

Drilling & Notching Floor Joists

R502.8 Drilling and notching. Structural floor members shall not be cut, bored or notched in excess of the limitations specified in this section. See Figure R502.8.

R502.8.1 Sawn lumber. Notches in solid lumber joists, rafters and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one-fourth the depth of the member. The tension side of members 4 inches (102 mm) or greater in nominal thickness shall not be notched except at the ends of the members. The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches (51 mm) to the top or bottom of the member, or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches (51 mm) to the notch.

R502.8.2 Engineered wood products. Cuts, notches and holes bored in trusses, laminated veneer lumber, glue*laminated members or I*joists are not permitted unless the effects of such penetrations are specifically considered in the design of the member.

Joist Size	Notch Depth	End Notch Depth	Max Hole
2x6	7/8"	1-3/8"	1-13/16"
2x8	1-3/16"	1-13/16"	2-3/8"
2x10	1-1/2"	2-5/16"	3-1/16"
2x12	1-7/8"	2-13/16"	3-3/4"

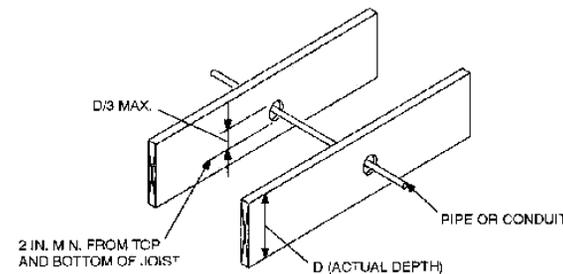
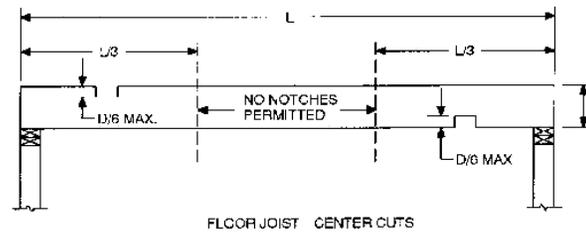


FIGURE R502.8
CUTTING, NOTCHING AND DRILLING

Drilling & Notching Studs

R602.6 Drilling and notching-studs. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no greater than 40 percent of the stud width, the edge of the hole is no closer than 5/8 inch (15.9 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch. See Figures R602.6(1) and R602.6(2). [See Figures R602.6(1) and R602.6(2).]

Exceptions:

1. A stud may be bored to a diameter not exceeding 60 percent of its width, provided that such studs located in exterior walls or bearing partitions are doubled and that not more than two successive studs are bored.
2. Approved stud shoes may be used when installed in accordance with the manufacturer's recommendation.

R602.6.1 Drilling and notching of top plate. When piping or ductwork is placed in or partly in an exterior wall or interior, braced or load-bearing wall, necessitating a cutting of the top plate by more than 50 percent of its width, a galvanized metal tie not less than 0.054 inch thick (1.37 mm) (16 gage) and 1.5 inches (38 mm) wide shall be fastened to each plate across and to each side of the opening with not less than six 16d nails. See Figure R602.6.1.

Exception:

When the entire side of the wall with the notch or cut is covered by wood structural panel sheathing.

**EXTERIOR WALLS AND BEARING PARTITIONS
NONBEARING PARTITIONS AND WALLS
CUTTING AND NOTCHING CUTTING AND NOTCHING**

Maximum depth - 25% of stud width:
depth - 40% of stud width:

2" x 4" = maximum 7/8" notch.

2" x 6" = maximum 1-3/8" notch.

BORED HOLES

Maximum size hole = 40% of stud width:

2" x 4" = max. 1-7/16" diameter hole.

2" x 6" = max. 2-3/16" diameter hole.

2" x 4" = maximum 1-7/16" notch.

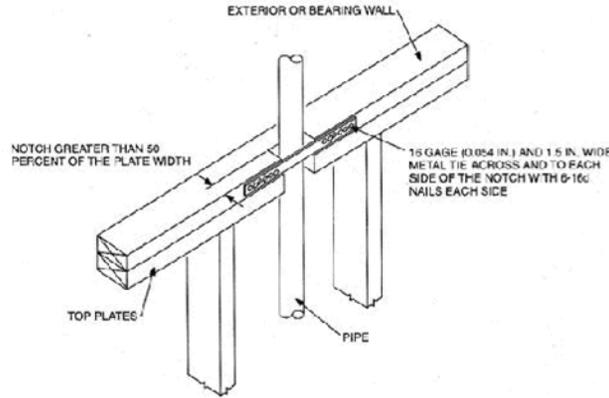
2" x 6" = maximum 2-3/16" notch.

BORED HOLES

Maximum size hole = 60% of stud width:

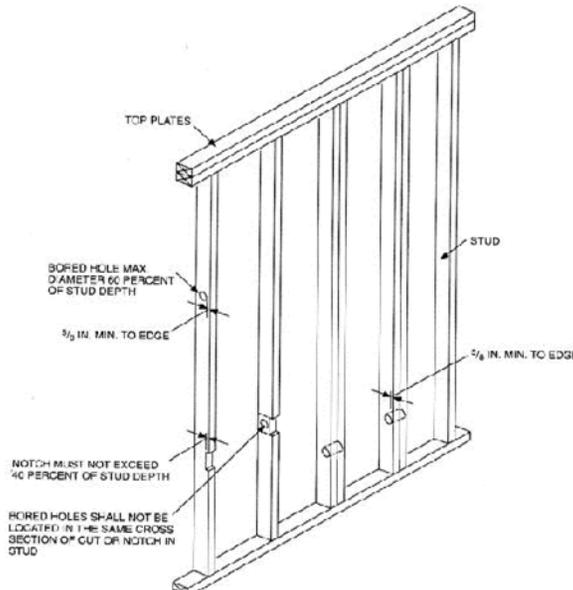
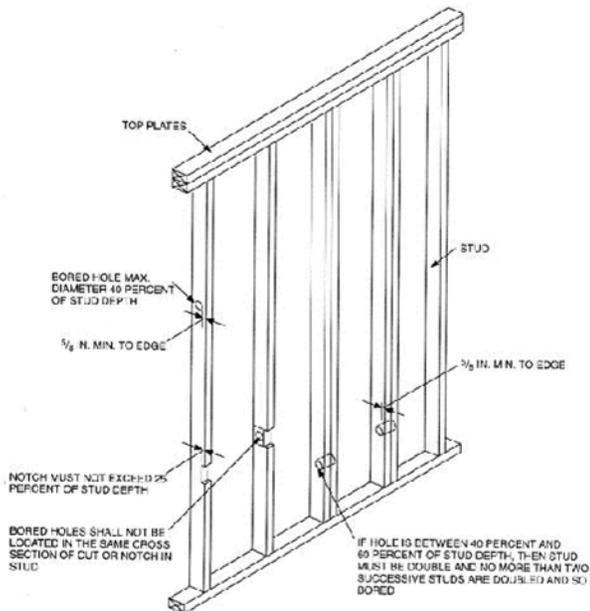
2" x 4" = max. 2- 1/8" diameter hole.

2" x 6" = max. 3-5/16" diameter hole.



Nonbearing Wall

Bearing Wall



Drilling & Notching



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