

## GREAT LAKES ENERGY SERVICE



Phone: 517.669.5389  
[www.greatlakesenergyservice.org](http://www.greatlakesenergyservice.org)

## Home Energy Audits

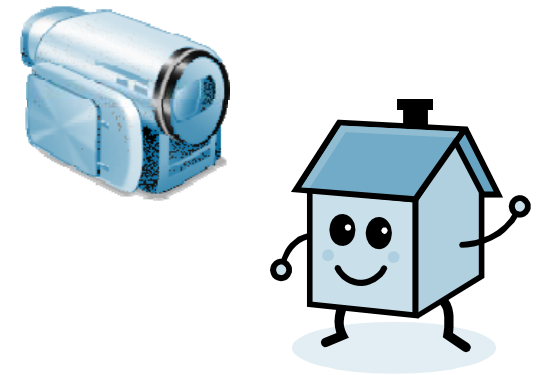
A home energy audit is the first step to assess how much energy your home consumes, and to evaluate what measures you can take to make your home more energy efficient. An audit will show you problems that may, when corrected, save you significant amounts of money over time. During the audit, you can pinpoint where your house is losing energy. Audits also determine the efficiency of your home's heating and cooling systems. An audit may also show you ways to conserve hot water and electricity. You can perform a simple energy audit yourself, or have a professional energy auditor carry out a more thorough audit.

A professional auditor uses a variety of techniques and equipment to determine the energy efficiency of a structure. Thorough audits often use equipment such as blower doors, which measure the extent of leaks in the building envelope, and infrared cameras, which reveal hard-to-detect areas of air infiltration and missing insulation.

## GREAT LAKES ENERGY SERVICE

*Common Sense Energy Plans*

## Thermographic Inspections



Professional energy auditors may use thermography—or infrared scanning—to detect thermal defects and air leakage in building envelopes.

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# Thermographic Inspection and Home Energy Audit

## *How They Work*

Thermography measures surface temperatures by using infrared video and still cameras. These tools see light that is in the heat spectrum. Images on the video or film record the temperature variations of the building's skin, ranging from white for warm regions to black for cooler areas. The resulting images help the auditor determine whether insulation is needed. They also serve as a quality control tool, to ensure that insulation has been installed correctly.

A thermographic inspection is either an interior or exterior survey. The energy auditor decides which method would give the best results under certain weather conditions. Interior scans are more common, because warm air escaping from a building does not always move through the walls in a straight line. Heat loss detected in one area of the outside wall might originate at some other location on the inside of the wall. Also, it is harder to detect temperature differences on the outside surface of the building during windy weather. Because of this difficulty, interior surveys are generally more accurate because

they benefit from reduced air movement.

Thermographic scans are also commonly used with a blower door test running. The blower door helps exaggerate air leaking through defects in the building shell. Such air leaks appear as black streaks in the infrared camera's viewfinder.

Thermography uses specially designed infrared video or still cameras to make images (called thermograms) that show surface heat variations. This technology has a number of applications. Thermograms of electrical systems can detect abnormally hot electrical connections or components. Thermograms of mechanical systems can detect the heat created by excessive friction. Energy auditors use thermography as a tool to help detect heat losses and air leakage in building envelopes.

Infrared scanning allows energy auditors to check the effectiveness of insulation in a building's construction. The resulting thermograms help auditors determine whether a building needs insulation and where in the building it should go. Because wet insulation conducts heat faster than dry

insulation, thermographic scans of roofs can often detect roof leaks.

## *Preparing for a Thermographic Inspection*

To prepare for an interior thermal scan, the homeowner should take steps to ensure an accurate result. This may include moving furniture away from exterior walls and removing drapes. The most accurate thermographic images usually occur when there is a large temperature difference (at least 20°F [14°C]) between inside and outside air temperatures. In northern states, thermographic scans are generally done in the winter. In southern states, however, scans are usually conducted during warm weather with the air conditioner on.

### **GREAT LAKES ENERGY SERVICE**

Call to schedule your appointment today!  
Thermographic scan and certified energy audit  
start at \$200.00

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