Home Efficiency: Moving from Audit to Action

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Objectives:

• Understand the important aspects of a comprehensive energy audit

• Learn how to prioritize recommendations keeping the “House as a System” in mind

• Learn some key tips in hiring a qualified contractor
What is involved in a comprehensive energy audit?

HOME ENERGY AUDIT

- Blower Door Test
- Infrared Camera Scan
- Furnace Safety Test
How do I get a Home Energy Audit?

HOME ENERGY AUDIT

- Local Gas and/or Electric Utility
- MN Building Performance Association
- Community Action Agencies—Low Income Weatherization
- Private Consultants
How does air move in and out of a typical older home?
What can I learn from a Blower Door Test?

How much air escapes from the building and where it escapes.
Tricky air leakage areas

1 ½ story houses, dropped soffits, recessed lights, and split level attics all need special attention when air sealing.
What could happen if we insulate without air sealing?

- R-value becomes compromised as air passes through insulation.
- Increased risk of condensation in attic
Air sealing and insulating are vital to ice-dam prevention.

Ice dams are primarily caused by heat loss from the house through air leakage pathways and insufficient insulation.
Blower Door Guided Air Sealing.

Using the Blower Door as a tool can help pinpoint gaps and cracks to stop air from escaping.
Attic Insulation

How much insulation currently exists? Add insulation to achieve recommended R-Value in the attic.
Rim Joists and Wall Insulation

Is there room to add more wall insulation? Are the rim joists and band joists properly insulated and accessible?
After making my home tighter, does the house “breathe”? It is important that the occupants have enough fresh air to breathe. Ventilation strategies address this as well as moisture build-up issues.
Heating Systems Safety Check and Combustion Analysis

Furnace Efficiency and Upgrade Opportunities

- 60% efficient
- 80% efficient
- 95% efficient
After making my home tighter, can the mechanical systems still function?

Natural draft combustion appliances often cannot draft gases up the chimney after air sealing and ventilation strategies are installed.
Heating Systems Safety Check and Combustion Analysis

Water Heater Efficiency and Safety Upgrade Opportunities

~ .55 Energy Factor  ~ .65 Energy Factor  ~ .95 Energy Factor
Prioritize recommendations:

• Attic work is likely to be the most cost effective and important part of an energy upgrade in older homes
• Air sealing should almost always accompany attic insulation to prevent moisture issues, to reduce ice dam issues, and to save more energy
• Make sure ventilation and combustion safety items are addressed if tightening up the home and/or adding more ventilation
• Wall insulation can be very cost effective, especially if the walls are empty. Some wall insulation techniques can make the home more air sealed, so it is a 2 for 1.
• Old mechanical systems are usually very energy inefficient compared with new models—make sure new system is sized based on other house improvements
Low hanging fruit:

- Weatherstrip doors
- Install hot water saving devices
- Change incandescent bulbs to cfl or led bulbs
- Install programmable thermostat and actually program it
- Insulate water heater tanks and pipes
Let the STAR be your guide when replacing appliances

Look for ENERGY STAR label

- Dishwasher
- Refrigerator
- Clothes washer
- Water heater
- Computers
- Electronics
- CFL and LED bulbs
Tips to hiring a contractor:

- Make sure contractor is qualified to do work by making sure they are insured and have any applicable licenses
- Make sure they come to the house to bid the job
- Show contractor the audit report, so they know what the auditor recommended
- Ask if the contractor uses a blower door and/or an IR camera to find air leaks
- If there are health and safety concerns from the auditor, ask if the contractor knows how to fix/prevent them.
- Ask contractor for customer references
- Get multiple bids and consult auditor to make sure the bid covers your scope of work
- Ask if permits are required and, if so make sure the contractor plans to pull them
- If applying for rebates, make sure the contractor is on any applicable list.
Look into financing and rebate options

There are many financing and utility rebate options for homeowners throughout the state. NEC has a loan department and facilitates Xcel Energy Rebates. Check [www.dsireusa.org](http://www.dsireusa.org) for additional financing and rebate information.
THANK YOU

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