



DRYWALL NAILING

REFERENCE: 2018 INTERNATIONAL RESIDENTIAL CODE—TABLE-R702.3.5

APPLICATION:

Use the chart to find the application that relates to your particular construction project.

TABLE R702.3.5 - Minimum Thickness and Application of Gypsum Board

Thickness of Gypsum Board (inches)	Application	Orientation of Gypsum Board to Framing	Maximum Spacing of Framing Members (inches o.c.)	Maximum Spacing of Fasteners (inches)		Size of Nails for Application to Wood Framing
				Nails ^a	Screws ^b	
Application without adhesive						
3/8	Ceiling ^d	Perpendicular	16	7	12	13 gage, 1-1/4" long, 19/64" head; 0.098 diameter, 1-1/4" long, annular-ringed; or 4d cooler nail, 0.080" diameter, 1-3/8" long, 7/32" head.
	Wall	Either Direction	16	8	16	
1/2	Ceiling	Either Direction	16	7	12	13 gage, 1-3/8" long, 19/64" head; 0.098 diameter, 1-1/4" long, annular-ringed; 5d cooler nail, 0.086 diameter, 1-5/8" long, 15/64" head; or gypsum board nail, 0.086 diameter, 1-5/8" long, 9/32" head.
	Ceiling ^d	Perpendicular	24	7	12	
	Wall	Either Direction	24	8	12	
	Wall	Either Direction	16	8	16	
5/8	Ceiling	Either Direction	16	7	12	13 gage, 1-5/8" long, 19/64" head; 0.098 diameter, 1-3/8" long, annular-ringed; 6d cooler nail, 0.092 diameter, 1-7/8" long, 1/4" head; or gypsum board nail, 0.0915 diameter, 1-7/8" long, 19/64" head.
	Ceiling ^e	Perpendicular	24	7	12	
	Wall	Either Direction	24	8	12	
	Wall	Either Direction	16	8	16	
Application with Adhesive						
3/8	Ceiling ^d	Perpendicular	16	16	16	Same as above for 3/8" gypsum board
	Wall	Either Direction	16	16	24	
1/2 or 5/8	Ceiling	Either Direction	16	16	16	Same as above for 1/2" and 5/8" gypsum board, respectively
	Ceiling ^d	Perpendicular	24	12	16	
	Wall	Either Direction	24	16	24	
two 3/8 layers	Ceiling	Perpendicular	16	16	16	Base ply nailed as above for 1/2" gypsum board; face ply installed with adhesive
	Wall	Either Direction	24	24	24	

For SI: 1 inch = 25.4 mm

a = For application without adhesive, a pair of nails spaced not less than 2 inches apart or more than 2-1/2 inches apart may be used with the pair of nails spaced 12 inches on center.

b = Screws shall be Type S or W per ASTM C 1002 and shall be sufficiently long to penetrate wood framing not less than 5/8 inch and metal framing not less than 3/8 inch.

c = Where metal framing is used with a clinching design to receive nails by two edges of metal, the nails shall not be less than 5/8 inch longer than the gypsum board thickness and shall have ringed shanks. Where the metal framing has a nailing groove formed to receive the nails, the nails shall have barbed shanks or be 5d, 13-1/2 gage, 1-5/8 inches long, 1-5/64-inch head for 1/2 inch gypsum board; and 6d, 13 gage, 1-7/8 inches long, 15/64-inch head for 5/8-inch gypsum board.

d = Three-eighths-inch-thick single-ply gypsum board shall not be used on a ceiling where a water-based textured finish is to be applied, or where it will be required to support insulation above a ceiling. On ceiling applications to receive a water-based texture material, either hand or spray applied, the gypsum board shall be applied perpendicular to framing. When applying a water-based texture material, the minimum gypsum board thickness shall be increased from 3/8 inch to 1/2 inch for 16-inch on center framing, and from 1/2 inch to 5/8 inch for 24-inch on center framing or 1/2-inch sag-resistant gypsum board shall be used.

e = Type X gypsum board for garage ceilings beneath habitable rooms shall be installed perpendicular to the ceiling framing and shall be fastened at maximum 6 inches o.c. by minimum 1 7/8 inch 6d coated nails or equivalent drywall screws.