



CITY OF NORTH MANKATO

CUTTING, DRILLING & NOTCHING OF FRAMING MEMBERS

The purpose of this handout is to provide limitations for cutting, drilling and notching of floor and wall framing members:

STRUCTURAL FLOOR MEMBERS shall not be cut, bored or notched in excess of the following limitations.

- **Sawn Lumber**-(refer to Figure 502.8)
 - 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.
 - 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 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 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 to the notch.

- **Engineered Wood Products**-Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated members or I-joists are **prohibited** except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

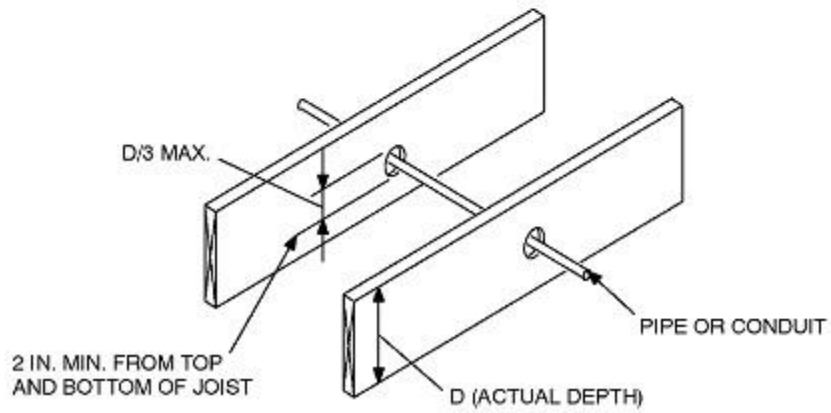
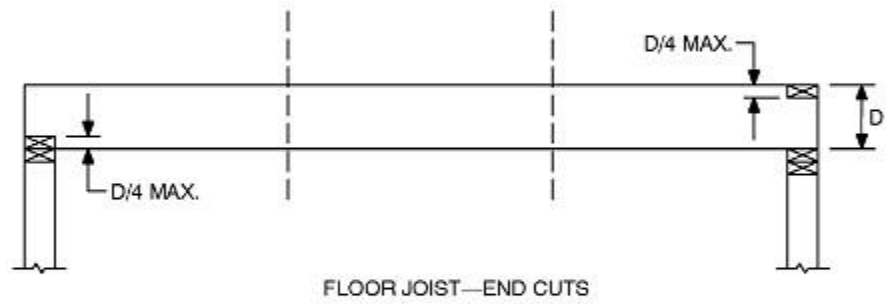
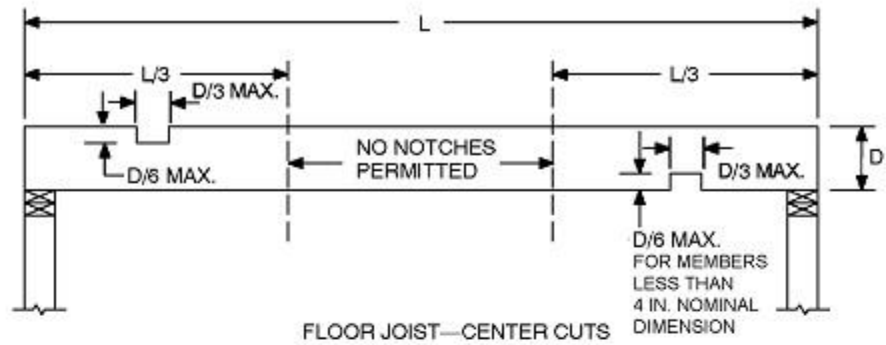


FIGURE R502.8
CUTTING, NOTCHING AND DRILLING

STUDS/TOP PLATE—Drilling and notching of studs shall be in accordance with the following:

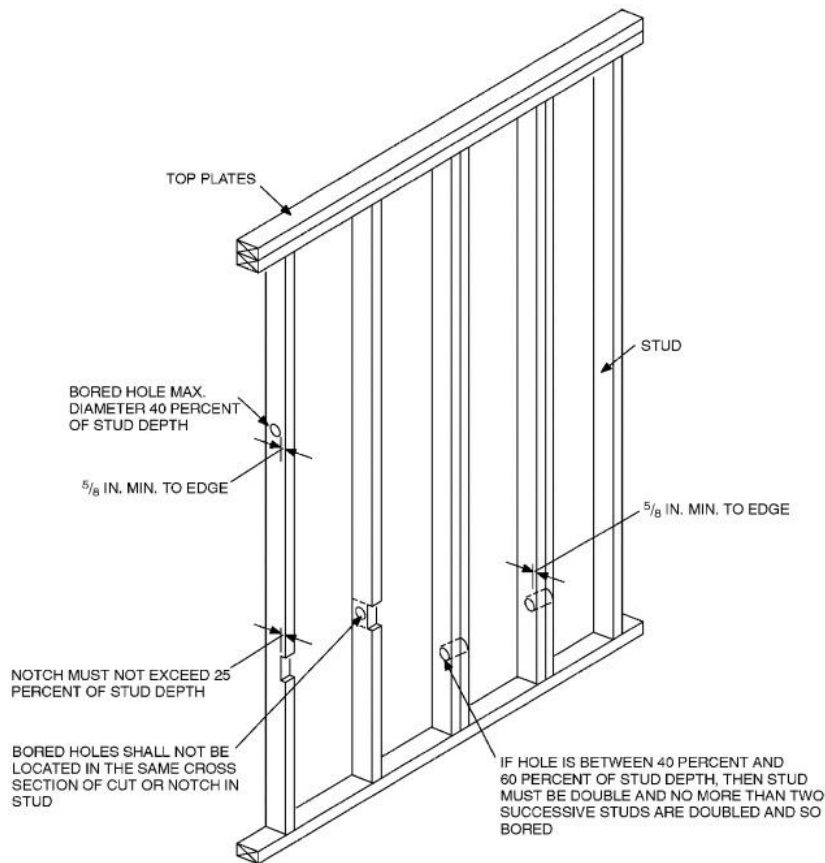
1. Notching. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width.

2. Drilling. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no more than 60 percent of the stud width, the edge of the hole is no more than $\frac{5}{8}$ inch (16 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior walls or bearing partitions drilled over 40 percent and up to 60 percent shall also be doubled with no more than two successive doubled studs bored. See Figures R602.6(1) and R602.6(2).

Exception: Use of *approved* stud shoes is permitted when they are installed in accordance with the manufacturer’s recommendations

Drilling and notching of top plate: When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall, necessitating cutting, drilling or notching of the top plate by more than 50 percent of its width, a galvanized metal tie not less than 0.054 inch thick (16 ga) and $1\frac{1}{2}$ inches wide shall be fastened across and to the plate at each side of the opening with not less than eight 10d (0.148 inch diameter) having a minimum length of $1\frac{1}{2}$ inches at each side or equivalent. The metal tie must extend a minimum of 6 inches past the opening. See Figure R602.6.1.

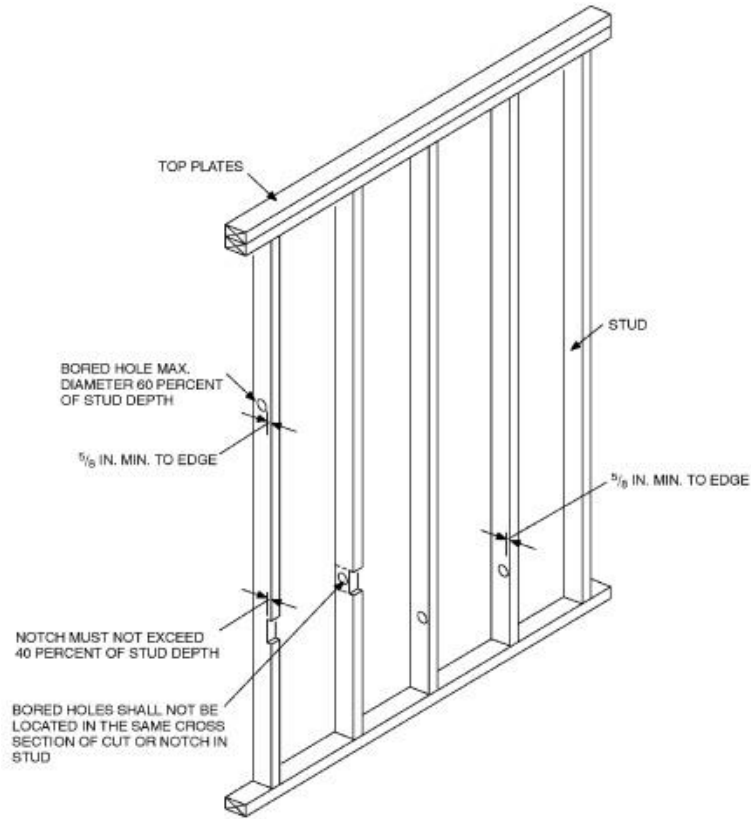
Exception: When the entire side of the wall with the notch or cut is covered by wood structural panel sheathing.



For SI: 1 inch = 25.4 mm.

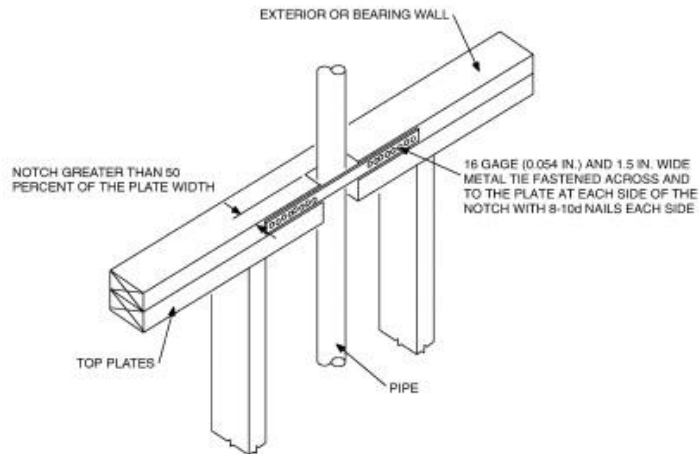
Note: Condition for exterior and bearing walls.

FIGURE R602.6(1)
NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS



For SI: 1 inch = 25.4 mm.

FIGURE R602.6(2)
NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS



For SI: 1 inch = 25.4 mm.

FIGURE R602.6.1
TOP PLATE FRAMING TO ACCOMMODATE PIPING