

Framing Corners

A survey of methods and materials used to build warm, inexpensive and strong corners

by Charles Bickford

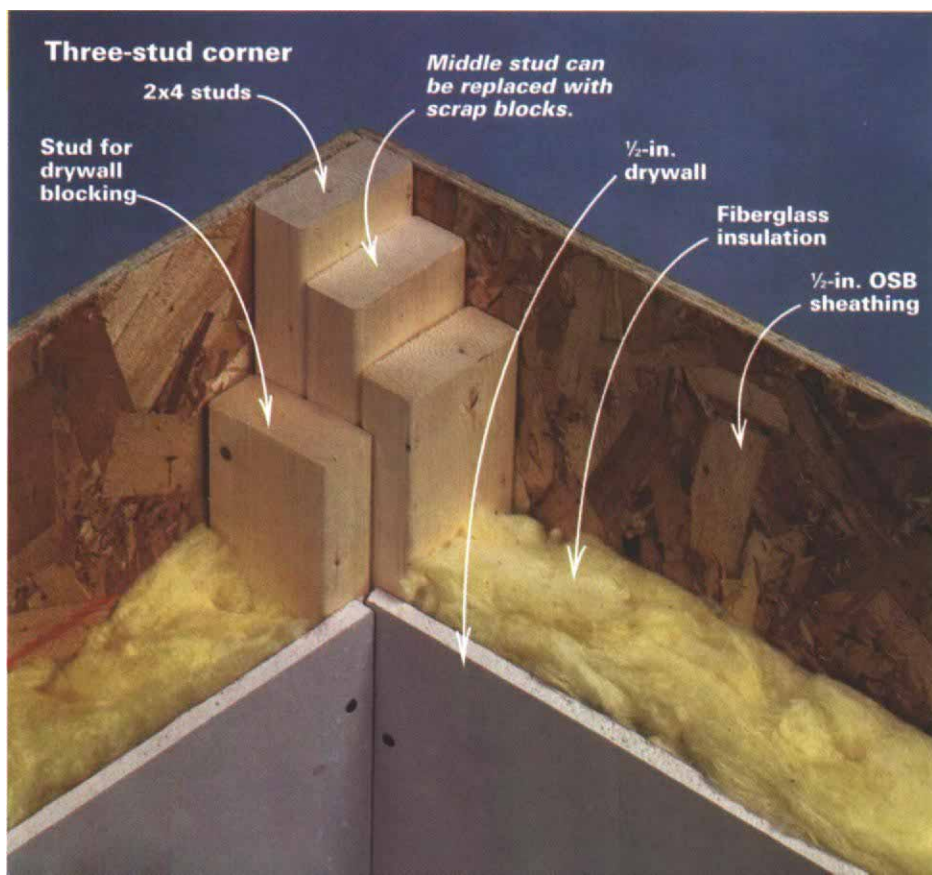
Unless you are a builder who always builds round houses, chances are pretty good that a portion of your building career will be spent framing corners. Until recently, framing a corner was a straightforward task that didn't present too many options. The typical stick-framed corner was, like its predecessor the timber post, a massive piece of wood. It was sturdy, and you could drive nails into it anywhere you pleased. These days, the traditional three-stud corner is not gone but may soon become as rare as solid-chestnut timbers. For a variety of reasons, there is now more to consider than just providing nailing support for siding outside and drywall inside.

The primary reason is economics. The price of framing lumber has nearly doubled in the past ten years. The prevailing opinion holds that the lumber's quality has slipped considerably, too, which is an economic factor if you have to spend 20 minutes digging in the pile trying to find a straight 2x for a sill or a plate. The cost of heating a house has also changed the way people frame corners. During the energy crunch of the 1970s, some architects and builders be-

gan to think harder about more efficient ways to insulate houses and switched from 2x4 to 2x6 walls for their greater R-value potential. Corners, always notorious cold spots, came under scrutiny, too. If built with 2x6s, the older-style solid corners not only required more lumber than the 2x4 version, but they also created a bigger area in the wall that couldn't be insulated and suffered more from thermal bridging. Thermal bridging is the transfer of heat energy through solid materials; in a house, cold is usually conducted from the outside sheathing to the interior walls through any solid material, most notably the framing.

In the interest of both economy and energy efficiency, researchers and builders have been searching for better ways of framing corners using less wood and more insulation. Here are some of the methods that they've come up with. □

Charles Bickford is an assistant editor at Fine Homebuilding. Photos by Scott Phillips, except where noted.



The three-stud corner is traditional and sturdy

The three-stud corner (photo left) is a direct descendant of the timber post and is favored by many builders. Its main advantages are that it is quick to assemble, it is strong and it gives the carpenter plenty of support for nailing exterior corner boards and siding. You can make it two ways: Nail three full studs together, or use 2x scrap from the site as blocks between two full studs. A single end stud on the abutting wall is nailed on the inside corner. The main disadvantages of three-stud corners are that they use more lumber, are difficult to insulate and create a wide thermal bridge to the interior. These corners are not effective when built with 2x6s. Connecticut framer Mario Sapia uses this corner because he likes the mass of the construction; he reduces the thermal bridging by wrapping the exterior of the house in 3/4-in. rigid-foam insulation.

Drywall clips: engineered hardware that takes the place of wood

Carpenters and wood are as inseparable as bakers and flour. But unlike wheat, trees cannot be harvested on an annual schedule, and we all know that lumber is not as plentiful, cheap or straight as it used to be. One way to slow the drain on your wallet and on lumber supplies is to use drywall clips.

Clips are used in place of wood backing to support drywall in corners (walls and ceilings). Depending on the style, drywall clips are slipped on to the drywall or nailed to the stud and can be installed either by the trainers or by the drywall crews. All clips are usually installed 16 in. o. c. to support the first sheet of drywall in the corner; any protruding tabs are covered

by the succeeding sheet. Because the clips take the place of a stud in a corner, there is also greater space in the wall cavity to fill with insulation.

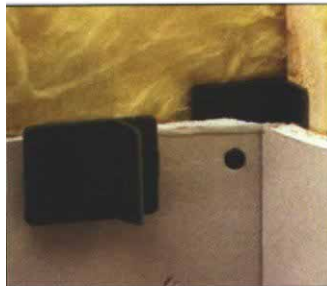
The clips certainly are not mainstream items, even though they've been on the market in some form for more than two decades. Contractors familiar with the product say that the clips offer a sturdy and economic alternative to lumber. The clips run from 12¢ to about 20¢ each. These clips may be hard to find at the lumberyard, so check the Yellow Pages under "Drywall Supplies" or contact manufacturers. Included here is a partial listing of drywall-clip manufacturers and is by no means inclusive.—C. B.



Sources of supply

DS Drywall Stop
(light-gauge steel)

Drywall Stop
Simpson Strong-Tie Co.
4637 Chabot Drive, #200
Pleasanton, CA 94588
(800) 999-5099
<http://www.strongtie.com>



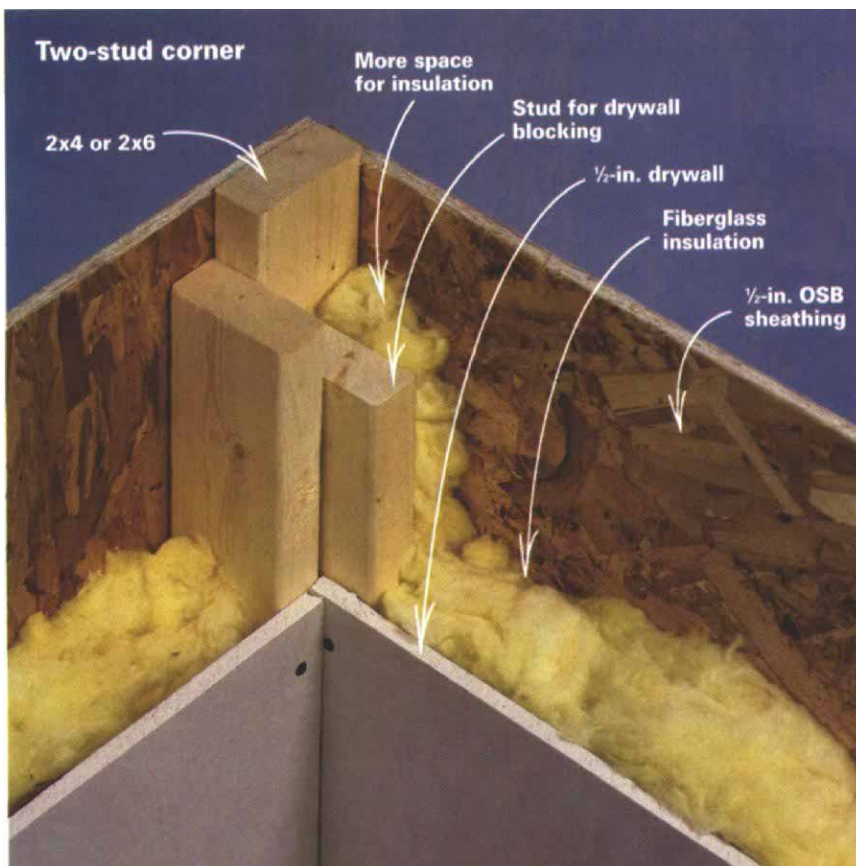
The Nailer
(recycled HDPE)

The Nailer
The Millennium Group
121 S. Monroe St.
Waterloo, WI53594-1407
(800) 280-2304



Corner-Back fasteners
(light-gauge steel)

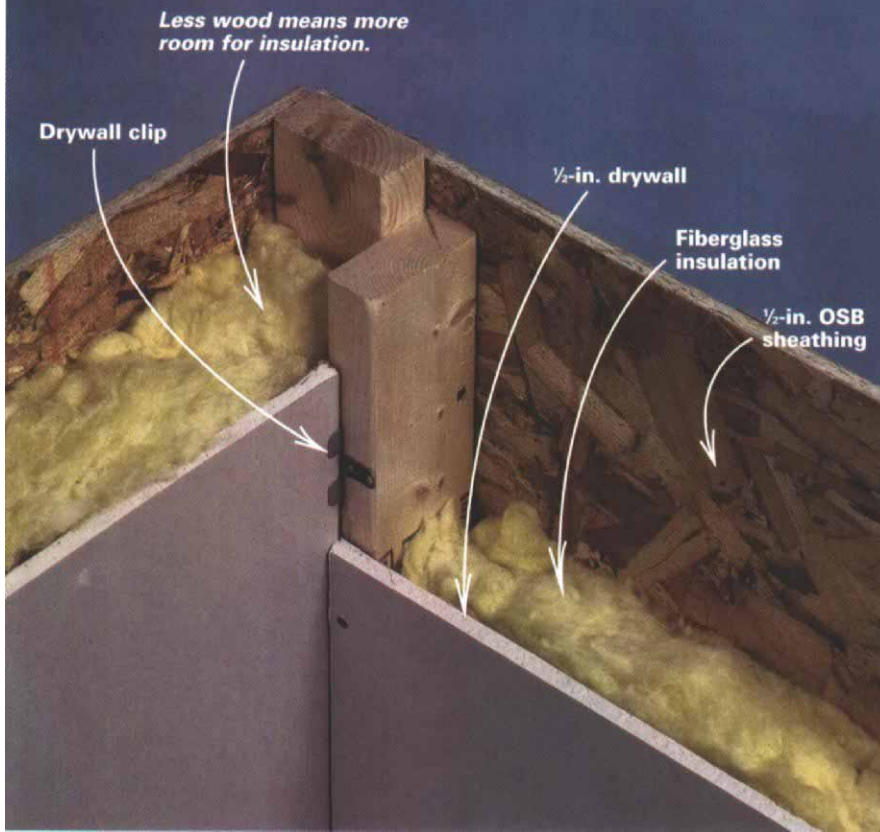
Preston Clips
Prest-on Co.
312 Lookout Point
Hot Springs, AR 71913
(800) 323-1813



The two-stud corner uses less wood and is easily insulated

The two-stud corner (photo left), also known as the California corner, is popular with builders because it goes together quickly and because it uses less lumber. It is also more energy efficient because it has less mass to create a thermal bridge and opens a larger space that's easy to insulate. Some builders don't use it because the corner gives them less to nail to if they're putting up vinyl siding or corner boards. Veteran California framer Don Dunkley likes to use the two-stud configuration for interior corners but wants beefier corners on exterior walls that will hold the strapping and bolts necessary to comply with earthquake regulations. The two-stud corner works equally well in 2x4 and 2x6 walls.

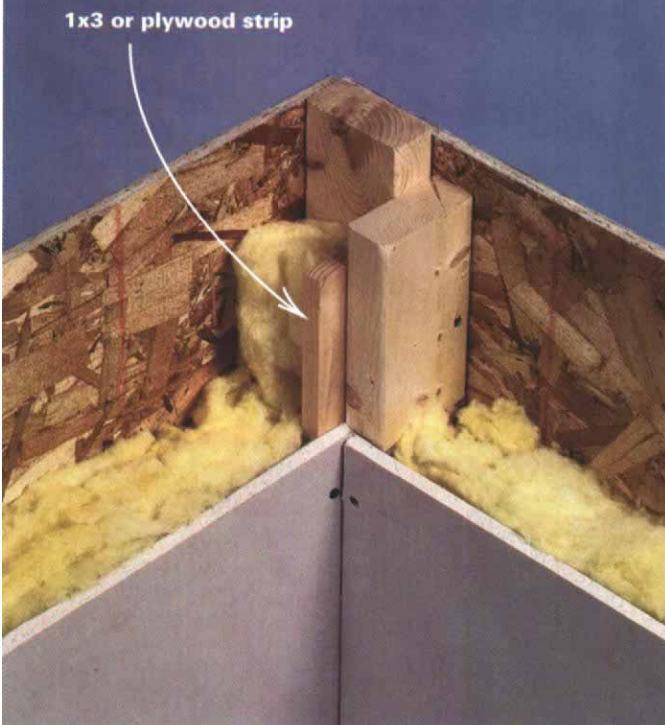
One-stud corner with clips



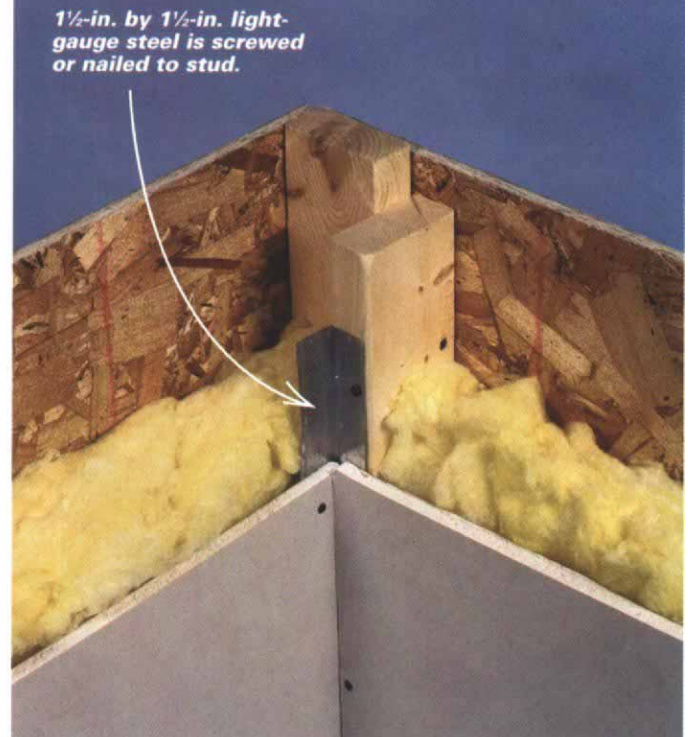
Built fast, one-stud corners adapt to newer methods

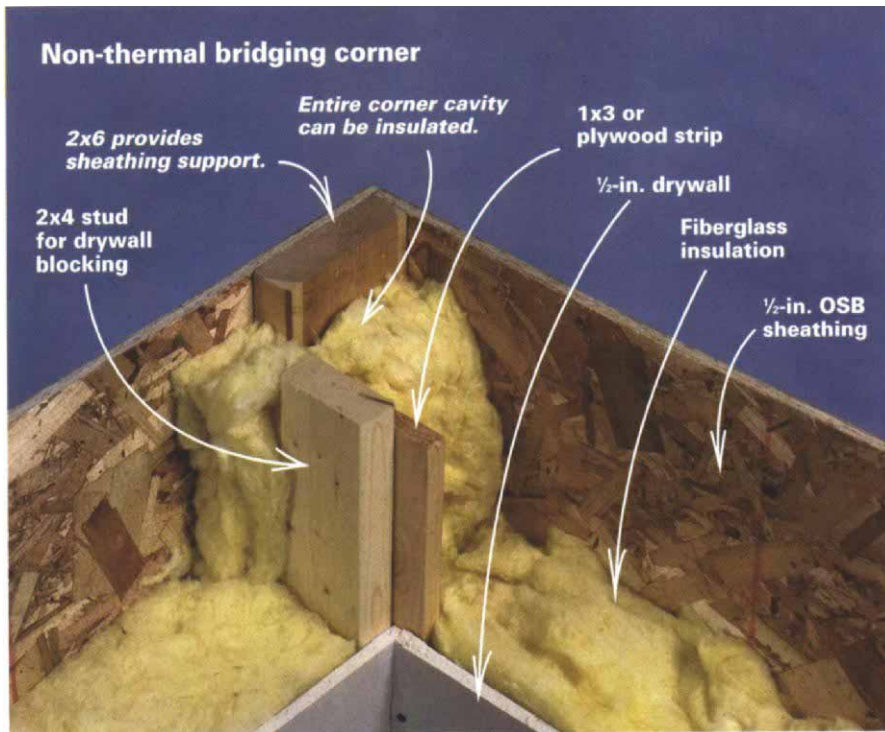
A variation on the two-stud corner, the one-stud corner is a direct result of the switch from drywall nails to drywall screws. The hammerproof 2x nailers in comers can be replaced with a thinner nailer (photo bottom left) or with drywall clips (photos top, bottom right) because screws need less backing support than nails. By nailing a 1x3 or a 3-in. wide strip of plywood to the inside corner, you eliminate an additional stud, thereby saving wood and creating room for insulation. Drywall clips (sidebar, p. 55) eliminate the need for wood nailers and further increase the available wall-cavity space for insulation. Instead of clips, Bill Eich of Spirit Lake, Iowa, has long strips of light-gauge steel bent lengthwise at right angles (resembling drywall corner bead), measuring approximately 1 1/2 in. perside. His carpenters then screw the strips to the appropriate studs, where the strips serve as cheap, efficient drywall backers.

One-stud corner with nailer



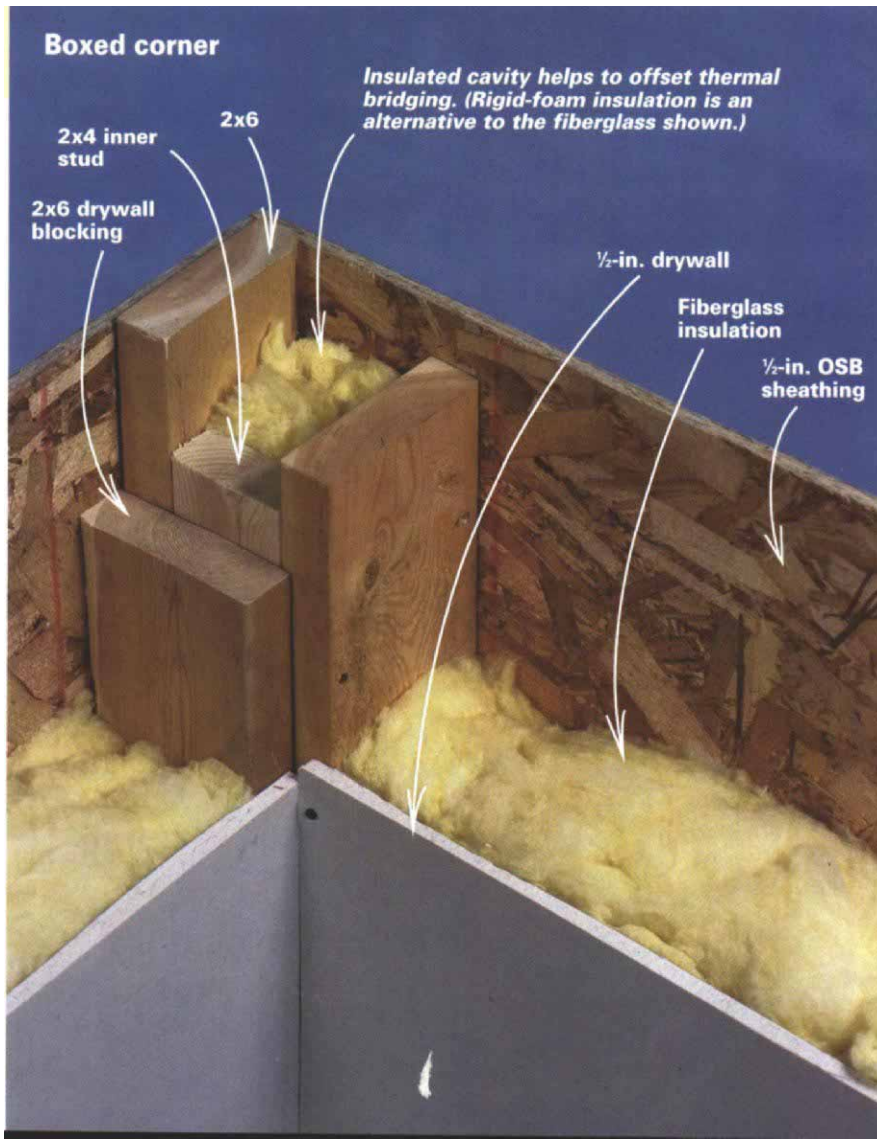
One-stud corner with light-gauge steel backer





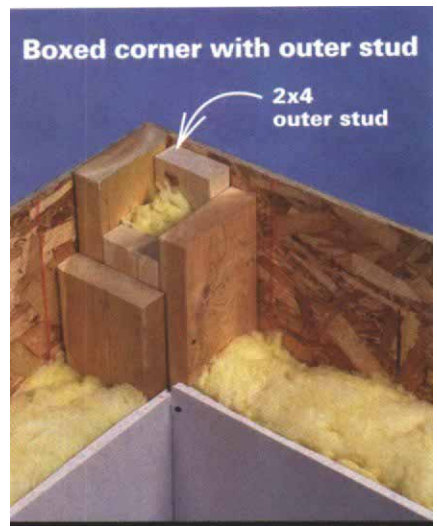
A hybrid corner that eliminates thermal bridging

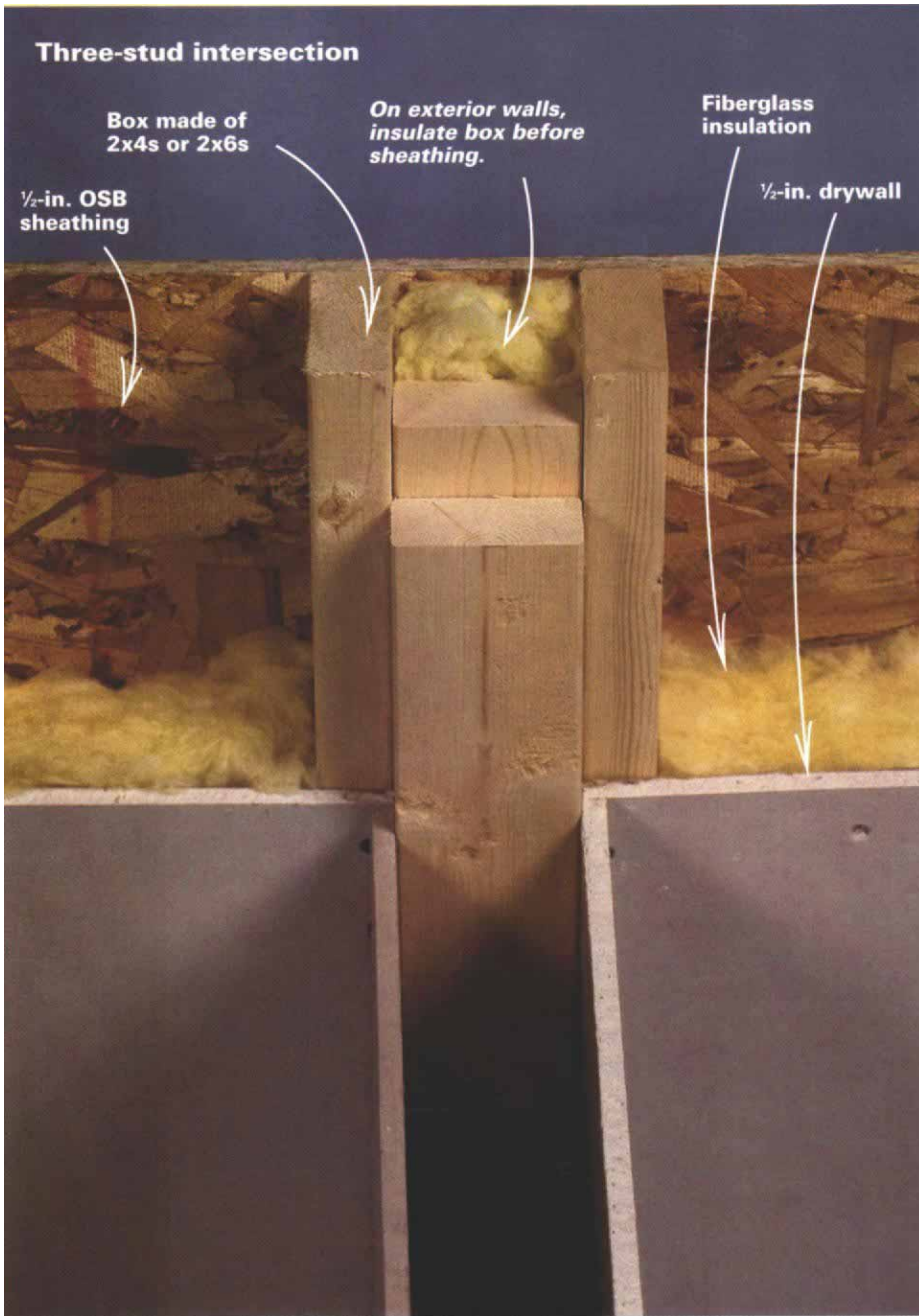
Contributing editor Mike Guertin has long been concerned with exterior corners, which can be notorious cold cavities. Although thermal bridging is a concern along the entire wall, framing alternatives such as double-stud walls are not cost-effective. Corners, on the other hand, carry less load than a typical stud and are structurally more flexible. Guertin is experimenting with a 2x6 corner (photo left) that can be completely insulated. He uses a 2x6 on the exterior corner and nails a 2x4 and a 1x3, or a strip of plywood, together to form the interior corner. He can now insulate throughout the corner cavity, eliminating thermal bridging by breaking contact between the outer sheathing and the drywall. Guertin says that the corner still provides good support for top plates and for nailing. (Although Guertin's building inspector approved the corner, check with your local inspector before trying it.)



Boxed corner has mass and can be insulated

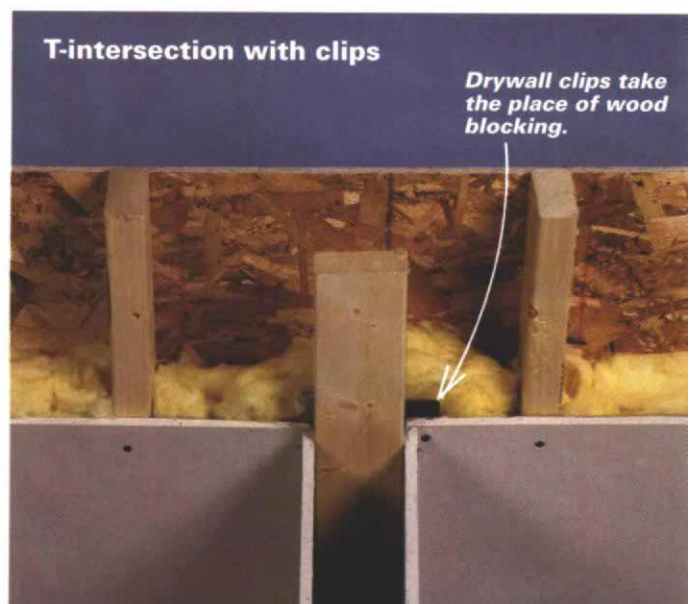
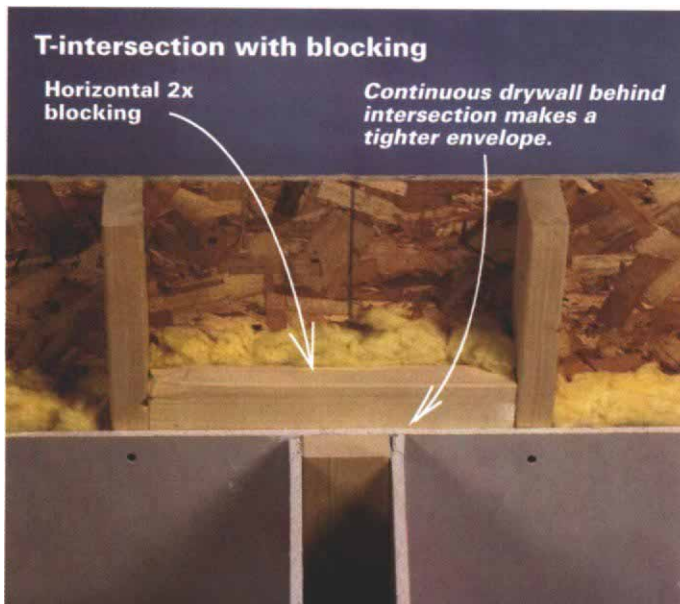
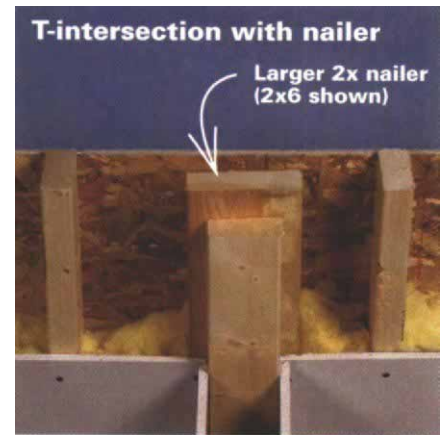
Here's another corner that is fairly popular (photo left). Typically used in a 2x6 wall, the outer studs used are 2x6s, while the inner stud can be a 2x4. John Carroll, a builder from North Carolina, uses a variation on this theme when nailing wider corner boards but uses another 2x6 in place of the 2x4. In both examples, framers should have insulation ready on site because the interior of the box must be insulated before the sheathing is nailed to offset the potential of thermal bridging. Builders who require more nailing for corner boards will sometimes put an additional stud on the outside of the box after insulating its interior (photo below).





T-intersections must provide good drywall-nailing support

A traditional method of building T-intersections is nailing the intersecting wall to a box, sometimes called a channel, built into the adjacent wall (photo left). To lessen thermal loss (if the adjacent wall is an exterior wall), this box must also be insulated before the exterior is sheathed. Blocks nailed horizontally between studs (photo top right) in the adjacent wall are a second method of forming the corner and a good place to use scrap lumber; the intersecting wall is then nailed to the blocks. Some builders prefer a faster third method (photo bottom left) and nail a wider (a 2x6 on a 2x4 wall, for instance) piece of stock on the flat that provides nailing for both the intersecting wall and the drywall in one shot. When the framing, insulation and drywall crews are working in close synch, it's also possible to drywall the entire first wall and then nail the new wall through the gypsum into the nailer. This method creates fewer breaks in the vapor barrier. Drywall clips do the work in the fourth method (photo bottom right).



Oblique corners can be a challenge to frame quickly

Corners greater than 90° present problems of their own. In the conventional method, studs aligned with their respective plates meet in a splayed fashion and are sometimes difficult to nail together into a straight corner. (Crooked corners can give drywall contractors fits.) Contributing editor Scott McBride uses a sturdier method (photo left) that appeared in the "Tip & Techniques" column of *Fine Homebuilding* (FHB #26). With a table saw or a circular saw, he rips a 4x4 in half at 22½°, flips one half around and nails the two halves together. If there are a fair number of these corners on a job, Don Dunkley will rip 2x4s at a 45° angle and nail the long blocks into the widest part of the cavity (photo below). This not only makes a larger nailing surface but also allows for insulation.

