

For questions regarding the use of THE NAILER, drywall fasteners/clips, floating corners and how fastening should be spaced, please refer to the following information.

1. ASTM C 840-07 Standard Specification for Application and Finishing of Gypsum Board
2. ASTM C 754-04 Standard Specification for Installation of Framing Members to Receive Screw-Attached Gypsum Wall Panel Products
3. GA-216-2007 Application and Finishing of Gypsum Panel Products- Gypsum Association
4. ToolBase Services (www.toolbase.org) - ToolBase is the housing industry's resource for technical information. The NAHB Research Center provides the services, with funding from the Department of Housing and Urban Development (HUD) through The Partnership for Advancing Technology in Housing (PATH) program, and other industry sponsors.
5. U.S. Department of Energy (DOE) Code Notes (Code Notes assist builders in obtaining code compliance of energy-efficient technologies. These information sheets written to code officials address a single above-code or otherwise obscure building feature.)
6. In California, the prescriptive code doesn't require perimeter nailing for interior corners, except for fire rated assemblies. The code outlines that the edges and ends that are parallel will rest with full bearing on the framing members, but those that are perpendicular do not. You don't need to add blocking between studs so there is full bearing. Table 25-G requires nails 7"oc horizontal, 8"oc vertical and screws 12"oc horizontal, 16" vertical. Table 25-I deals with issues if the shear is derived from the drywall.

2511.3 Single-ply Application. All edges and ends of gypsum wallboard shall occur on the framing members, except those edges and ends that are perpendicular to the framing members. All edges and ends of gypsum wallboard shall be in moderate contact except in concealed spaces where fire-resistive construction or diaphragm action is not required.

The size and spacing of fasteners shall comply with Table 25-G except where modified by fire-resistive construction meeting the requirements of Section 703.2. Fasteners shall not be spaced less than 3/8 inch (9.5 mm) from edges and ends of gypsum wallboard.

"Fasteners at the top and bottom plates of vertical assemblies, or the edges and ends of horizontal assemblies perpendicular to supports, and at the wall line may be omitted except on shear-resisting elements or fire-resistive assemblies."

Fasteners shall be applied in such a manner as not to fracture the face paper with the fastener head.

Drywall fasteners are frequently referred to as stops, clips, or support fasteners that serve as an alternative to framing or blocking used to provide support for gypsum board joints at 90-degree corners located between structural members.

Drywall fasteners/clips must be fastened to the supporting construction with one No. 13 gage [0.0897-inch-shank-diameter (2.3 mm)] drywall nail (for wood framing) or one No. 6 by 1 1/4 -inch -long (32mm) Type W or S drywall screw, conforming to ASTM C 954 or C 1002 (for wood or steel framing).

Drywall fasteners/clips must be spaced a maximum of 16 inches (406 mm) on center, within 2 inches of each unsupported gypsum board corner. The floating interior angle application is accepted to minimize truss uplift and the possibility of cracking corners.

Truss Uplift and Floating Corners

Do not install ceiling drywall adhesives or drywall fasteners/clips closer than 18” to interior partition top plates in order to control drywall cracking from truss uplift. Floating corners of ceiling drywall allows truss to move without drywall cracking. Using drywall fasteners/clips for supporting drywall results in floating corners and significantly less wallboard cracking.

U.S. Department of Energy (DOE) Article #133 - Drywall Clips - Code Notes:

Metal or plastic drywall clips can be used to replace a third stud at a corner, at a partition intersection backing stud, or in the ceiling to replace a nailer. The reduced attachment (wood to drywall) resulting from the use of dry wall clips allows small movements without drywall cracking and nail pops. Small movements are normal as wood responds to changes in temperature and moisture content over time.

Eliminating unnecessary wood framing within walls can increase the thermal efficiency of the wall system. Less framing allows more insulation to be installed and also eliminates hot and cold spots (from thermal bridging through the frame) within the wall system.

Two-stud corners and drywall clips are often used in combination with airtight drywall, where the drywall and well sealed gypboard seams provide an effective interior air barrier.

Code Citations*

IRC 2000 and 2003, Section R602.3 Design and Construction

Exterior walls of wood-frame construction shall be designed and constructed in accordance with the provisions of this chapter and Figures R602.3(1) and R602.3(2) or in accordance with AF and PA's NDS. Components of exterior walls shall be fastened in accordance with Table R602.3(1) through R602.3(4). [Excerpt]

Note: A third stud and/or partition intersection backing studs shall be permitted to be omitted through the use of wood back-up cleats, metal drywall clips, or other approved devices that will serve as adequate backing for the facing materials.

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ToolBase Services states:

These drywall clips and stops support drywall or wood paneling at corners and replace blocking at top plates, end walls, and corners. They eliminate "U-Boxes," partition tees and backup lumber at ceiling joists, and make two-stud corners instead of the common three- and four-stud corners possible - yet still provide adequate (in some ways better) backing. (For interior partitions, it is even possible to make a one-stud corner by using drywall clips.) Two stud corners not only help plumbers and electricians to snake wires and pipes, they also reduce heat loss by allowing insulation behind the studding without the risk of uninsulated cavities and cold corners - resulting in better home thermal performance. At top plates, drywall fasteners reduce call-backs for ceiling and partition separation from truss uplift. Corner cracking can be reduced by floating drywall corners using clips (avoiding the effects of variable shrinkage and movement of the framing which is responsible for most cracking). Drywall clips and stops can reduce the wood used for framing by eliminating the need for nonstructural studs, and can be easier to install than extra wood backing in difficult locations.

Installation

At two-stud corners, the metal and plastic drywall stops are installed 16" o.c., though some are allowed up to 24" o.c. for installation, from the top to bottom of the wall. Then the first sheet of drywall is hung against the stops. The second sheet is installed against the first. At top plates, the stops are installed 16" o.c. (or up to 24" o.c. for some) and at all corners and intersections. The drywall is installed with the ceiling panels first, as usual. The sheet metal stops are nailed to studs, though the sharp installation prongs provide convenient initial attachment. The metal wire stops are installed by hand, squeeze-fit to the stud, with the extension wire arm surface providing an effective rigid area against which the drywall may be supported / stopped.

The plastic stops are T-shaped flanges which can be installed any time after framing, although they could also be used by the drywallers. They have an anti-skate surface grid against which the drywall sits, as well as a tapered flat "arm" that may be fastened through (stapled, screwed or nailed). Plastic stops are attached to framing at wall-to-wall and wall-to-ceiling junctions, 16" o.c. typically, and up to 24" o.c. Plastic stops allow the corners to be screwed and hard fastened, but some manufacturers recommend leaving the corners floating. Drywall screws can drive into the 1-1/2 x 1-3/8 in. surface anti-skate grid surface if necessary. By trimming off the backs of the stops, you can attach them to the face of a stud to support a dropped ceiling.

Clips and plastic stops can be used in conjunction with steel studs, unlike the sheet metal and metal wire drywall stops.

The Gypsum Association states that “special clips designed to provide support at wall corners and wall-ceiling intersections in lieu of back-up studs or blocking shall be permitted where approved.” They also address truss uplift and floating interior corners.

APPLICATION AND FINISHING OF GYPSUM PANEL PRODUCTS -
GA-216-2007

4.9 Floating Interior Angles.

4.9.1 The floating angle method of application shall be permitted to be used to minimize the effects of truss uplift and the possibility of fastener popping in areas adjacent to wall and ceiling intersections. This method is applicable where either single nailing, double nailing, or screw attachment to wood framing is used. (See Figures 3, 4, and 5)

4.9.2 Ceiling-Wall Intersections. (See Figures 3 and 4)

4.9.2.1 The first fastener into each ceiling framing member, framed either perpendicular or parallel to the wall, shall be located not more than 7 in. (178 mm) out from the intersection for single nailing and not more than 12 in. (305 mm) for either double nailing or screw application.

4.9.2.2 The gypsum panel products on the wall shall be applied to provide firm support for the floated edges of the gypsum panel product on the ceiling. The uppermost fastener into each stud shall be located not more than 8 in. (203 mm) down from the ceiling intersection for single nailing and not more than 12 in. (305 mm) for either double nailing or screw application. (See Figures 3 and 4)

4.9.3 Inside Corners of Walls. (See Figure 5)

4.9.3.1 The overlapping gypsum panel product shall be applied so as to bring the back of the underlying gypsum panel product into firm contact with the face of the framing member behind it.

4.9.4 Special clips designed to provide support at wall corners and wall-ceiling intersections in lieu of back-up studs or blocking shall be permitted where approved.

4.9.5 Floating interior angles shall not be used where fire ratings or shear values are required.

