

Technical Bulletin: Top Plate Sealing

Residential New Construction Program

BUILDING A SMARTER ENERGY FUTURESM

Top plate gaskets such as foam sill seal gasket or canned foam top plate gasket, have the potential for large impacts on energy savings and incentives in the RNC Program. Home builders must effectively air seal a home to meet the 4.00 ACH50 requirement. This technical bulletin covers some frequently overlooked items that raters should check when inspecting top plate gasket installation.

Missing top plate at areas with unconditioned space above:

Top plate gaskets prevent attic air from entering wall cavities. All areas with attic space above need a top plate gasket. This includes **interior and exterior walls**. Kneewalls can have complex designs and are often overlooked. Additionally, first floor extensions or bay windows with attic space above are missed by crews and should be double-checked. An example of this is to the right.



Top plate missing a gasket on the first floor

Sill Seal installation:

Sill seal is the most common method of top plate gasketing but it has the following common issues.

1. **Rounded corners of sill seal:** Sill seal should be tight across the top plate, especially in corners. If sill seal is loose, it will get caught during the drywalling of the home and pulled down or damaged. When this occurs, cutting the corners and fastening the ends to the corner is best. The photo on the right shows a rounded corner.
2. **Staple spacing is too long:** Similar to rounded corners, areas with long fastener spacings are likely to be torn down by drywallers or pushed into the attic. An indicator of this is sagging sill seal. The recommended spacing of staples is **12-16" (stud spacing)**, but insulators often place staples 4-6' apart. An example of this is on the right.



An example of a rounded corner



An example of incorrect staple spacing.

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Foam Gasket:

Foam gasketing is still a relatively new product, but when installed correctly it's harder than sill seal to damage or remove during drywalling. When inspecting foam gaskets, ensure the installation reflects the following manufacturer's specifications.

1. **Bead size:** The size of the bead is the most important aspect of the installation. Foam should be applied at a $\frac{1}{2}$ " thickness when humidity is below 70% or $\frac{5}{8}$ "- $\frac{3}{4}$ " bead when humidity is higher. After curing, the bead should shrink to about a $\frac{1}{8}$ " thickness.
2. **Bead location:** The foam should be applied to the bottom course of top plates for best results. Installers often place the foam in the gap of the two top plates. This should be avoided as it reduces the contact to the drywall.

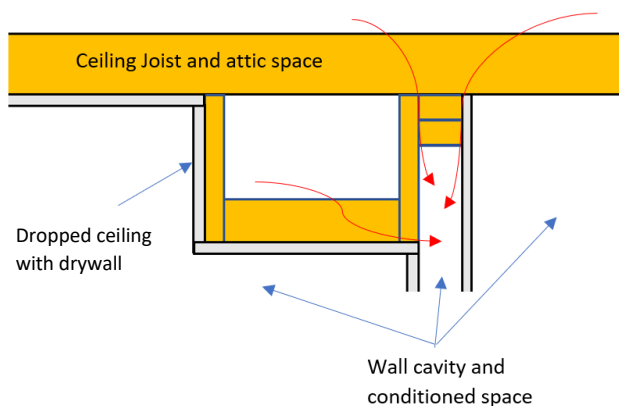


An example of incorrect bead size and location

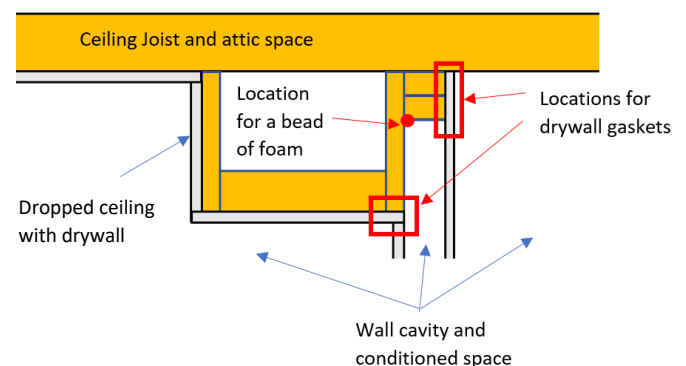
Dropped ceilings:

Dropped ceilings are often a source of confusion for air sealing as top plates are recessed and difficult to seal. When sealing to prevent air leakage into wall cavities, the following are best practices. Diagrams below show how air leaks into the home and where best to seal.

1. Seal the top plates to the framing of the dropped ceiling.
2. Apply a gasket to the bottom of the dropped ceiling framing closest to the wall.



A diagram of a dropped ceiling with red arrows representing how attic air leaks into the wall cavity and conditioned space.



An example of the best locations for air sealing around dropped ceilings.

Please contact us at DERNC@icfprogram.com with questions or for additional information.