

Home Performance Assessment



Presented by
Metropolitan Energy Center

Common Problems

High Energy Bills

High utility bills in summer and winter can often be traced to air leaks in your home's envelope, inefficient windows or inefficient or incorrectly installed heating and cooling equipment, or poorly sealed and insulated ducts.

Mold, Mildew or Musty Odors

Water leaks or high humidity can lead to mold and mildew. This can cause wood rot, structural damage, peeling paint, and a variety of health problems. Often, high humidity in homes with central air conditioners can be traced to improperly sized or installed air conditioners.

Damp Basement

A damp basement is commonly caused by moisture migrating through the foundation. As this moisture evaporates, it increases indoor humidity and can promote the growth of mold — resulting in an uncomfortable house.

Cold Floors in Winter

Some types of floor coverings (such as wood, stone, tile, or concrete) will naturally feel cold on bare feet. However, insufficient insulation or air infiltration can also cause cold floors.

Drafty Rooms

Cold air coming into or going out of your house, especially through leaks hidden in the attic and basement, can cause rooms to feel drafty and uncomfortable.

Common Problems

Dust

Increased dust could be a sign that it is time to change your air filter or that your ductwork is not well sealed. to escape and draw in drier colder air.

Moisture on Windows

Inefficient windows or high indoor moisture levels from air leaks can result in condensation, frost, or pools of water on windows and sills.

Ice Dams

Warm air inside your home leaks into the attic and will warm the underside of the roof causing snow and ice to melt and refreeze as it runs off your roof — forming icicles and ice dams.

Peeling Paint

Peeling or cracking paint on your home's exterior may be a sign of a humidity problem or improper paint application.

Hot or Cold Rooms

Significant differences in temperature from one room to another could be caused by several factors, including inadequate insulation, air leakage, poor duct performance, and improperly installed heating, ventilation, and air conditioning (HVAC) system.

Dry Indoor Air in Winter

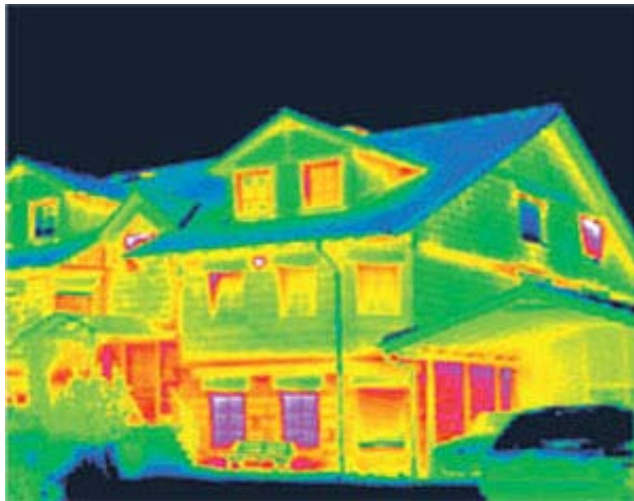
Air leaks in your home allow warm humid air to escape and draw in drier colder air.

**DOES ANY OF
THIS SOUND
FAMILIAR
IN YOUR HOME?**

What to expect when a Certified Home Performance Auditor comes to your home

- Expect the Auditor to be at your residence for a minimum of 3 hours.
- The Auditor will analyze every area of your home. This includes all conditioned living spaces, attic, crawl spaces, basement and closets.
- Testing of your combustion systems (CAZ).
- Complete diagnostics of your home. (Blower door, duct blaster, infrared camera)
- You will receive a complete report which prioritizes recommendations and improvements to save energy and money. (Scope of Work Report) (example to follow)
- A post audit will be performed after energy improvements have been made.

Getting Professional Help



Example of "Scope of Work Report"

Scope of Work

The recommended actions are based on ACCA Manual J Heat Load, Heat Gain Calculations . The infiltration rate was determined by the use of a calibrated Retrotec Q46 Series Blower and DM2A Digital Manometer. During the Building Analysis, the homeowner was also queried to determine the priority of Energy Saving Improvements based upon lifestyle, utilization, comfort and energy conservation. The Highest priorities are given to improvements regarding health and safety of the occupants as well as improvements that solve major problems with the Building Envelope such as mold, moisture, infiltration and low R-Values.

- 1) Insulate attic to R-49 or better
- 2) Insulate knee walls - 148 sq ft
- 3) finish seal on down stairs windows
- 4) Seal the top of the returns
- 5) Seal off the furnace room from the garage
- 6) Caulk around over-hangs on outside of house



Attic is under insulated with cellulose and debris, insulation should be removed so a complete air-seal can be achieved at the upper-plane and re-insulated with 16 inches of cellulose to achieve an R-value of R-49.



Picture showing poor insulation R-value and debris.



Penetrations for plumbing and venting need to be sealed.



Vent is partially clogged with a bird nest and should be cleaned.



Hard to see, but frost was found on roof sheeting.



Attic access needs to be sealed and insulated.

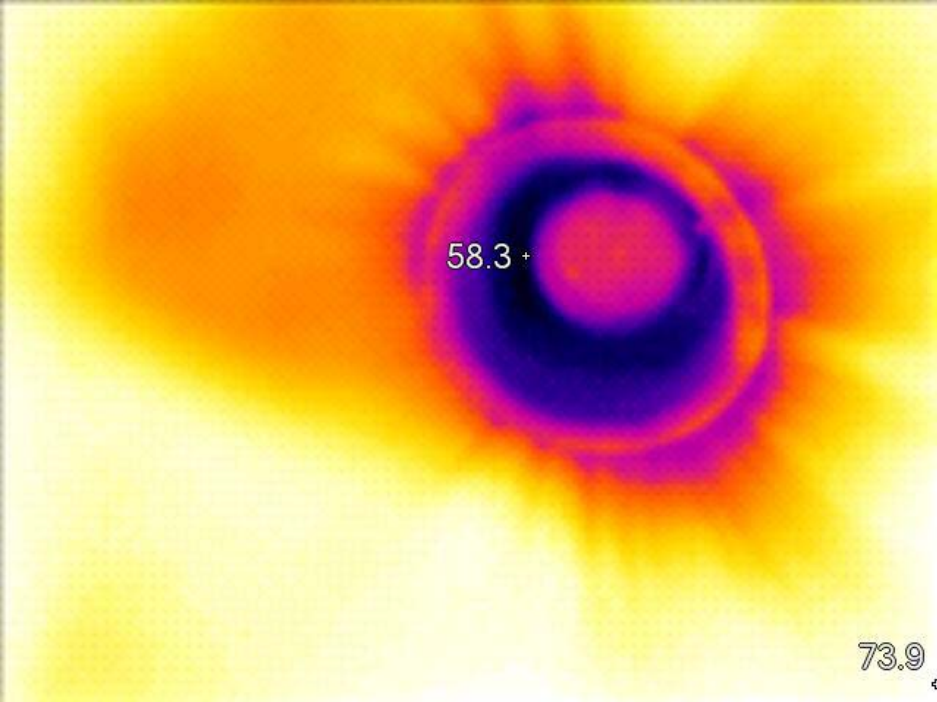


Rim joists need to be sealed and insulated with 2-part expansion foam.



Same as above.





Loose House Leakage Test Report #1

Report Prepared For: SCHWARTZ,
Prepared By: VON KOPFMAN, Blue Dot Services of Kansas, Topeka, KS
Date Of Test: November 17, 2009

Living Area: 2,800 square feet on 1 Story; 4 Bedrooms; 8 ft Avg. Ceiling Height
Wind Shielding: Normal suburban (Wind Shielding Factor: 1)
Climate: Kansas City AP (LBL Climate Zone: 2)

Temperatures: Inside = 49°F, Outside = 70°F, Depressurize from inside
Test Data: 25 pa House Pressure, 180 pa Flow Pressure on Ring A, 3,621 CFM

Leakage Areas and Sealing Potential

Calculated Optimum Leakage Area: 1.85 square feet, 266.1 square inches
Measured Leakage Area: 4.67 square feet, 672.8 square inches
Total Leakage Area is equal to a crack half an inch high by 112 feet long.
406 square inches can be sealed before reaching the Optimum Leakage Area.

Air Exchange Rates: Annual Average, Manual J and Mechanical

Estimated Annual Average Air Change Rate: 19.74 per day, 0.82 per hour

Estimated Manual J Air Change Rate: Winter = 1.03 per hour or 384 CFM
(C = 447 N = 0.650) Summer = 0.62 per hour or 230 CFM

Constant Mechanical Whole Building Ventilation Rate Specified By ASHRAE 62P: 66 cfm
(assumes 56 cfm is also provided by building leakage)

Tight House Leakage Test Report #0

Report Prepared For: SCHWARTZ,
Prepared By: VON KOPFMAN, Blue Dot Services of Kansas, Topeka, KS
Date Of Test: February 19, 2010
Living Area: 2,800 square feet on 1 Story; 4 Bedrooms; 8 ft Avg. Ceiling Height
Wind Shielding: Normal suburban (Wind Shielding Factor: 1)
Climate: Kansas City AP (LBL Climate Zone: 2)
Temperatures: Inside = 70°F, Outside = 35°F, Depressurize from inside
Test Data: 25 pa House Pressure, 35 pa Flow

Leakage Areas and Sealing Potential

Calculated Optimum Leakage Area:

Measured Leakage Area:

Total Leakage Area is equal to a crack half an inch high by 48 feet long.

19 square inches can be sealed before reaching the Optimum Leakage Area.

**3 months ago:
Estimated Annual Average Air
Exchange Rate
19.74 per day, 0.82 per hour!**

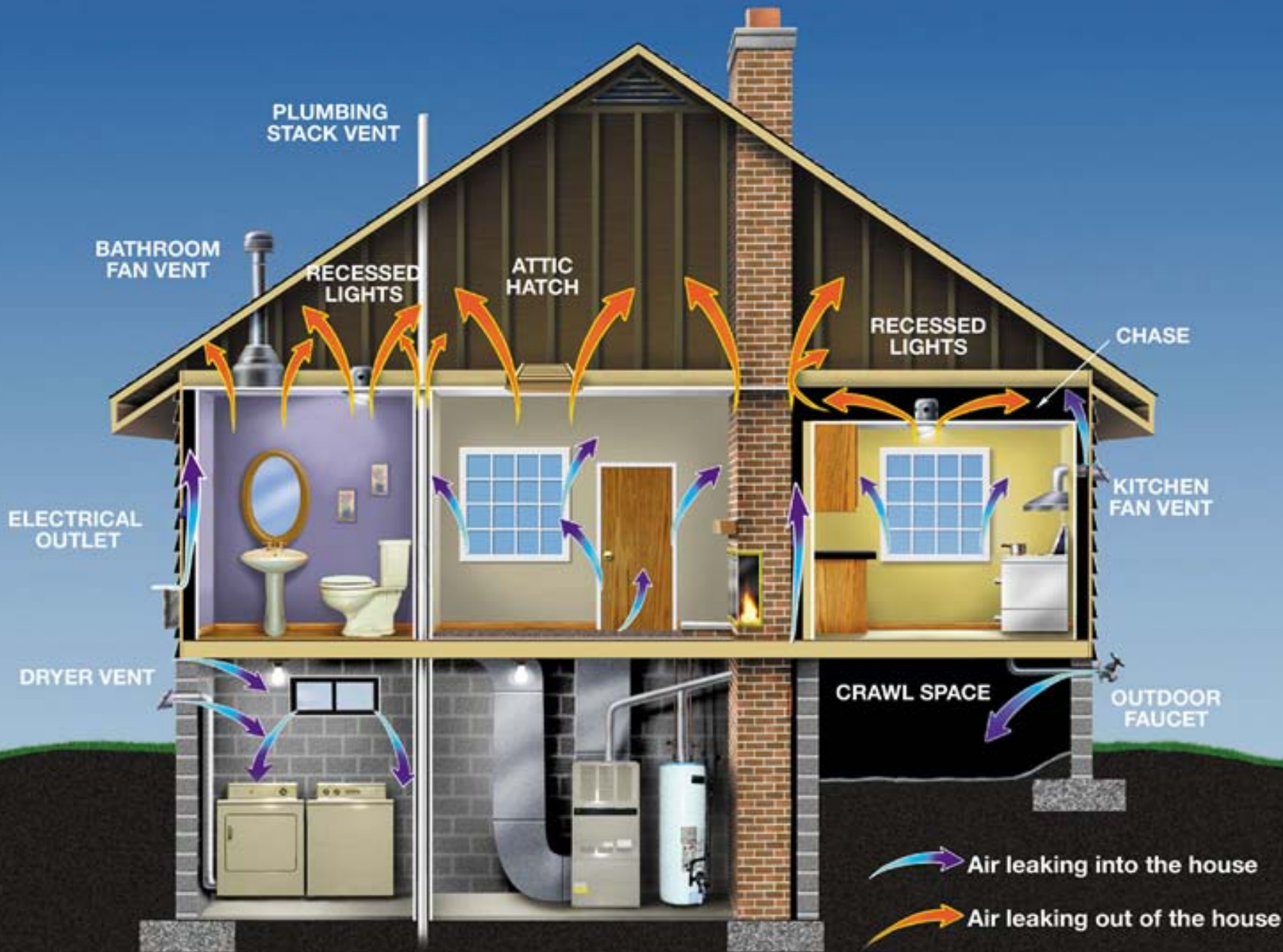
Air Exchange Rates: Annual Average, Manual J and Mechanical

Estimated Annual Average Air Change Rate: 8.38 per day, 0.35 per hour

Estimated Manual J Air Change Rate:
(C = 190 N = 0.650)

Winter = 0.44 per hour or 163 CFM
Summer = 0.26 per hour or 98 CFM

Constant Mechanical Whole Building Ventilation Rate Specified By ASHRAE 62P: 66 cfm
(assumes 56 cfm is also provided by building leakage)



What is your next step?

Home Performance with ENERGY STAR® Program

Missouri Home Performance with ENERGY STAR Application

The Home Performance with ENERGY STAR® program offers a comprehensive approach to home improvement, remodeling, and renovation that will make your home more efficient and reduce energy costs, while improving indoor air quality and creating a more comfortable, healthier home. At the same time, you'll help to protect the environment through energy conservation. This is achieved by conducting a comprehensive home assessment and implementing at least one qualifying improvement.

*This rebate is for KCPL/MGE customers in the state of Missouri. The first step to obtain a rebate is to have a Home Energy Assessment performed by a Certified Energy Auditor.

For Additional Information:

KCPL/MGE Rebate Program

www.hpwes.net

Energy Star®

www.energystar.gov

Weatherization website to assist
low income home owners

[http://apps1.eeere.energy.gov/
weatherization/improving.cfm](http://apps1.eeere.energy.gov/weatherization/improving.cfm)

State by state website to obtain
all rebate information

www.dsireusa.org

Metropolitan Energy Center

www.kcenergy.org

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