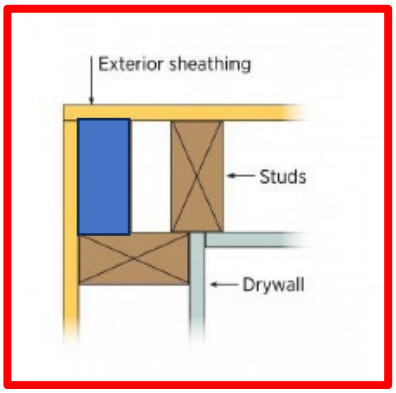
Technical Bulletin: Advanced Framing
February 2024

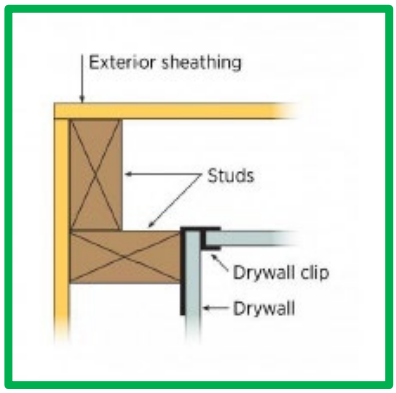
To increase rebates and ensure more homes are eligible for the RNC Program, homebuilders can build with advanced framing techniques. These techniques limit the amount of wood in exterior walls and maximize the amount of insulation. The specific criteria for advanced framing are found in ANSI/RESNET/ICC 301-2022 4.2.2.1.1 but the following sections of this technical bulletin will cover the basic criteria for corners, wall intersections, headers, and window and door framing.

Corners

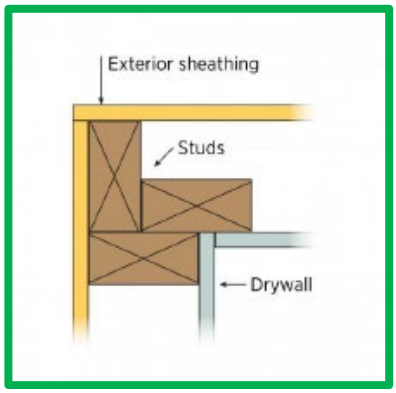
To meet advanced framing in corners, homes should incorporate two-stud or “California” corners. Conventional three-stud corners create uninsulated voids. California corners allow for additional insulation while providing a full drywall nail board. Two-stud corners require the use of drywall clips but allow framers to use less material. The images below depict three-stud, two-stud, and California corners.



Conventional three stud corner that doesn’t meet advanced framing.



Two stud corners with drywall clips to allow a full batt to insulate the wall.



California corners that allow partial insulation to meet advanced framing.

Window and Door Minimal Framing

Each door or window has framing members called king and jack studs. These are studs that hug or support the headers of doors and windows. King studs extend from the top plates to the bottom plates, and jack studs extend from the header to the bottom plates. To meet advanced framing criteria, doors and windows are limited to one pair of king or jack studs.

A window with one pair of king and jack studs.

Two windows that are standard framed with three pairs of king and jack studs.

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Wall Intersections

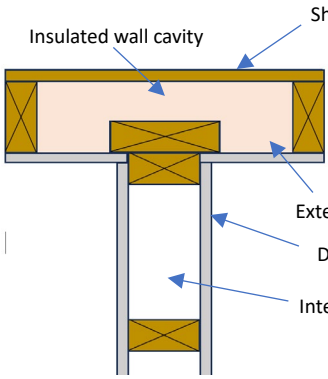
There are two typical methods for constructing wall intersections:

1. The most common method includes ladder framing where horizontal boards between studs allow interior walls and drywalls to fasten to the exterior wall.
2. The second method involved adding one or more full length studs in wall cavities as a location to fasten interior walls and drywall.

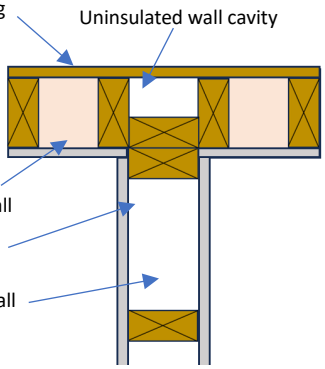
The criteria to meet advanced framing in intersections involves allowing the exterior wall cavity to have continuous insulation. The following images highlight how advanced framing is and isn't met in wall intersections.

Ladder framing that allows the entire wall cavity to be insulated

Ladder framing with thermal bridging preventing a fully insulated wall cavity



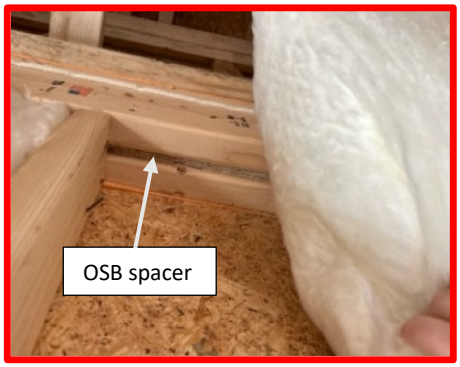
The top view of an intersection with a completely insulated wall cavity



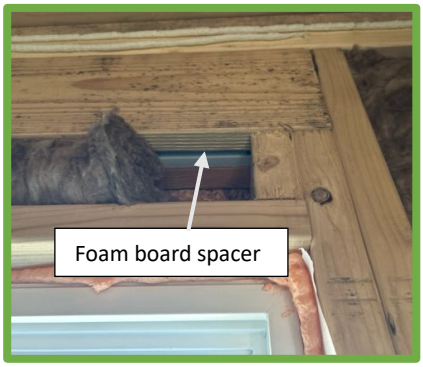
The top view of a wall intersection with standard framing

Headers

Headers are the structural members that support wall loads above doors and windows. They are typically constructed with two 2x4 or 2x6 boards with a piece of OSB as a spacer. To meet advanced framing, the OSB should be replaced with rigid foam board. In 2x6 walls, the headers can be constructed without OSB spacers which allows for a 2.5" void in the wall that can be insulated with foam board or fiberglass insulation. Examples of these are below.



A standard framed header with an OSB spacer



An advanced framed 2x4 wall with foam board.

An advanced framed 2x6 wall with fiberglass insulation.