

KNEE WALL INSULATION

Kentucky Home Performance BEST PRACTICE*

Kentucky Home Performance (KHP) Incentives

KHP offers incentives of 20 percent of the total installation cost for a maximum rebate of \$2,000 per home for all eligible improvements.

- or -

A low-interest rate loan at 6.99 percent is also available for eligible improvements.

Other Incentives

State and federal tax credits may apply.

Some additional local utility and manufacturer rebates may be available in your area.



A knee wall is essentially a vertical wall with attic space directly behind it. Builders frequently use knee walls to create low-cost living space in the attic, increasing the homes living space without increasing the size the house. Knee walls are often found in houses with finished attics and dormer windows, such as in one and a half story designs.

Why is knee wall insulation important?

Typically, the largest temperature difference between two areas in a home is where the conditioned space and attic meet, such as knee walls. The larger the temperature difference, the faster the rate at which heat is transferred to the cooler side of the wall. Particular attention should be given to the insulation R-Value and installation techniques when working with knee walls to decrease heat transfer and increase the efficiency of knee wall insulation.

How much insulation should I add?

Insulation levels are specified by R-Values that measure the insulation's ability to resist heat flow. The higher the R-Value, the better the thermal performance of the insulation. Knee walls in Kentucky should be insulated to R-18 minimum.

Why is air sealing important in knee walls?

Knee walls typically have penetrations for electrical outlets and sometimes small doors for attic access. Typical air movement through a house provides opportunities for these penetrations in knee walls to leak warm air either into or out of the building unless the penetrations are properly air sealed. Insulation works best when air is not moving through or around it. It is very important to enclose knee wall insulation in an air barrier to maximize the insulation's effective R-Value.

KHP Minimum Requirements

• Air Sealing:

attic plane

crawl space

basement

house-to-garage connections

rim joist

• Duct Sealing:

Holes and disconnects

High pressure areas

Supply take-offs

Joints, seams and boots

• Ceiling Insulated R-19; if not R-19 at test-in, must improve to R-38

• Attic access and Rim/Band Joists are R-10. Hatches must be air-sealed.

• Floor insulated to R-11; if not R-11 at test-in, must improve to R-19

• Working CO monitor

• BPI Health and Combustion Safety Requirements

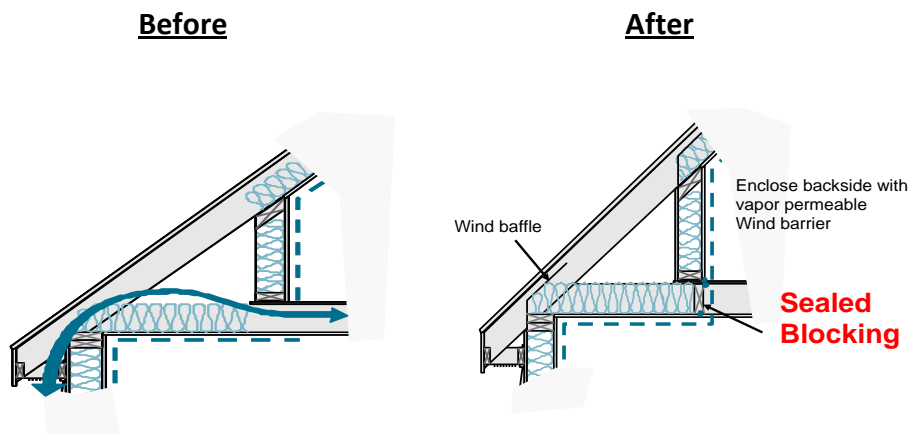
Installation Standards for Knee Wall Insulation

- Install batts in direct continuous contact with the studs and adjoining batts so there are no visible voids in the thermal boundary.
- Provide at least 1 inch of air space between insulation and roof sheathing for ventilation.
- Install insulation with vapor barrier on the “winter warm side” to avoid trapping moisture in the insulation.

Air Sealing Standards Specific to Knee Wall Insulation

- Seal all gaps and penetrations in the knee wall. Gaps larger than ¼ inch should be sealed with expanding foam. Gaps smaller than ¼ inch may be sealed with caulk.
- Seal framing for knee wall access doors with caulk or expanding foam.
- Install weather-stripping to seal all visible gaps around knee wall access doors.
- Install rigid board, house wrap, or other acceptable air barrier on the attic-side to support knee wall insulation and prevent wind washing.
- Tape or foam all seams of the knee wall air barrier.
- Caulk or foam top, bottom, and sides where the knee wall air barrier is attached to framing components.
- Caulk top and bottom plates.
- Draft block joist cavities at floor transition below knee walls with rigid air barrier (see images below).

Draft Blocking



*Activity not subject to minimum requirements but is a best practice for KY Home Performance.

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www.KYHomePerformance.org
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