Home Energy Self-Audits
Helpful Hints and Tips

Making your home more energy efficient is a great way to help lower your monthly utility bills, while also creating a more comfortable and healthy living environment. Deciding what upgrades you need to tackle can be tricky unless you know what to look for and how to correct any issues you may have. Use the HAT Smart Self-Audit Toolkit and Infrared Thermography Camera to conduct your own home energy audit. By understanding your electricity usage and associated costs, you will be in a better position to implement cost-saving actions.

Note: Hiring a professional to complete a full assessment of your home is the best way to find out where there are issues. It is recommended that a trained professional is consulted before proceeding with alterations to a building or its components.

1. Make a List

When walking through your home, create a list. It will help you keep track of inspected areas and identified concerns. A list will also help you prioritize your energy efficiency upgrades. Remember – never assume that there are no opportunities for savings because your home was recently built, or even new.

2. Find and Fix Air Leaks

The potential energy savings from reducing drafts in a home may range from 10% to 20% per year, and the home is generally much more comfortable afterward.

- Identify the obvious air leaks, or drafts, around doors and windows in your home.
- Use the Infrared Thermography Camera or Infrared Thermometer to look for cold and hot spots in your home. These tools are helpful in locating air leaks.
- Look for any missing or cracked caulking or weather stripping, broken latches, a missing door sweep, or cracked window panes.
- Look for gaps along baseboards or edges of the flooring and at junctures of the walls and ceiling.
- Check lighting and plumbing fixtures, electrical outlets, and open fireplace dampers. Recessed lights are notorious for leakage.
- Inspect ductwork, especially near seams. Look for dirt streaks – these often indicate leaks.
- Check your home's exterior, especially in areas where two different building materials meet. Look for cracks or holes in the mortar, foundation, and siding.

Once you've identified air leaks, seal them with the appropriate material. Remember – sealing alone does not eliminate the need for proper insulation.

Note: Be aware of indoor air quality when sealing leaks. Combustion appliances and exhaust fans often compete for air. In homes where a fuel is burned for heat (i.e. natural gas, fuel oil, propane, or wood), ensure appliances have an adequate air supply and proper ventilation. Additionally, be sure to use a non-combustible sealant around heat producing devices.

3. Check Insulation

Heat loss through the ceiling and walls in your home can be significant if your home has inadequate insulation. If you can access your attic, go up and take a look. If you can see the top of the joists, you do not have enough insulation. Check that openings for pipes, ductwork, and chimneys are sealed as well. Ensure that your attic's vents are not blocked by insulation.

Moisture passing through the ceiling can reduce the effectiveness of insulation and result in structural damage. While inspecting the attic, check if there is a vapour barrier under the insulation. The vapour barrier might be tarpaper, kraft paper attached to fiberglass batts, or a plastic sheet. If it appears to be missing, or the barrier is in poor condition, consider painting the interior ceilings with vapour barrier paint.

Note: It's best to always wear a respirator mask, eye protection and gloves when entering an attic. Do not disturb vermiculite insulation, it contains asbestos and should be removed by a professional.

Identifying gaps in the insulation behind your walls can be tricky. Fortunately, the Infrared Thermography Camera and Infrared Thermometer are both good tools to look for problem areas, both in your attic and hidden areas behind walls and floors. If there are drastic changes in the temperature readings across surface areas, there is most likely an issue with your insulation.

If your basement or crawlspace is unconditioned and open to the exterior, check for insulation under the living area flooring. If the sub-space is enclosed and contains heating or cooling appliances, air ducts, or plumbing, the perimeter should be insulated rather than the floor. Additionally, your water heater, hot water pipes, and furnace ducts should all be insulated.

4. Inspect Heating and Cooling Systems

Make sure that you are inspecting your heating and cooling equipment annually, or as recommended by the manufacturer. If you have a forced-air furnace, check your filters and replace them as required. These should be changed or cleaned once every few months, especially during periods of high use. Contact a professional to check and clean equipment once a year. Ensure that all registers and air intake vents are clean and free of anything that may block airflow.

Consider replacing the unit if it is over 15 years old. A new, efficient unit will greatly reduce consumption, especially if the existing equipment is in poor condition.

5. Learn More About Your Devices

The appliances and electronics you choose and how you use them affect your energy consumption and costs. Use the Watt Meter to examine the individual appliances and electronics in your home to determine their energy use in order to better understand consumption patterns. Try using the Power Cost Monitor to monitor real-time consumption throughout your home.

Additionally, look for phantom energy usage by monitoring electrical consumption when electronics and appliances are turned off. Phantom energy can account for about 10 percent of your home's overall electricity use. Consider strategies for reducing the energy used by these devices.

6. Look at the Lights

Lighting can account for up to 10% of your electric bill. Examine light bulbs in your house and consider replacing inefficient incandescent bulbs with a more efficient choice, such as compact fluorescent lamps (CFLs) or light-emitting diodes (LEDs). Look for opportunities to incorporate controls such as sensors, dimmers, or timers to reduce lighting use.

7. Make a Plan

After you know where and how your home may be losing energy, make an action plan by asking yourself a few simple questions:

- How much money do you spend on energy?
- Where are your greatest energy losses?
- What is your budget?
- How long will it take for an investment in energy efficiency to pay for itself in energy cost savings?
- Can you do the job yourself or do you need a contractor?
- How much time do you have for maintenance and repairs?
- Do the energy-saving measures provide additional benefits that are important to you? (i.e. increased comfort level from installing efficient windows)
- How long do you plan to own your home?

Once you have completed your do-it-yourself audit, consider getting a more thorough assessment from a professional. Your self-assessment can help the auditor better analyze your home for potential savings.

8. Conserve Energy!

Visit the Learning Centre at www.hatsmart.ca to find out more ways you can save energy in your home. Let's get HAT Smart!