DUCT SEALING

Kentucky Home Performance MINIMUM REQUIREMENT

Your duct system is responsible for efficiently distributing conditioned air throughout your home. Potential savings from a high efficiency HVAC unit can be negated if conditioned air is leaking into your attic and crawl space through gaps in your ductwork. ENERGY STAR estimates that the typical home loses 20-40 percent of the air that moves through the ductwork. Proper duct sealing is an important step in optimizing the performance of your HVAC

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 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.

Why is duct sealing important?

Heating and cooling account for approximately 50 percent of your home's energy usage. Sealing your leaky air ducts may be the single most important thing you can do to improve your home's energy performance.

What does duct sealing improve?

1) Lowers summer and winter utility bills
2) Makes rooms more comfortable
3) Improves the quality of indoor air
4) Increases the life span of HVAC units
5) Reduces noise from the HVAC system
6) Reduces excessive dust

How do you seal your ductwork?

Sealing your duct work does not require a lot of material, just time and special attention. The most important thing to remember when duct sealing is, "don't use duct tape." The adhesives in duct tape are not designed to withstand typical temperature and moisture variations around ductwork. Duct mastic or mastic tape is designed for HVAC applications and is the preferred method for a long lasting seal. Duct mastic is applied directly to the internal duct not on the outside duct insulation.

How much money could I save?

Studies have shown that a 30 percent reduction in duct leakage, on average, will reduce your annual energy consumption by as much as 16 percent.

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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**

Duct Sealing Standards

HVAC air distribution will be most efficient when duct leakage to outside (LTO) is minimized to less than 10 percent of rated fan flow. KHP requires the following areas to be air sealed when that performance standard is not met at test-in (in order of priority):

- Seal the air handler seams and holes.
- Supply plenum.
- Entire return duct system.
- Supply trunk seams and joints.
- Supply take-offs.
- Supply branches.
- Register boots.
- Insulate ducts as thoroughly as possible.

Proper duct sealing requires use of the following materials and procedures:

- Verify that the duct system is correctly sized prior to sealing.
- Use UL 181 certified mastic or mastic tape.
- Mastic should be applied directly on the duct (not insulation).
- Ensure that the mastic is installed on a clean and dry surface.
- Gaps larger than ¼" should be sealed with fiberglass mesh tape embedded in mastic.
- Re-apply and tape duct insulation if it was removed to access the duct for sealing.
- Don't turn air handler back on until mastic has had time to cure.

Duct leakage can often be identified visually and rough improvements can be made on that basis. To meet the KHP standard of 10 percent LTO, however, it is important to follow these steps:

- Use a standard of 400 CFM/ton for A/C and heat pump systems to determine air flow or consult KHP air flow reference for forced-air gas furnaces.
- Use a Duct Blaster or pressure pan to measure leakage rate prior to duct sealing.
- Divide Duct Blaster CFM by the system CFM to obtain leakage percentage or enter pressure pan readings into KHP leakage formula.
- Consult KHP duct sizing guide to confirm that ducts are appropriately sized.
- Seal ducts per standards outlined above and retest for verification.

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