

Energy Saver 101: Home Energy Audits

Take the first step to improving your home's energy efficiency: get a home energy audit.

What is a home energy audit?

A home energy audit helps you pinpoint where your house is losing energy and **what you can do to save money**. A home energy auditor will also assess health and safety issues that might exist in your home.

The audit involves two parts: the **home assessment** and **analysis** using computer software.

{ DID YOU KNOW? }

30%

You could **save 5 to 30 percent** on your energy bill by making efficiency upgrades identified in your home energy audit.

The Auditor's Toolbox

Below are some of the tools energy auditors use to inspect a home's energy use.

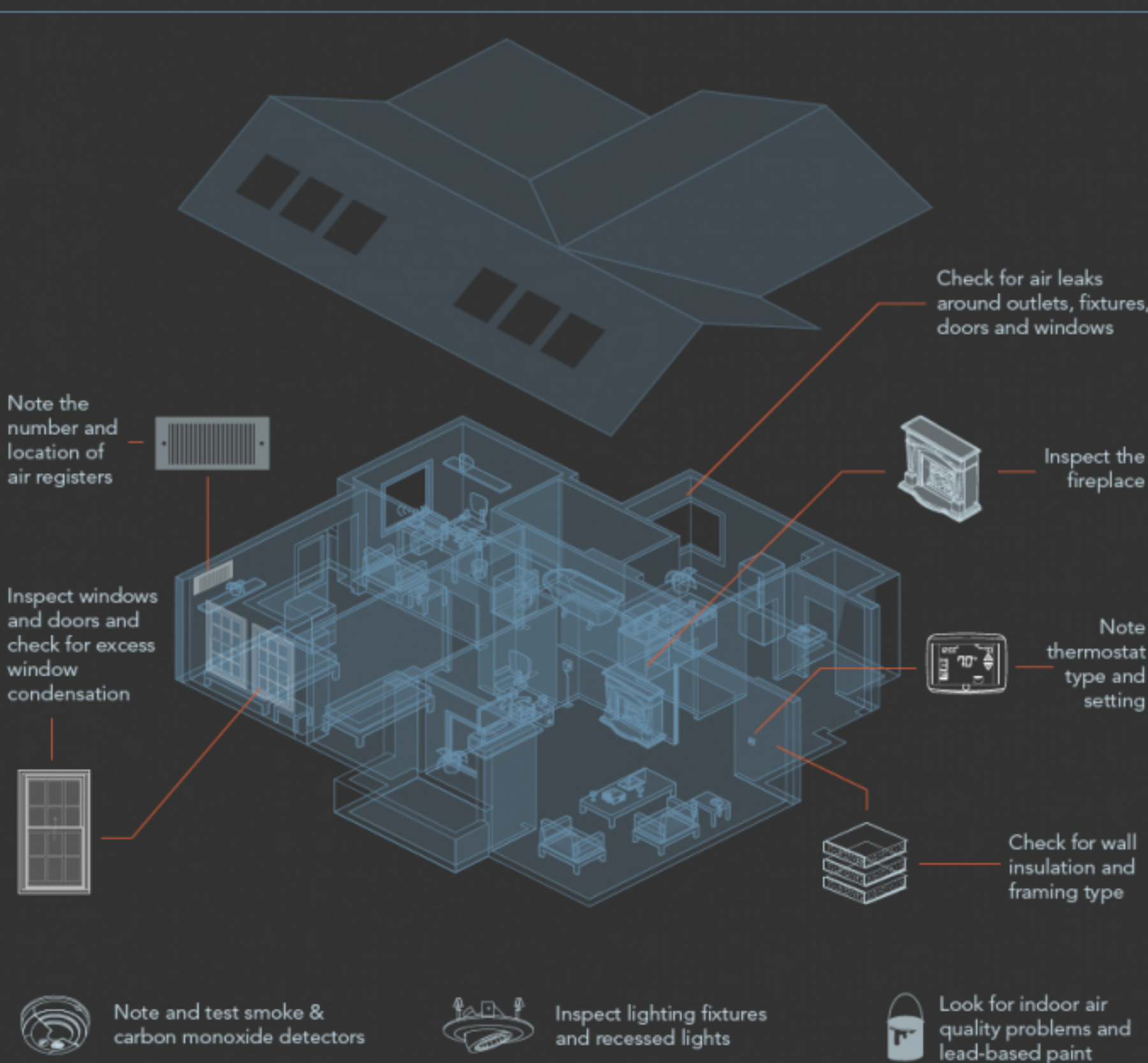
- Telescoping ladder**
To reach into an attic or up high
- Infrared camera**
To help determine air leakage and insulation
- Soap bubbles**
Used to confirm fuel leaks in combustion appliances
- Screwdrivers, pliers and adjustable wrench**
To remove outlet plates and inspect appliances
- Combustion analyzer**
Tool designed to sample flue gases in vented combustion appliances and measure flue gas temperature, leaks and carbon monoxide
- Digital probe thermometer**
For testing temperature rise in heating equipment and fan operating temperatures
- 25-foot tape measure**
For making a footprint sketch of the house
- Blower door**
A large fan that depressurizes the home by sucking air out. This test simulates the effect of a 20-mile-per-hour wind to allow the auditor to find air leaks
- Inspection Mirror**
To see into constricted spaces
- Flashlight and batteries**
To help see behind appliances
- Manometer**
A gauge that measures the differences in pressure in a home to pinpoint air leakage and test exhaust devices for proper operation
- Draft gauge**
To test for chimney drafts
- Digital camera**
To help see into hard-to-reach places and document elements of the house
- Smoke generating device**
Produces a thin stream of smoke or non-toxic fog to help find air leakage and duct leakage
- Moisture meter**
Measures moisture level in wood and other materials
- Pen and paper**
For taking notes
- Watt meter**
Measures the electrical energy used by various devices throughout the home

The Home Energy Audit Checklist

Certified home energy auditors should go through the following steps in a home energy audit.

- Analyze past year's fuel bills to determine base energy consumption
- Interview the homeowner to learn about problems and how the home operates
- Explain the audit process
- Conduct exterior inspection
- Health and safety inspection
- Interior visual inspection
- Assess electrical system for safety concerns
- Combustion appliance inspection
- Blower door test
- Analyze findings & create a comprehensive home energy report

Home Energy Audit: What to Look For



Attic

- Inspect insulation
- Check for major air leakage issues in places like chimney bypasses, recessed lighting and HVAC ducts
- Inspect wiring for safety issues
- Note any signs of water leakage



Basement & Utility Room

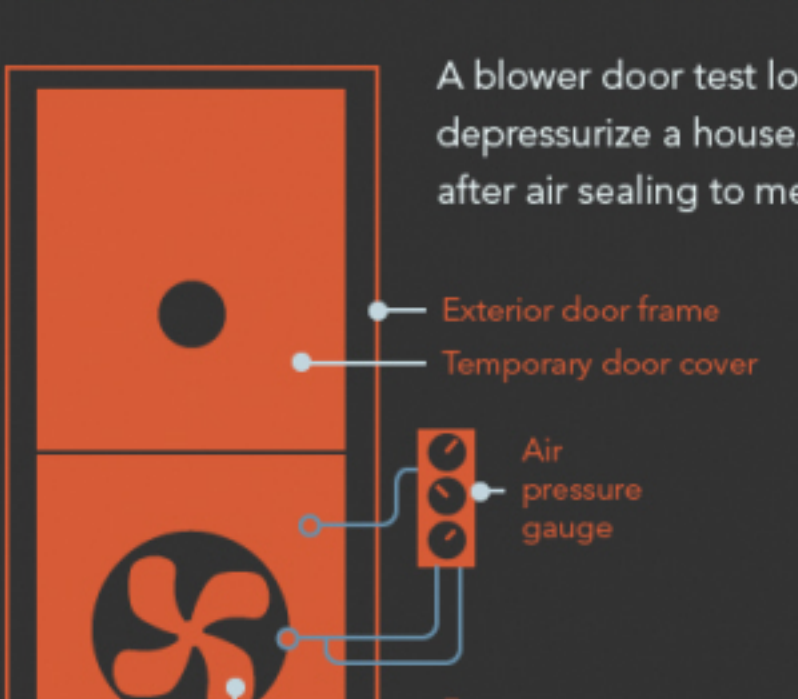
- Furnace: Test for fuel leaks, change the furnace filter, clean the furnace blower
- Water heater: Note thermostat setting and insulation on tank and piping; test draft hood
- Perform Combustion Appliance Zone Testing on all combustible fuel fired appliances
- Inspect duct system and dryer venting



Kitchen/Bathroom

- Look for electrical or other hazards
- Assess electrical appliance energy use with a watt meter or manufacturer nameplate
- Check for moisture and excess water vapor
- Assess vent fans for flow rate

What is the Blower Door Test?



A blower door test locates air leaks by using a special fan to depressurize a house. Blower tests are conducted before and after air sealing to measure the effectiveness of the work.

{ DID YOU KNOW? }

The average home has enough air leakage to add up to a two-foot-square hole. That's like leaving a medium-sized window wide open **24 hours a day**.



MYTHBUSTING Infrared Imaging



Infrared cannot see through objects or air. It can only see temperatures with cold objects appearing darker and warm objects appearing lighter.

Infrared doesn't see color. The color generated to make the difference in temperature easier to see to the untrained eye.

Infrared imaging should not be the only tool an energy auditor uses. When used during a blower door test, infrared is a powerful tool for determining air leaks.