195	240	290

W = Building Width

EXCEPTION: The values in the table above assume an 8 ft. wall height. When using a wall height of 10 ft., the required shear capacity shall be increased by 25%.

¹ For framing of other species: (a) find specific gravity for the species of lumber in the AF&PA NDS for Wood Construction, (b) find shear value for table for nail size, and for Structural I panels (regardless of actual grade), (c) multiply this shear value found in (b) by 0.82 for lumber species with specific gravity of greater than or equal to 0.42 but less than 0.49, or multiply by 0.65 for species with specific gravity of less than 0.42.

² Space nails 12 inches o.c. along intermediate framing members for roofs, and 10 inches o.c. for floors (6 inches o.c. when supports are spaced 48 inches o.c.)

³ Framing at panel edges shall be 3-inch nominal or wider and nails shall be staggered where nails are spaced 2 inches or 2-1/2 inches o.c., and where 10d nails having penetration into framing of more than 1-5/8 inches are spaced 3 inches o.c. Exception: Unless otherwise required, 2-inch nominal framing is permitted where nailing surface width is available and nails are staggered.

⁴ No unblocked edges or continuous joints parallel to load.