

Wall Insulation

Properly sealed, moisture protected and insulated walls will increase comfort, reduce noise, and save on energy costs. Walls are the most complex component of the building envelope to air seal, control moisture, and insulate effectively. The keys to an effective wall are:

- 1) Airtight Construction - Seal all air leaks in the wall during construction prior to insulation installation.
- 2) Moisture Control - Install an exterior rain protection system, continuous air infiltration barrier, and vapor barrier.
- 3) Appropriate Installed Insulation - Maximize insulation R-value in the wall void between the studs, fill all gaps and do not compress insulation, and install continuous insulated sheathing on walls outside the studs. A minimum recommended R-value for the total wall system in the Midwest is R-18. This level of insulation can easily be attained in a 2"x4" wood framed wall with R-15 between the studs and R-3 rigid foam board for outside sheathing.

There are many types of insulation that can be used in an effective wall insulation system. The following discussion will discuss the various characteristics of each type to explain their advantages and/or disadvantages.

Fiberglass Batts: The insulation is friction fit between the studs in the wall. A 2"x4" wall can hold up to R-15 batts and a 2"x6" wall can hold up to R-21 batts. Generally batt insulation is the least expensive but requires very careful installation to be effective.

Cellulose (Loose Fill): The insulation is installed in walls using a dry-pack process or a moist spray technique. It generally is more expensive than fiberglass batt insulation, but it offers reduced air leakage through the wall cavity plus improved sound deadening.

Fiberglass/Rock Wool (Loose Fill): The insulation is similar in R-value and characteristics as loose fill fiberglass. The insulation is blown into the wall cavities and held in place with a netting.

Rigid Foam Board Insulation: This insulation has a higher R-value per inch (R-5 per inch) than fiberglass and cellulose and is effective in stopping air leaks but is considerably more expensive. It is manufactured in sheets and varying thickness. It is often used as outside wall sheathing.

Spray In Place Foam: This insulation provides insulation R-values comparable to Rigid Foam Board. It is sprayed into the wall cavity and makes a very tight seal against air and moisture infiltration. The application of the product is very difficult and requires a skilled applicator to insure uniform thickness and complete void filling.

If you would like additional energy savings tips, please see our energy efficiency section at www.vectren.com or contact us by e-mail at marketinginfo@vectren.com.