

WALL CONSTRUCTION

TABLE R602.3(1)
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^{a, b, c}	SPACING OF FASTENERS
Roof			
1	Blocking between joists or rafters to top plate, toe nail	3-8d (2 1/2" x 0.113")	—
2	Ceiling joists to plate, toe nail	3-8d (2 1/2" x 0.113")	—
3	Ceiling joists not attached to parallel rafter, laps over partitions, face nail	3-10d	—
4	Collar tie to rafter, face nail or 1 1/4" x 20 gage ridge strap	3-10d (3" x 0.128")	—
5	Rafter or roof truss to plate, toe nail	3-16d box nails (3 1/2" x 0.135") or 3-10d common nails (3" x 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ^l
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d (3 1/2" x 0.135") 3-16d (3 1/2" x 0.135")	—
Wall			
7	Built-up studs-face nail	10d (3" x 0.128")	24" o.c.
8	Abutting studs at intersecting wall corners, face nail	16d (3 1/2" x 0.135")	12" o.c.
9	Built-up header, two pieces with 1/2" spacer	16d (3 1/2" x 0.135")	16" o.c. along each edge
10	Continued header, two pieces	16d (3 1/2" x 0.135")	16" o.c. along each edge
11	Continuous header to stud, toe nail	4-8d (2 1/2" x 0.113")	—
12	Double studs, face nail	10d (3" x 0.128")	24" o.c.
13	Double top plates, face nail	10d (3" x 0.128")	24" o.c.
14	Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d (3 1/2" x 0.135")	—
15	Sole plate to joist or blocking, face nail	16d (3 1/2" x 0.135")	16" o.c.
16	Sole plate to joist or blocking at braced wall panels	3-16d (3 1/2" x 0.135")	16" o.c.
17	Stud to sole plate, toe nail	3-8d (2 1/2" x 0.113") or 2-16d (3 1/2" x 0.135")	— —
18	Top or sole plate to stud, end nail	2-16d (3 1/2" x 0.135")	—
19	Top plates, laps at corners and intersections, face nail	2-10d (3" x 0.128")	—
20	1" brace to each stud and plate, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 3/4"	— —
21	1" x 6" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 3/4"	— —
22	1" x 8" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 3 staples 1 3/4"	— —
23	Wider than 1" x 8" sheathing to each bearing, face nail	3-8d (2 1/2" x 0.113") 4 staples 1 3/4"	— —
Floor			
24	Joist to sill or girder, toe nail	3-8d (2 1/2" x 0.113")	—
25	Rim joist to top plate, toe nail (roof applications also)	8d (2 1/2" x 0.113")	6" o.c.
26	Rim joist or blocking to sill plate, toe nail	8d (2 1/2" x 0.113")	6" o.c.
27	1" x 6" subfloor or less to each joist, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 3/4"	— —
28	2" subfloor to joist or girder, blind and face nail	2-16d (3 1/2" x 0.135")	—
29	2" planks (plank & beam - floor & roof)	2-16d (3 1/2" x 0.135")	at each bearing
30	Built-up girders and beams, 2-inch lumber layers	10d (3" x 0.128")	Nail each layer as follows: 32" o.c. at top and bottom and staggered. Two nails at ends and at each splice.
31	Ledger strip supporting joists or rafters	3-16d (3 1/2" x 0.135")	At each joist or rafter

(continued)

TABLE R602.3(1)—continued
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER ^{b, c, e}	SPACING OF FASTENERS	
			Edges (inches) ⁱ	Intermediate supports ^{c, e} (inches)
Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing				
32	$\frac{3}{8}$ " - $\frac{1}{2}$ "	6d common (2" × 0.113") nail (subfloor, wall) ^j 8d common (2½" × 0.131") nail (roof) ^f	6	12 ^g
33	$\frac{19}{32}$ " - 1"	8d common nail (2½" × 0.131")	6	12 ^g
34	$1\frac{1}{8}$ " - $1\frac{1}{4}$ "	10d common (3" × 0.148") nail or 8d (2½" × 0.131") deformed nail	6	12
Other wall sheathing^h				
35	$\frac{1}{2}$ " structural cellulosic fiberboard sheathing	1½" galvanized roofing nail, ⅞" crown or 1" crown staple 16 ga., 1¼" long	3	6
36	$\frac{25}{32}$ " structural cellulosic fiberboard sheathing	1¾" galvanized roofing nail, ⅞" crown or 1" crown staple 16 ga., 1½" long	3	6
37	$\frac{1}{2}$ " gypsum sheathing ^d	1½" galvanized roofing nail; staple galvanized, 1½" long; 1¼" screws, Type W or S	7	7
38	$\frac{5}{8}$ " gypsum sheathing ^d	1¾" galvanized roofing nail; staple galvanized, 1½" long; 1½" screws, Type W or S	7	7
Wood structural panels, combination subfloor underlayment to framing				
39	$\frac{3}{4}$ " and less	6d deformed (2" × 0.120") nail or 8d common (2½" × 0.131") nail	6	12
40	$\frac{7}{8}$ " - 1"	8d common (2½" × 0.131") nail or 8d deformed (2½" × 0.120") nail	6	12
41	$1\frac{1}{8}$ " - $1\frac{1}{4}$ "	10d common (3" × 0.148") nail or 8d deformed (2½" × 0.120") nail	6	12

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 Ksi = 6.895 MPa.

- a. All nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less.
- b. Staples are 16 gage wire and have a minimum ⅞-inch on diameter crown width.
- c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.
- d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.
- e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).
- f. For regions having basic wind speed of 110 mph or greater, 8d deformed (2½" × 0.120") nails shall be used for attaching plywood and wood structural panel roof sheathing to framing within minimum 48-inch distance from gable end walls, if mean roof height is more than 25 feet, up to 35 feet maximum.
- g. For regions having basic wind speed of 100 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.
- h. Gypsum sheathing shall conform to ASTM C 1396 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C 208.
- i. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.
- j. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.