

shall be doubled with not more than two successive doubled studs bored. See Figures R602.6(1) and R602.6(2).

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

- ❖ This section addresses the allowable drilling and notching of studs used to frame partitions. See Figures R602.6(1) and R602.6(2) for examples of permitted drilling and notching of studs in exterior walls, bearing walls and nonbearing walls. These limitations retain the structural integrity of the studs. Where stud shoes are used, the exception allows drilling and notching to

be in accordance with the approved manufacturer's instructions.

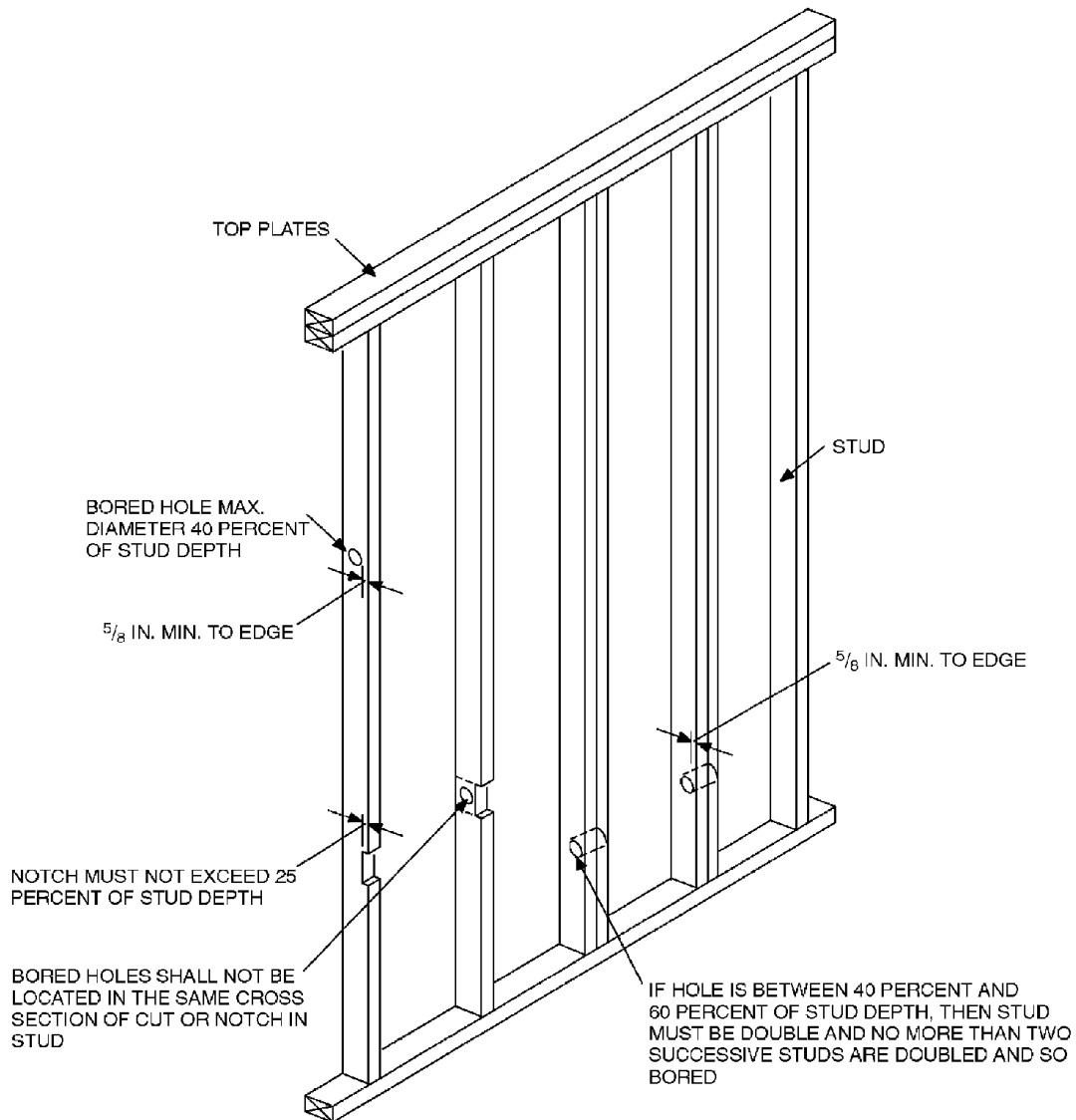
FIGURE R602.6(1). See below.

- ❖ See the commentary to Section R602.6.

FIGURE R602.6(2). See page 6-20.

- ❖ See the commentary to Section R602.6.

R602.6.1 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 (1.37 mm)



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

WALL CONSTRUCTION

(16 ga) and 1½ inches (38 mm) 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) nails having a minimum length of 1½ inches (38 mm) 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.

- ❖ In many cases, drilling or notching of the top plate is necessary to allow plumbing, heating or other pipes to be placed within the exterior walls and load-bearing interior walls. When cutting the top plate by more than one-half its width is necessary, strapping across the plates as illustrated in Figure R602.6.1, is required to provide top plate continuity and to retain the structural integrity of the wall system as a whole.

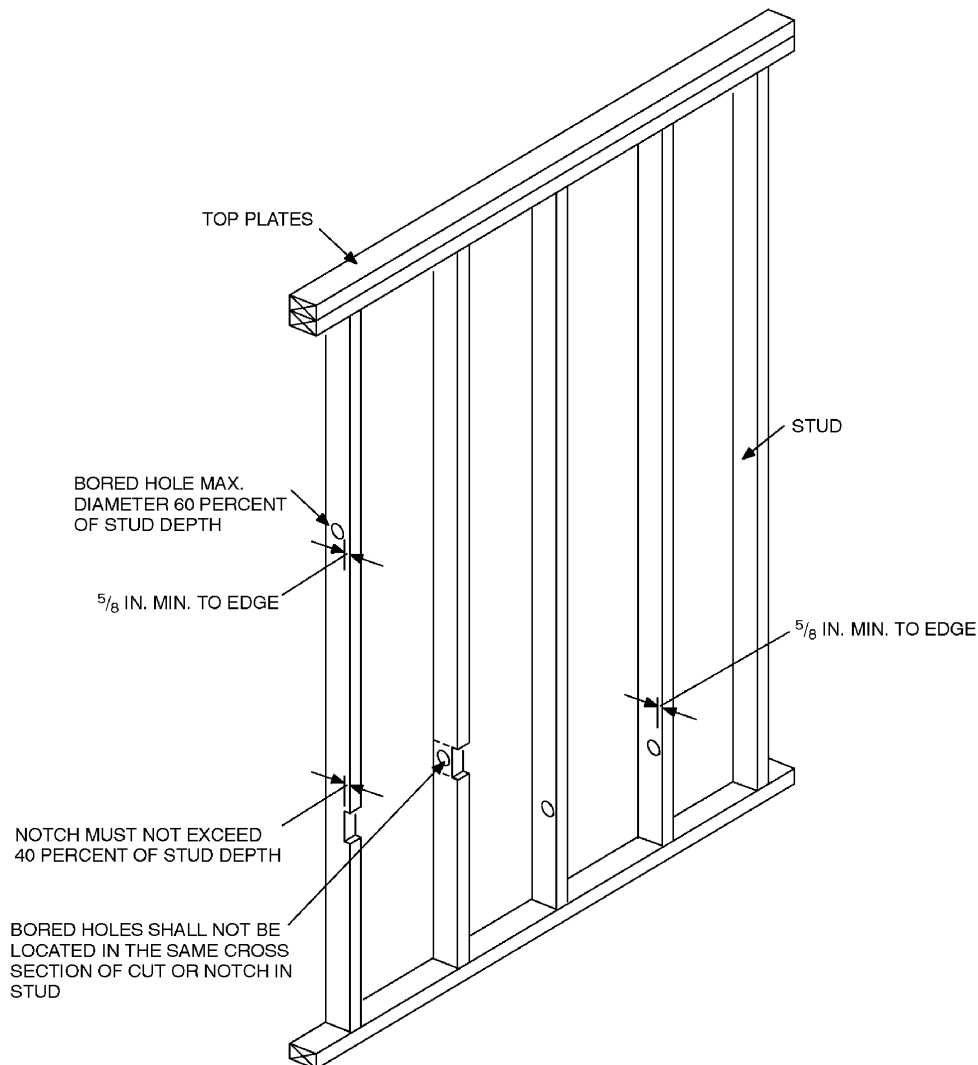
In the case of a double top plate, only the upper of the two plates needs to have a strap installed as described.

The top plate functions as a collector as part of the lateral load path. It collects the lateral loads, due to wind and seismic, from the roof or floor diaphragm and distributes them along the wall into the wall bracing. In doing so, the top plate is subjected to tension or compression due to the lateral loads in the plane of the wall.

Removal of any top plate material due to cutting, drilling or notching will reduce the tension/compression capacity of the top plate.

This section provides a prescriptive design that allows removal of 50 percent or less of the top plate material without replacing the material.

If more than 50 percent is removed, a metal strap is



For SI: 1 inch = 25.4 mm.

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

required to replace the material removed as shown in Figure R602.6.1.

Common practice is to notch the top plate as shown in Figure R602.6.1.

This section does not specifically state the amount of top plate material that must remain. However, Section R602.6 requires $\frac{5}{8}$ inch (16 mm) minimum to edge for holes in studs. This can be used as a guideline since this is for the compression load and assuming the metal strap is for the tension load.

For notching as shown in Figure R602.6.1, at least $\frac{5}{8}$ inch (16 mm) of the top plate should remain.

For a bored hole, $\frac{5}{8}$ inch (16 mm) should remain on at least one edge. The edge with less than $\frac{5}{8}$ inch (16 mm) will require the tension strap.

Notching or boring holes outside those guidelines will require a design in accordance with accepted engineering practices.

FIGURE R602.6.1. See below.

❖ See the commentary to Section R602.6.1.

R602.7 Headers. For header spans, see Tables R602.7(1), R602.7(2) and R602.7(3).

❖ Section R602.7 has been reorganized to combine single and multiple headers into one table. The 2012 IRC Tables R502.5(1) and R502.5(2) were moved from Chapter 5 to Section R602.7 and renumbered as Tables R602.7(1) and R602.7(2). Because the tables are frequently referenced in the wall provisions and the tables are used for headers more frequently than for girders, this change makes the tables conveniently located for header sizing. 2012 IRC Table R602.7.1 is combined with Table R502.5(1) to give a single table containing 1, 2 and 3 ply headers in 2015 IRC Table R602.7(1). The table also contains minimum jack stud requirements for all header options.

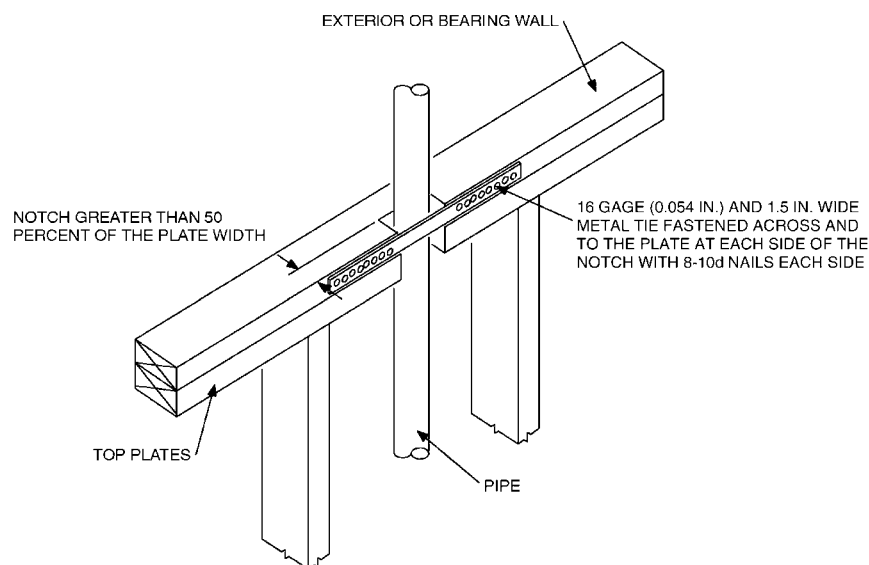
The single-ply header spans have been recalculated based on #2 grade hem-fir values. The single-ply spans are slightly longer than those in the 2012 IRC. Tables R602.7(1) and R602.7(2) are based on minimum design values for #2 grade of Douglas fir-larch, hem-fir and spruce-pine fir and #1 or better grade of southern pine.

New Table R602.7(3) has been added to provide girder and header spans for open porches. The table is based on post construction to support headers for porches with an 8 foot or 14 foot depth. The span lengths are based on the 2005 AWC NDS.

At a wall opening, headers transfer loads received from the wall and floors or roof to the foundation. Openings such as doors or windows within bearing walls must be framed with headers of sufficient size to span the opening and transfer loads to jack studs. Commentary Figure R602.7 illustrates a double header over a door opening. Tables R602.7(1) and R602.7(2) of the code are used to determine allowable spans for headers as well as girders. These tables are applicable to openings in bearing walls but are not applicable to nonbearing walls. See Section R602.7.4 for headers in nonbearing walls. Table R602.7(1) is to be used for headers over openings in exterior bearing walls. Table R602.7(2) is to be used for headers over openings in interior bearing walls. Where wood girders are used in a basement of a one-story dwelling, Table R602.7(2) may be used to prescriptively size the basement girders (the space between supporting columns may be viewed as openings).

Example:

You wish to size a header in the exterior wall of a one-story house that is 30 feet (9144 mm) wide. The open-



For SI: 1 inch = 25.4 mm.

FIGURE R602.6.1
TOP PLATE FRAMING TO ACCOMMODATE PIPING