

TABLE 25

ALLOWABLE SHEAR (POUNDS PER FOOT) FOR APA PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR, LARCH, OR SOUTHERN PINE^(a) FOR WIND OR SEISMIC LOADING^(b,h,i,ii) (See also IBC Table 2306.4.1)

Panel Grade	Minimum Nominal Panel Thickness (in.)	Minimum Nail Penetration in Framing (in.)	Panels Applied Direct to Framing				Panels Applied Over 1/2" or 5/8" Gypsum Sheathing					
			Nail Size (common or galvanized box) ^(k)	Nail Spacing at Panel Edges (in.)				Nail Size (common or galvanized box)	Nail Spacing at Panel Edges (in.)			
				6	4	3	2 ^(e)		6	4	3	2 ^(e)
APA STRUCTURAL I grades	5/16	1-1/4	6d	200	300	390	510	8d	200	300	390	510
	3/8			230 ^(d)	360 ^(d)	460 ^(d)	610 ^(d)					
	7/16	1-3/8	8d	255 ^(d)	395 ^(d)	505 ^(d)	670 ^(d)	10d	280	430	550 ^(f)	730
	15/32			280	430	550	730					
	15/32	1-1/2	10d	340	510	665 ^(f)	870					
APA RATED SHEATHING; APA RATED SIDING ^(g) and other APA grades except species Group 5	5/16 or 1/4 ^(c)			180	270	350	450		180	270	350	450
	3/8	1-1/4	6d	200	300	390	510	8d	200	300	390	510
	3/8			220 ^(d)	320 ^(d)	410 ^(d)	530 ^(d)					
	7/16	1-3/8	8d	240 ^(d)	350 ^(d)	450 ^(d)	585 ^(d)	10d	260	380	490 ^(f)	640
	15/32			260	380	490	640					
APA RATED SIDING ^(g) and other APA grades except species Group 5	15/32	1-1/2	10d	310	460	600 ^(f)	770					
	19/32			340	510	665 ^(f)	870					
	5/16 ^(c)	1-1/4	6d	140	210	275	360	8d	140	210	275	360
	3/8	1-3/8	8d	160	240	310	410	10d	160	240	310 ^(f)	410

- (a) For framing of other species: (1) Find specific gravity for species of lumber in the AF&PA National Design Specification. (2) For common or galvanized box nails, 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) All panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space nails maximum 6 inches o.c. along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches o.c. For other conditions and panel thicknesses, space nails maximum 12 inches o.c. on intermediate supports. Fasteners shall be located 3/8 inch from panel edges.
- (c) 3/8-inch or APA RATED SIDING 16 oc is minimum recommended when applied direct to framing as exterior siding.
- (d) Shears may be increased to values shown for 15/32-inch sheathing with same nailing provided (1) studs are spaced a maximum of 16 inches o.c., or (2) if panels are applied with strength axis across studs.
- (e) Framing at adjoining panel edges shall be 3-inch nominal or wider, and nails shall be staggered where nails are spaced 2 inches o.c. Check local code for variations of these requirements.

- (f) Framing at adjoining panel edges shall be 3-inch nominal or wider, and nails shall be staggered where 10d nails (3" x 0.148") having penetration into framing of more than 1-1/2 inches are spaced 3 inches o.c. Check local code for variations of these requirements.
- (g) Values apply to all-veneer plywood APA RATED SIDING panels only. Other APA RATED SIDING panels may also qualify on a proprietary basis. APA RATED SIDING 16 oc plywood may be 11/32 inch, 3/8 inch or thicker. Thickness at point of nailing on panel edges governs shear values.
- (h) Where panels are applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members. Or framing shall be 3 inch nominal or thicker and nails on each side shall be staggered.
- (i) In Seismic Design Category D, E, or F, where shear design values exceed 490 pounds per lineal foot (LRFD) or 350 pounds per lineal foot (ASD) all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member. Plywood joint and sill plate nailing shall be staggered in all cases. See IBC Section 2305.3.10 for sill plate side and anchorage requirements.
- (j) Galvanized nails shall be hot dip or tumbled.
- (k) See Table 5, page 13, for nail dimensions.

Typical Layout for Shear Walls

