

TechTip I1 – Picture Framing for ccSPF

Use a "Picture Framing" Technique. Applying spray polyurethane foam (SPF) insulation systems can be best done in a "picture framing" motion in which the applicator surrounds the inside of the stud/rafter cavity framing, allowing the foam to rise along the juncture of the stud and sheathing. (see Fig. 1-1).

To do this, spray at an approximate 45-degree angle to the juncture of the stud and the substrate. The objective is to create a bond between the framing and sheathing and avoid pockets within the SPF. High moisture levels within wood framing can compromise the bond of the SPF to these surfaces, and this method of application will help reduce callbacks. Approximately ten feet length of wall/rafter section can be done at a time, before moving on to the next section to be foamed.

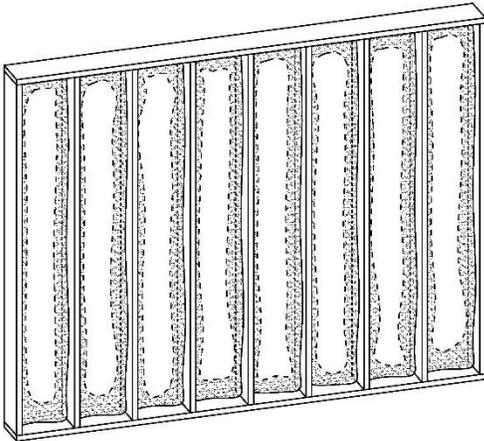


Figure I1-1: Examples of Picture-Framing applications

After picture framing a specified area return back to the start point to fill in the center of the cavity, follow the SPF manufacturer's recommendations for minimum and maximum pass thicknesses. If additional lifts are to be applied, again, follow the manufacturer's recommendations regarding thicknesses and time between passes. The picture framing technique will help the SPF insulation seal cracks and crevices without resulting in fold-over along the stud face or air-pockets or voids which will affect the insulations performance.

When this technique is used the foam is rising more or less straight off both the stud and sheathing substrates simultaneously. In contrast, when the SPF is sprayed only to the sheathing (skipping the picture framing step), the foam is rising straight off the sheathing and rising parallel to the stud or rafter. As it is rising, it is attempting to both stick to the stud or rafter and shearing itself off as it goes by, creating a compromised adhesion.

As an additional benefit, this application method helps the applicator deal with construction materials that may or may not have high levels of moisture accumulated during the construction phase. This application method will also help reduce forces created during the exotherm phase of spray foam production and the subsequent cool down that occurs after the exotherm exits. This method is more important for consideration for use to produce a better and long-lasting insulation job during cooler applications, generally below 50° F.

There is a related technique that further improves adhesion in multiple pass applications by reducing the foam contraction stresses during the cool down of the foam mass. This technique picture frames each pass to the pass thickness, and then spray the infill pass of the same thickness. This is done rather than using one full thickness picture frame pass and then multiple infill passes.

Caution: *If there is a space or gap between the stud and the exterior substrate, take care not to spray too much foam into the crack. The expanding foam can push out the stud resulting in a bowed wall. Check your work regularly with a sharp rigid wire probe (depth gauge) to ensure that you are applying the correct thickness.*

Cathedral ceilings, unvented attics and flat ceilings are sprayed in the same manner as the walls. Building scientists have determined that foam can be applied directly to the underside of the roof substrate provided an R-Value appropriate to the local energy code is installed. If the designer, local code official or shingle manufacturer requires venting, make sure vents or chutes are installed prior to application of the spray foam. Ceilings are generally sprayed thicker than walls, so you may want to picture frame more than once as you build to full thickness.

Picture Framing in Metal Studs - When using the picture framing method with metal studs, make sure the stud measurements will not be impacted by your spray foam application. This means you must inspect them for wobble or attachment BEFORE spraying foam. If you find them to be loose, you should use a “spot” of foam every several feet along the height of the stud, to make sure they are held in place before you use the picture framing application method.

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and networking opportunities. For more information, please use the contact information and links provided in this document. www.sprayfoam.org

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