Continuous Insulation

Eliminate heat loss from wood studs

Efficiency Vermont Residential New Construction Guidance

Why continuous insulation matters

Insulation makes a home more comfortable and less expensive to heat, but most homes in Vermont only have insulation between the studs. A typical wall with studs spaced 16" apart ends up being around 25% wood (studs) and 75% insulation. On a cold winter day, a wall without continuous insulation can have an interior surface temperature 15-20 degrees cooler than the room's air temperature.

Increase comfort

Maintain desired interior wall temperature

Waste less energy

Build walls that allow for reduced heating and cooling needs

Quieter atmosphere

Lower sound transmission

Wood conducts energy more readily than insulation. A sensitive thermal imaging camera "shows" heat loss due to these studs. In the image at below, yellow areas indicate heat loss (as well as fuel/money loss). There is a way to reduce this!

Applying a layer of insulation on the outside (most typical) or inside of the stud wall essentially forms a continuous blanket (also known as a "thermal break") around the home. This leads to greater comfort, warmer walls, and reduced heat loss and air leakage. Plus, it's a great way to reduce sound transmission through walls.

Before and after continuous insulation

Here are some starting points:

Material choice. Rigid boardstock is the usual. As with stud cavity insulation, there are many options—most common are rigid mineral wool (e.g., Roxul) and several types of rigid foam board. Cork, straw bales, spray foams, and other materials can also be used. Some clients may have material preferences, such as being foam free. Each of the options have different insulating and moisture-management properties. Consulting with a knowledgeable professional, or Efficiency Vermont, can be helpful when choosing the right continuous insulation material for the job.

Minimum thickness. If insulating on the exterior of the building, a general guideline is that upwards of 50% of the wall's total insulation value should be outside the exterior sheathing layer. This keeps the exterior sheathing above the dew point and is a necessary step to minimize risk from condensation and moisture damage.

Detailing. It's important to get the installation right. Windows, doors, corners, taping/sealing, and other details may require different approaches than what a crew is used to. Your Energy Consultant can provide more information on air-sealing techniques.

It's clear how continuous insulation can make a difference in mitigating heat loss.