

How to Meet Building Energy Codes While Avoiding Costly & Hazardous 2-Part Spray Foam Insulation

When retrofitting, renovating, or adding an addition to an existing building, often the existing building cavities or the type of construction can limit the amount of insulation you want to add to the building. These challenges can even happen with new construction. For example, if the designer or builder didn't design or build adequate space to add enough insulation or there isn't sufficient access to properly insulate portions of the building. This issue becomes a bigger problem when the construction occurring needs to meet local building energy code. With limitations in space and/or type of construction, the commonly used types of insulation, such as fiberglass, cellulose, and mineral wool, will, in some cases, not provide the amount of insulation required by energy code.

To meet building energy code in portions of the building where commonly used types of insulation will not provide the amount of insulation required, construction teams will often turn to using costly and the most hazardous type of insulation, 2-part spray foam insulation. Certain types of 2-part spray foam insulation can provide a high insulation value with just a small thickness applied, and depending on the thickness, it can potentially be an air barrier. However, it is very expensive compared to other types of insulation. There is also a perception that 2-part spray foam insulation is needed to build a tightly air-sealed and highly efficient zero energy building, which is not the case at all.

Most importantly, spray foam insulation is the most hazardous type of insulation product, with various ingredients of concern that are hazardous to installers and occupants. Learn more with these great resources from <u>Building Clean</u>, <u>Healthy</u> <u>Building Network</u>, and the <u>U.S.Environmental</u> Protection Agency.

An easy way to avoid using costly and hazardous 2-part spray foam insulation is to use <u>REScheck</u> to meet your local energy code insulation requirements. REScheck is accepted in the majority of the United States and gives you flexibility in meeting the energy code. REScheck allows you to trade installing less than energy code minimum insulation value (R-value) in one area, with installing higher than energy code minimum insulation value in another area of the building. REScheck results in an efficient building, just as if it were built to the energy code, but provides flexibility in how to achieve that efficient building.

Commercial buildings and larger multi-family residential buildings that are not considered low-rise buildings can use <u>COMcheck</u> to achieve the same flexibility.

Flower City Habitat for Humanity had a home design with knee-walls in the attic and limited available ceiling height. In this situation, meeting code minimum insulation on the attic slopes would only be possible using 2-part spray foam insulation. During their product consultation with Flower City Habitat for Humanity, the **Building Clean team suggested using REScheck** to trade-off a lower insulation value in the attic slopes with the above code insulation values in the exterior walls and the other attic spaces. Making this change would avoid using the planned, expensive spray foam insulation and replace it with common, less-expensive batt and rigid insulation while saving approximately \$3,250 per home.

How to use **REScheck**

First, go to the <u>REScheck website</u> and confirm that your state or county allows you to use REScheck. Next, you can choose between using the REScheck online web-based tool or downloading the Windows REScheck software to produce the REScheck documents for your local building energy inspector. The REScheck website has great resources and an easy-to-explain REScheck <u>tutorial video</u>.

Some of the information you will need to complete REScheck includes:

• The square footage of the various portions of the building enclosure, including the slab/foundation, roof/attic, and exterior walls (including windows and doors). You will also need the insulation value (R-value) of the insulation in those areas.

• The square footage of exterior doors and windows, along with the insulation U-values and solar heat gain coefficients (SHGC-values) listed on the NFRC energy performance sticker on the windows and doors.

• Does your local building energy inspector want the REScheck documents e-mailed directly to them from REScheck?

REScheck is a great tool that provides the flexibility you might need to achieve that efficient building!

