



# GARAGES Attached & Detached

Building Permits are required for ALL garages

This handout provides information to assist you in building a new attached or detached garage in single- and two-family residential areas in Richfield.

## Garage Size and Lot Coverage Maximums

- A. **Maximum allowable area** of a garage, attached or detached is 1,000 square feet. Maximum allowable area of ALL accessory buildings combined is 1,200 square feet. Attached, detached, or a combination of both may not exceed the lot coverage or floor area of the house.
- B. **Maximum lot coverage** (includes all roofed areas or structures) may not exceed 35% of the total lot area.
- C. **Maximum impervious surface coverage** (includes all roofed areas or structures and surfaces that are compacted or covered with a material so as to be resistant to water infiltration such as driveways, walkways, and patios) may not exceed 45% of the total lot area.
- D. **Maximum of ONE** detached garage on any lot.

## Setback Requirements

### Attached Garages

(\*See exceptions below)

	<u>R District</u>	<u>R-1 &amp; MR-1</u>
Minimum setback from front property line:	30 feet	30 feet
Minimum setback from rear property line:	25 feet	25 feet
Minimum setback from side property line (interior lot):	5 feet	10 feet
Minimum setback from side property line (corner lot):	12 feet*	15 feet*

### Detached Garages

(\*See exceptions below)

	<u>R District</u>	<u>R-1 &amp; MR-1</u>
Minimum setback from front property line:	30 feet	30 feet
Minimum setback from rear property line:	3 feet*	3 feet*
<i>(If a utility easement exists or garage height exceeds 14 feet, rear setback shall be 5 feet)</i>		
Minimum setback from side property line (interior lot):	5 feet	10 feet
Minimum setback from side property line (corner lot):	12 feet*	12 ft* R-1 15 ft* MR-1

## Setback Exceptions — see diagrams on next page

- If a vehicle access door faces a side or rear lot line, such side or rear setback shall be 20 feet, (Figure A) EXCEPT:
  - A. If the access door faces a side lot line that abuts a non-arterial or non-collector street, the side setback can be reduced to 15 feet (Fig. B); or
  - B. If the access door faces a rear lot line that abuts an alley, the rear setback can be reduced to 15 feet (Fig. E); or
  - C. If the lot is less than 45 feet wide and the access door faces an interior side lot line, the side setback can be reduced to 15 feet.

**PLANNING & ZONING**  
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 DEPARTMENT

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**ZONING CODE  
 SECTIONS:**  
 514.13 (R)  
 518.13 (R-1)  
 522.13 (MR-1)

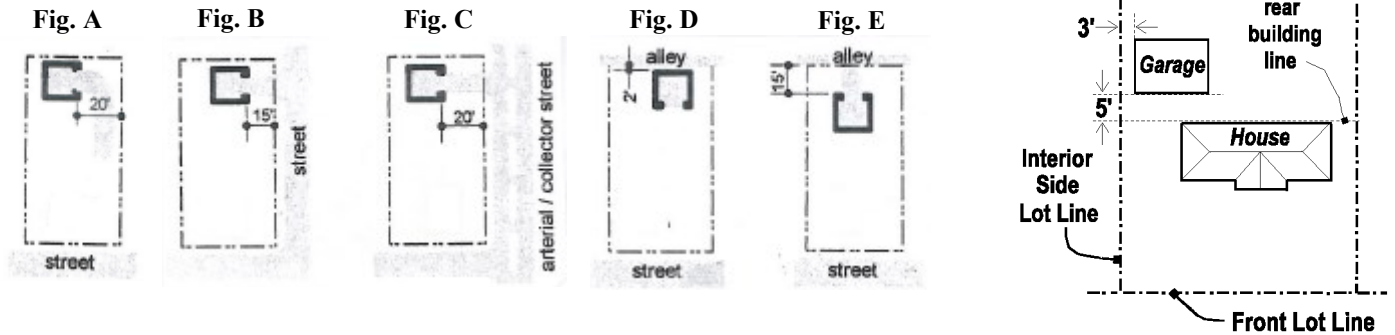
**2015 MN STATE  
 BUILDING CODE**

3/2016

## Garage Setback Exceptions (continued)

- If alley access is provided at the rear of the property (and there is no utility easement), the rear setback for a detached garage can be reduced to 2 ft. (Fig. D).
- Roof overhangs (eave projection) shall be no closer than 2 feet from any lot line.
- No detached garage may be located in forward of the principal building line.
- If a detached garage is located entirely 5 feet or more beyond the rear face of the principal building, the interior setback can be reduced to 3 feet (Fig. F).

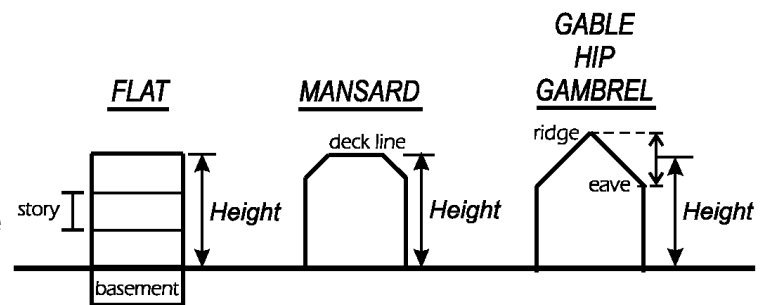
*This setback reduction is not available for detached garages that exceed 14 feet in height.*



## Garage Height Requirements

Garage height definition: the vertical distance to the highest point of the roof for flat roofs; to the deck line for mansard roofs; and to the average height between the highest roof ridge and associated eaves for gable, hip and gambrel roofs. Garage heights are measured on the side of the building with the vehicle door.

**Vehicle door height may not exceed 9 feet.**



Attached Garages:

R District	R-1 District	MR-1 District
25 ft.	35 ft.	25 ft.

Detached Garages:

R District	R-1 District	MR-1 District
14 ft.	14 ft.	14 ft.

## Exceptions to Detached Garage Height (1.5-story and 2-story garages)

- On lots that are less than 75 feet in width, the height of a detached garage may be increased from 14 feet up to 18 feet or 1.5 stories or the height of the principal residential structure, whichever is less.
- On lots that are 75 feet or greater in width, the height of a detached garage may be increased from 14 feet up to the height of the principal residential structure (max 25 feet).
- In no case shall the highest point of the roof of a detached garage exceed the highest point of the roof of the principal residential structure.
- Setback reductions (listed above) are not available for detached garages that exceed 14 feet in height.
- Design standards applicable to taller garages:
  - ⇒ Primary exterior materials of the accessory garage must match the primary exterior materials of the principal building.
  - ⇒ Roof pitch must be substantially similar to roof pitch of primary structure.
  - ⇒ Windows, false windows, doors or similar openings are required on all second story walls.

## Required Inspections

- 1. Turned Down Footing and slab** – To be made after all form work is set and all required reinforcement is positioned in place and secured **but prior to the placement of the concrete.**
- 2. Framing** – To be made after framing is complete and other required rough-in inspections are completed and approved.
- 3. Final** – To be made upon completion and hard surface driveway is installed. (separate permit is required).
- 4. Other inspections** – In addition to the inspections above, The Inspector will indicate on the inspection card other required inspections to assure compliance with the provisions of the codes during the construction process.

## General Building Code Requirements

The 2015 Minnesota State Building Code (MSBC) adopts the 2012 International Residential Code (2012 IRC). All “R” code references provided in this handout pertain to the 2015 Minnesota State Building Code.

- A. Footings must extend to 42 inch frost depth for all attached garages. Slabs on ground with turned down footings (floating slab) may be used for the foundation support of detached garages on all soils but peat and muck. The slab perimeter must be sized and reinforced to carry all designed imposed loads. The minimum slab thickness shall be 3 ½ inches and reinforced. The minimum strength concrete required is 5000 pounds per square inch at 28 days for footings or a designed equivalent. Concrete shall be protected from freezing until cured.
- B. Anchor bolts shall be a minimum ½ inch diameter steel bolt embedded into the foundation 7 inches minimum and spaced not more than 6 feet apart. There shall be a minimum of 2 bolts for each sill plate located not more than 12 inches of each end of the plate and no closer than 7 bolt diameters from each end of the plate. Masonry curb blocks shall be anchored to the foundation slab at anchor locations. Anchor straps shall be installed per Manufacturer’s specifications. Braced wall panels for portal wall framed openings shall be designed per MSBC.
- C. Sill plates shall be pressure-preservative-treated wood, heartwood of redwood or cedar.
- D. Wall framing shall be minimum 2 inches by 4 inches and spaced no more than 24 inches on center. There shall be not less than 3 studs at each corner of an exterior wall.
- E. Top plates capping studs of bearing and exterior walls shall be doubled. Plates shall be overlapped at corners and at intersections with other partitions. End joints of double top plates shall be lapped 24 inches minimum.
- F. Sheathing, roofing and siding shall be installed according to Manufacturer’s specifications. Wall sheathing may be required to have a water-resistive barrier installed prior to installation of siding. Check with siding Manufacturer. Flashing is still required.
- G. Siding distance to earth shall maintain a minimum 6 inches from top of grade. Grade shall fall a minimum 6 inches (5%) away from the foundation a distance of 10 feet or to property line.
- H. Roof framing of conventional lumber will depend upon roof pitch, spans, the size and type of materials used. This must be indicated on the building plans. Loading characteristics imposed shall meet appropriate snow load for this area. (50 lbs. per square foot). Rafters shall be framed opposite and in line of each other at the ridge. A ridge board of one inch (nominal) thickness and not less in depth of the rafter end cut as required for hand-framed roofs. At all valleys and hips there needs to be a single framing member no less than 2 inches (nominal) thickness and not less in depth of the rafter end cut. Rafters need to be designed as a beam. Rafters shall be nailed to the adjacent ceiling joists to form a continuous tie between exterior walls when the joists are parallel to the rafters. Where not parallel, rafters must be tied by a minimum one inch by four inch (nominal) cross tie spaced a maximum of four feet on center. Manufactured trusses shall be installed per manufacturer’s specifications. in this area (50lbs per square foot).

- I. Separation is required from the residence and its attic area by not less than ½ inch gypsum board applied to the garage side. Where the separation is a floor/ceiling assembly, the structural assembly supporting the separation shall be protected by not less than 5/8 inch type “X” gypsum board or equivalent and ½ inch gypsum on all supporting walls or members.
- J. Concrete curb blocks shall be at least 6 inch modular width and tied into foundation at anchor bolt locations. (4 inch curb blocks are not permitted by code).

**Fire Separation:**

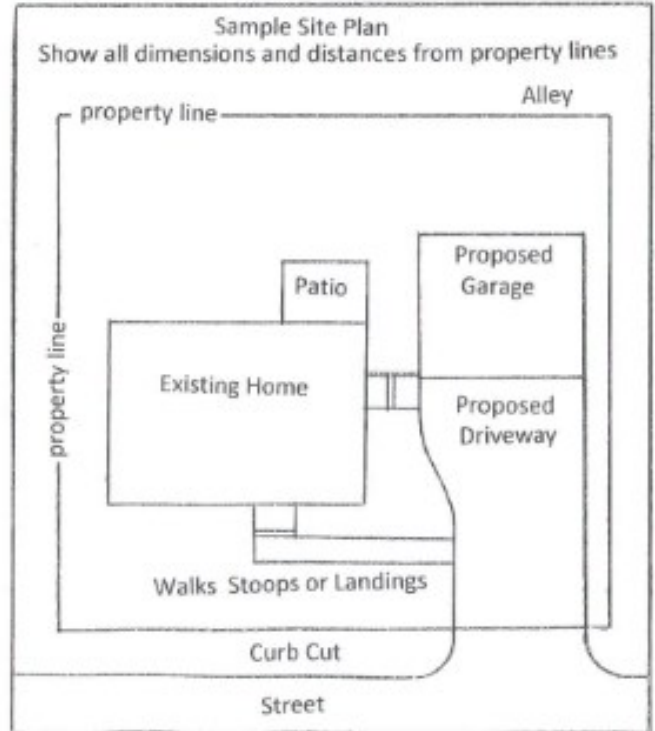
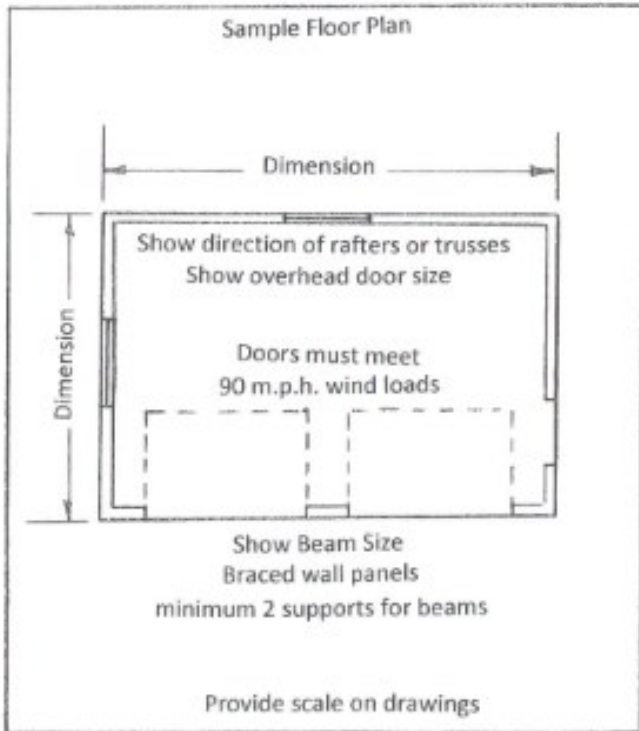
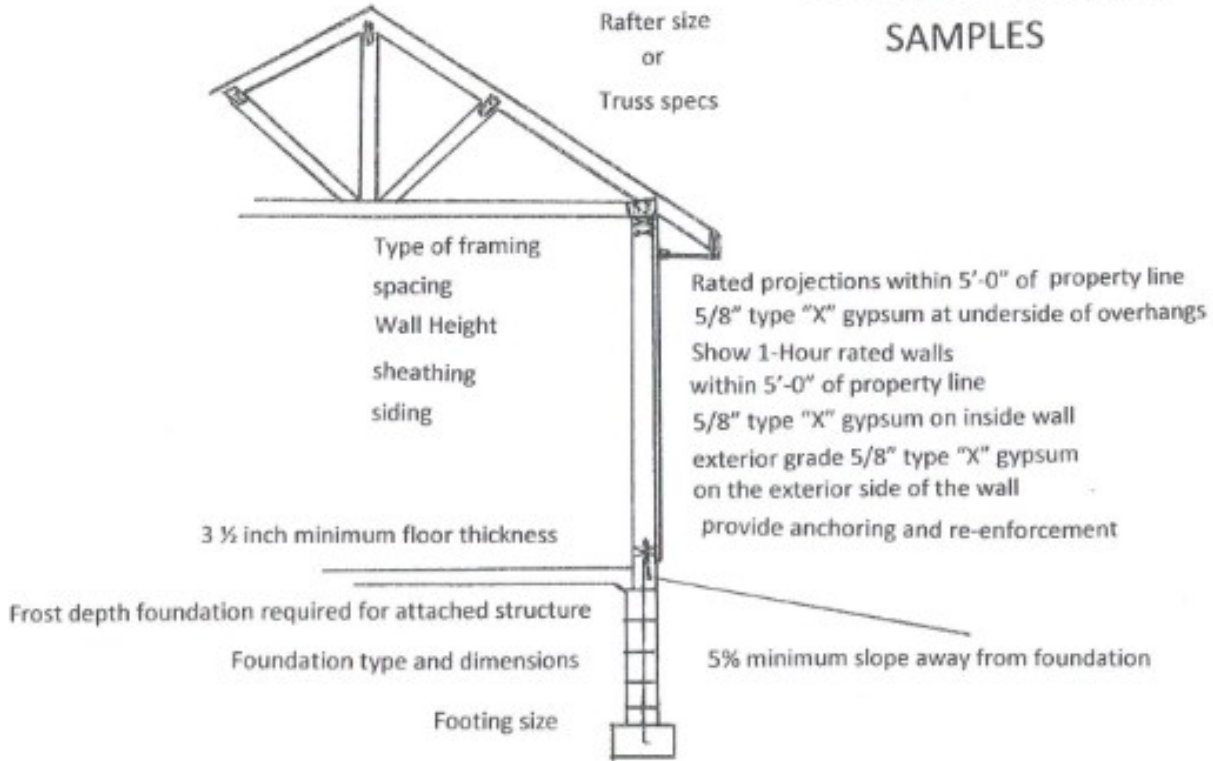
1. Exterior walls located less than 5 feet from a property line shall be required to have a one-hour rated listed fire-resistance rating, with exposure from both sides.
2. Projections (soffits or overhangs) located less than 5 feet from a property line shall be required to have one-hour rating on the underside. (5/8 inch type “X” gypsum attached to framing 6 inches on center.)

**The example diagrams on the following pages show the minimum details expected on the site, floor, sectional and elevation plans to ensure the permit process proceeds smoothly. Additional information, such as grade elevation details, shall be included. The plans shall also include the following:**

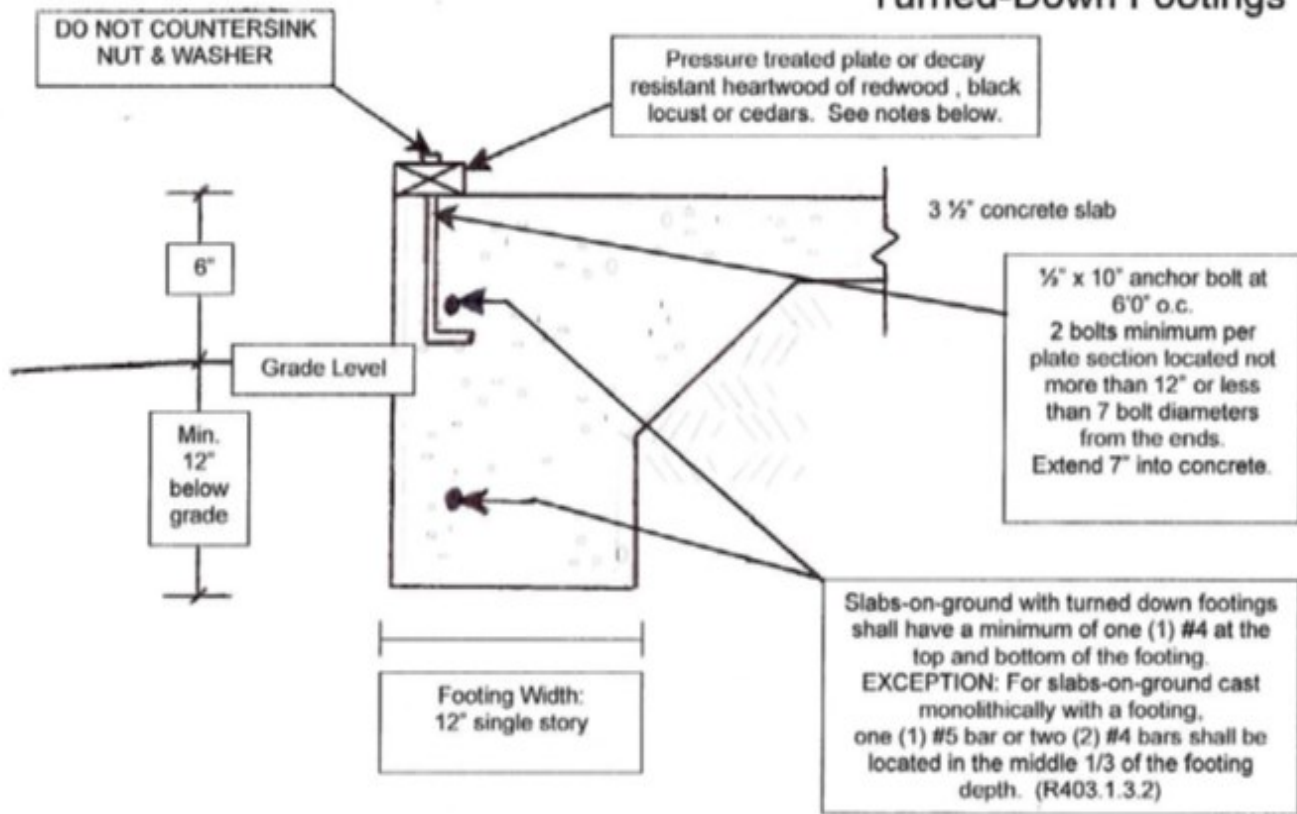
1. Proposed size of garage.
2. Location and size of door and window openings.
3. Size of headers over all door and window openings.
4. Size, spacing and direction of rafter materials.
5. Type of lumber to be used. (Grade and species.)
6. Braced wall panels with anchor specifications per MSBC R 602.10.2.
7. Height of existing house.

Sample Building Sectional Drawing

# GARAGE SUBMITTAL SAMPLES



## Slabs-on-Ground with Turned-Down Footings



### Protection Against Decay

Approved pressure treated material or decay-resistant heartwood of redwood, black locust, or cedars are required where:

1. Wood framing members rest on concrete or masonry at exterior foundation walls and are less than 8" from the exposed ground.
2. Sills and sleepers are located on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.

R-10 slab insulation shall be installed to create a thermal break between heated and unheated spaces. The insulation shall extend downward from the top of the slab to the bottom of the footing.

### Questions? Need an inspection?

Contact the Building and Inspections Division  
6700 Portland Avenue  
Richfield, MN 55423  
612-861-9860 ♦ Fax 612-861-8974

**This is a guide to the most common questions and problems. It is not intended nor shall it be considered a complete set of requirements**

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

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a, b, c</sup>	SPACING OF FASTENERS
<b>Roof</b>			
1	Blocking between joists or rafters to top plate, toe nail	3-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
2	Ceiling joists to plate, toe nail	3-8d (2 <sup>1</sup> / <sub>2</sub> " × 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 <sup>1</sup> / <sub>4</sub> " × 20 gage ridge strap	3-10d (3" × 0.128")	—
5	Rafter or roof truss to plate, toe nail	3-16d box nails (3 <sup>1</sup> / <sub>2</sub> " × 0.135") or 3-10d common nails (3" × 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss <sup>1</sup>
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	—
		3-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	
<b>Wall</b>			
7	Built-up studs-face nail	10d (3" × 0.128")	24" o.c.
8	Abutting studs at intersecting wall corners, face nail	16d (3 1/2" × 0.135")	12" o.c.
9	Built-up header, two pieces with 1/2" spacer	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c. along each edge
10	Continued header, two pieces	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c. along each edge
11	Continuous header to stud, toe nail	4-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
12	Double studs, face nail	10d (3" × 0.128")	24" o.c.
13	Double top plates, face nail	10d (3" × 0.128")	24" o.c.
14	Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	—
15	Sole plate to joist or blocking, face nail	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c.
16	Sole plate to joist or blocking at braced wall panels	3-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c.
17	Stud to sole plate, toe nail	3-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		or 2-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	—
18	Top or sole plate to stud, end nail	2-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	—
19	Top plates, laps at corners and intersections, face nail	2-10d (3" × 0.128")	—
20	1" brace to each stud and plate, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		2 staples 1 <sup>3</sup> / <sub>4</sub> "	—
21	1" × 6" sheathing to each bearing, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		2 staples 1 <sup>3</sup> / <sub>4</sub> "	—
22	1" × 8" sheathing to each bearing, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		3 staples 1 <sup>3</sup> / <sub>4</sub> "	—
23	Wider than 1" × 8" sheathing to each bearing, face nail	3-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		4 staples 1 <sup>3</sup> / <sub>4</sub> "	—
<b>Floor</b>			
24	Joist to sill or girder, toe nail	3-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
25	Rim joist to top plate, toe nail (roof applications also)	8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	6" o.c.
26	Rim joist or blocking to sill plate, toe nail	8d (2 1/2" × 0.113")	6" o.c.
27	1" × 6" subfloor or less to each joist, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> " × 0.113")	—
		2 staples 1 <sup>3</sup> / <sub>4</sub> "	—
28	2" subfloor to joist or girder, blind and face nail	2-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	—
29	2" planks (plank & beam - floor & roof)	2-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	at each bearing
30	Built-up girders and beams, 2-inch lumber layers	10d (3" × 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 <sup>1</sup> / <sub>2</sub> " × 0.135")	At each joist or rafter

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



TABLE R602.3(2) ALTERNATE ATTACHMENTS TO TABLE R602.3(1)

NOMINAL MATERIAL THICKNESS (inches)	DESCRIPTION <sup>a,b</sup> OF FASTENER AND LENGTH (inches)	SPACING <sup>c</sup> OF FASTENERS	
		Edges (inches)	Intermediate supports (inches)
<b>Wood structural panels subfloor, roof<sup>g</sup> and wall sheathing to framing and particleboard wall sheathing to framing<sup>f</sup></b>			
Up to <sup>1</sup> / <sub>2</sub>	Staple 15 ga. 1 <sup>3</sup> / <sub>4</sub>	4	8
	0.097 - 0.099 Nail 2 <sup>1</sup> / <sub>4</sub>	3	6
	Staple 16 ga. 1 <sup>3</sup> / <sub>4</sub>	3	6
19 <sup>1</sup> / <sub>32</sub> and 5 <sup>5</sup> / <sub>8</sub>	0.113 Nail 2	3	6
	Staple 15 and 16 ga. 2	4	8
	0.097 - 0.099 Nail 2 <sup>1</sup> / <sub>4</sub>	4	8
23 <sup>1</sup> / <sub>32</sub> and 3 <sup>3</sup> / <sub>4</sub>	Staple 14 ga. 2	4	8
	Staple 15 ga. 1 <sup>3</sup> / <sub>4</sub>	3	6
	0.097 - 0.099 Nail 2 <sup>1</sup> / <sub>4</sub>	4	8
	Staple 16 ga. 2	4	8
1	Staple 14 ga. 2 <sup>1</sup> / <sub>4</sub>	4	8
	0.113 Nail 2 <sup>1</sup> / <sub>4</sub>	3	6
	Staple 15 ga. 2 <sup>1</sup> / <sub>4</sub>	4	8
	0.097 - 0.099 Nail 2 <sup>1</sup> / <sub>2</sub>	4	8
NOMINAL MATERIAL THICKNESS (inches)	DESCRIPTION <sup>a,b</sup> OF FASTENER AND LENGTH (inches)	SPACING <sup>c</sup> OF FASTENERS	
		Edges (inches)	Body of panel <sup>d</sup> (inches)
<b>Floor underlayment; plywood-hardboard-particleboard<sup>f</sup></b>			
<b>Plywood</b>			
1 <sup>1</sup> / <sub>4</sub> and 5 <sup>5</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub> ring or screw shank nail-minimum 12 <sup>1</sup> / <sub>2</sub> ga. (0.099") shank diameter	3	6
	Staple 18 ga., 7 <sup>7</sup> / <sub>8</sub> , 3 <sup>3</sup> / <sub>16</sub> crown width	2	5
11 <sup>1</sup> / <sub>32</sub> , 3 <sup>3</sup> / <sub>8</sub> , 15 <sup>15</sup> / <sub>32</sub> , and 1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub> ring or screw shank nail-minimum 12 <sup>1</sup> / <sub>2</sub> ga. (0.099") shank diameter	6	8 <sup>e</sup>
19 <sup>19</sup> / <sub>32</sub> , 5 <sup>5</sup> / <sub>8</sub> , 23 <sup>23</sup> / <sub>32</sub> and 3 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub> ring or screw shank nail-minimum 12 <sup>1</sup> / <sub>2</sub> ga. (0.099") shank diameter	6	8
	Staple 16 ga. 1 <sup>1</sup> / <sub>2</sub>	6	8
<b>Hardboard<sup>f</sup></b>			
0.200	1 <sup>1</sup> / <sub>2</sub> long ring-grooved underlayment nail	6	6
	4d cement-coated sinker nail	6	6
	Staple 18 ga., 7 <sup>7</sup> / <sub>8</sub> long (plastic coated)	3	6
<b>Particleboard</b>			
1 <sup>1</sup> / <sub>4</sub>	4d ring-grooved underlayment nail	3	6
	Staple 18 ga., 7 <sup>7</sup> / <sub>8</sub> long, 3 <sup>3</sup> / <sub>16</sub> crown	3	6
3 <sup>3</sup> / <sub>8</sub>	6d ring-grooved underlayment nail	6	10
	Staple 16 ga., 1 <sup>1</sup> / <sub>8</sub> long, 3 <sup>3</sup> / <sub>8</sub> crown	3	6
1 <sup>1</sup> / <sub>2</sub> , 5 <sup>5</sup> / <sub>8</sub>	6d ring-grooved underlayment nail	6	10
	Staple 16 ga., 1 <sup>5</sup> / <sub>8</sub> long, 3 <sup>3</sup> / <sub>8</sub> crown	3	6

For SI: 1 inch = 25.4 mm.

- a. Nail is a general description and may be T-head, modified round head or round head.
- b. Staples shall have a minimum crown width of 7<sup>7</sup>/<sub>16</sub>-inch on diameter except as noted.
- c. Nails or staples shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater. Nails or staples shall be spaced at not more than 12 inches on center at intermediate supports for floors.
- d. Fasteners shall be placed in a grid pattern throughout the body of the panel.
- e. For 5-ply panels, intermediate nails shall be spaced not more than 12 inches on center each way.
- f. Hardboard underlayment shall conform to CPA/ANSI A135.4
- g. Specified alternate attachments for roof sheathing shall be permitted for windspeeds less than 100 mph. Fasteners attaching wood structural panel roof sheathing to gable end wall framing shall be installed using the spacing listed for panel edges.