

TABLE 34

**Recommended Shear (pounds per foot) for Horizontal APA Panel Diaphragms with Framing of Douglas-fir, Larch or Southern Pine<sup>(a)</sup> for Wind or Seismic Loading**

Panel Grade	Common Nail Size <sup>(f)</sup>	Minimum Nail Penetration in Framing (inches)	Minimum Nominal Panel Thickness (inch)	Minimum Nominal Width of Framing Member (inches)	Blocked Diaphragms				Unblocked Diaphragms		
					Nail Spacing (in.) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 & 4), and at all panel edges (Cases 5 & 6) <sup>(b)</sup>				Nails Spaced 6" max. at Supported Edges <sup>(b)</sup>		
					6	4	2-1/2 <sup>(c)</sup>	2 <sup>(c)</sup>	Case 1 (No unblocked edges or continuous joints parallel to load)		All other configurations (Cases 2, 3, 4, 5 & 6)
					Nail Spacing (in.) at other panel edges (Cases 1, 2, 3 & 4) <sup>(b)</sup>				Case 1 (No unblocked edges or continuous joints parallel to load)		
		6	6	4	3						
APA STRUCTURAL-I grades	6d <sup>(e)</sup>	1-1/4	5/16	2	185	250	375	420	165	125	
				3	210	280	420	475	185	140	
	8d	1-3/8	3/8	2	270	360	530	600	240	180	
				3	300	400	600	675	265	200	
APA RATED SHEATHING APA RATED STURD-I-FLOOR and other APA grades except Species Group-5	10d <sup>(d)</sup>	1-1/2	15/32	2	320	425	640	730	285	215	
				3	360	480	720	820	320	240	
	6d <sup>(e)</sup>	1-1/4	5/16	2	170	225	335	380	150	110	
			3/8	3	190	250	380	430	170	125	
	8d	1-3/8	3/8	2	185	250	375	420	165	125	
			3/8	3	210	280	420	475	185	140	
	10d <sup>(d)</sup>	1-1/2	3/8	2	240	320	480	545	215	160	
			3/8	3	270	360	540	610	240	180	
	7/16	1-3/8	7/16	2	255	340	505	575	230	170	
			7/16	3	285	380	570	645	255	190	
	15/32	1-1/2	15/32	2	270	360	530	600	240	180	
			15/32	3	300	400	600	675	265	200	
19/32	1-1/2	15/32	2	290	385	575	655	255	190		
		19/32	3	325	430	650	735	290	215		
320	1-1/2	19/32	2	320	425	640	730	285	215		
		19/32	3	360	480	720	820	320	240		

- (a) For framing of other species: (1) Find specific gravity for species of lumber in the AFPA National Design Specification. (2) Find shear value from table above for nail size for actual grade. (3) Multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = specific gravity of the framing. This adjustment shall not be greater than 1.
- (b) Space nails maximum 12 inches o.c. along intermediate framing members (6 in. o.c. when supports are spaced 48 in. o.c. or greater). Fasteners shall be located 3/8 inch from panel edges.
- (c) Framing at adjoining panel edges shall be 3-in. nominal or wider, and nails shall be staggered where nails are spaced 2 inches o.c. or 2-1/2 inches o.c.

- (d) Framing at adjoining panel edges shall be 3-in. nominal or wider, and nails shall be staggered where 10d nails having penetration into framing of more than 1-5/8 inches are spaced 3 inches o.c.
- (e) 8d is recommended minimum for roofs due to negative pressures of high winds.
- (f) See Table 5, page 13, for nail dimensions.

**Notes:** Design for diaphragm stresses depends on continuous panel joints with reference to load, not on direction of long dimension or strength axis of sheet. Continuous framing may be in either direction for blocked diaphragms.

