



Your Home  
**Energy Audit Guide**

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**Discover How to Upgrade Efficiency**



We designed this brochure to help you conduct a home energy audit. In the process, you will discover ways to improve your home's energy efficiency.

As you use the checklist and examine each area, make notes as to whether that particular area is

- Efficient
- Needs Improvement

When you have reviewed your entire home and noted the areas that need attention, then you can develop a home improvement schedule that best fits your budget.

We included energy savings tips in this brochure as well. If you are uncertain of your audit's findings or if you need assistance, contact Flint Energies' Member Services Department.

## Attics/Ceilings

### Insulation

Proper insulation significantly reduces your heat loss/gain because uninsulated ceilings have practically no resistance to heat flow. Insulation is measured by its heat flow resistance or R-Value. We recommend R-30 insulation or a minimum of R-19 in attics. To reduce summer heat gain and winter heat loss in your ceiling by approximately 60 percent, increase your attic insulation from R-11 to R-30. If you increase your insulation from R-19 to R-30, you will reduce the attic heat gain/loss by 30 percent. To estimate existing insulation's R-Value, you need the insulation type and thickness. (See Figure 1) NOTE: Make sure that the insulation does not block any eave/soffit vents.

Figure 1  
Approximate Inches Needed

Approx. R/Inch	R-11	R-19	R-22	R-30
<u>Loose Fill</u>				
Fiberglass 2.25	5.0	8.5	10.0	13.5
Mineral Wool 3.12	3.5	6.0	7.0	10.0
Cellulose 3.70	3.0	5.5	6.0	8.5
<u>Batta/Blankets</u>				
Fiberglass 3.14	3.5	6.0	7.0	10.0
Mineral Wool 3.14	3.5	6.0	7.0	10.0

- Efficient
- Needs Improvement

## Ventilation

Attic ventilation prevents winter condensation and reduces summer attic temperatures. Inadequate ventilation diminishes energy conservation and may cause structural damage to your home.

### *Proper attic ventilation tips*

- Make sure there is an adequate net free vent area.
- Intake/exhaust ventilation areas should be nearly equal.
- Place intake vents near lowest/exhaust vents near highest parts of ventilated space.
- Both high and low vent openings should be continuous as possible.

Calculate the needed net free ventilation area (NFA) by dividing the attic square footage (square feet) by 300 (if a vapor barrier exists) or 150 (if no vapor barrier exists). For example, if you estimate your attic to be 1,500 square feet and the insulation does not have a vapor barrier, then you divide 1,500 by 150 which equals 10 square feet of needed net free ventilation area. (See Figure 2)

Ventilate attics with a combination of intake and exhaust vents. This utilizes convection currents, wind and pressure differences. The two ventilation areas should be nearly equal. Therefore, a 1,500 square foot home needs approximately 5 square feet of intake vent and 5 square feet of exhaust vent.

## Miscellaneous

### Indoor Ceiling Access

Properly close and seal access doors. Use weather stripping if necessary. Insulate access doors, if possible.

## Attic/Whole House Fans

Use only on mild, less humid days and evenings.

Efficient

Needs Improvement

Figure 2

Typical Vent Capacities

Type of Vent	Use	Approx. Net Free Vent Area/Unit
Turbine (12")	Exhaust	105 square in.
Gable (25" x 25")	Int./Exh.	200-300 square in.
Ridge	Exhaust	18 sq.in./linear ft.
Roof Louver, Static Mushroom (8.5")	Exhaust	50 sq. in
Soffit (continuous)	Intake	8-14 sq. in./linear ft.
Soffit (unit)	Intake	50 sq. in./unit
Power Ventilator	Exhaust	See Mfg. Spec.

Conversion: square feet (x) 144 = square in.

Efficient

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## Exterior Walls/Walls Joining Unconditioned Areas

### Insulation

We recommend a minimum of R-13 wall insulation. Walls exposed to attic areas need R-19 insulation. Unfortunately, conditioned basement walls are rarely insulated. Insulate above grade masonry walls by installing a 2 inch x 4 inch framework with batts or furring strips and rigid board insulation. NOTE: Retrofitting existing exterior walls may be too expensive due to installation costs.

Efficient

Needs Improvement

## Exposed Floors/Crawl Spaces

### Insulation

Adding R-11 floor insulation reduces floor heat loss 65 to 75 percent. When you install floor insulation, the vapor barrier is installed face up toward the winter warm side of the floor. Floor joists hold insulation well. Place it between floor joists using wire fasteners.

Efficient

Needs Improvement

### Ventilation

Proper crawl space ventilation prevents condensation that can cause structural deterioration. Crawl spaces should have a minimum free ventilation area of 1 square foot per 1,500 square feet of ground area. If you do not have a plastic vapor barrier, then you need 1 square foot per 150 square feet. These spaces should be cross-ventilated as the building configuration permits. Installing a 6-millimeter plastic vapor barrier on the ground will also reduce condensation.

Efficient

Needs Improvement

### Miscellaneous

#### Manufactured Homes

Enclose crawl spaces with skirting to prevent extreme temperatures.

Efficient

Needs Improvement

### Window/Doors

Insulated draperies and blinds greatly control heat loss/gain. On sunny winter days, open shades and draperies on the south, east and west sides to allow sunlight to enter. On winter nights, close all shades and draperies. In summer, close shades and draperies on

the south, east and west sides to block heat from sunlight.

Storm windows added to single pane windows reduce winter heat loss by 40 to 50 percent and reduce summer heat gain by 15 to 25 percent. Storm doors that you add to existing hollow core wood doors will reduce winter/summer heat transfer by 35 to 40 percent.

Efficient

Needs improvement

## Infiltration

### Caulking

Use high-quality caulk on outside areas where windows/doors meet external siding or brick. High-quality caulk creates a longer lasting seal and may eliminate the need for early re-caulking.

Efficient

Needs improvement

### Weather Stripping

Replace worn or missing weather stripping around windows and doors.

Efficient

Needs improvement

### Fireplaces

Fireplaces should have a tight-fitting damper, an outside air source, glass doors, and/or a front screen. Close dampers/doors when the fireplace is not in use. Do not use fireplaces when the central heating system is operating.

Efficient

Needs improvement

## Appliances/Electrical Equipment

### Heating/Cooling System

Set thermostat to 68°F in winter and 78°F in summer. Each degree above/below the suggested setting costs an additional 3 percent for heating and an additional 4 percent for cooling. Do not lower standard heat pump thermostats on cold nights. You offset energy savings when you turn the heat up excessively later. Specially designed heat pump thermostats with setback features are available for most heat pumps.

Clean or replace air conditioner filters monthly. Insulate your duct systems with a minimum of 2 inch insulation. Seal leaks using UL- 181 foil tape or mastic paste. Check for air leaks around joints, connections, etc. Have air conditioners/heat pumps serviced periodically by a qualified person to ensure proper operation.

- Efficient
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## Water Heaters/Water Use

Ensure there are no leaks in the water heater tank or pipes. We recommend setting the thermostat to 120°F. (Always use extreme caution when adjusting temperature settings. Prior to making any adjustments, turn off power to the water heater.)

Electric water heaters usually have two heating elements. Make sure both are working.

Install an insulation blanket on the water heater to reduce tank heat loss.

Install a good quality low-flow shower head to reduce water consumption by approximately 50 percent. Also, wrap all exposed hot water pipes with foam tube insulation.

- Efficient
- Needs improvement

### Miscellaneous

Vent clothes dryers to the outside to remove heat and moisture. Use kitchen/bath fans when cooking /bathing to remove heat and moisture.

- Efficient
- Needs improvement



## Tips to Improve your Energy Efficiency

### Dishwashers

- Scrape or wipe dishes first to avoid rewashing.
- Air dry whenever possible.
- Dishwashers work most efficiently if drains and filters are clean.

### Refrigerators/Freezers

- Position refrigerator away from heat sources.
- Set refrigerator temperature to 38°F/40°F, and freezer to 0°F/5°F. Test settings with a thermometer.
- Check door seal annually to ensure it seals tightly.
- Know what you need before you open the freezer or refrigerator.
- Regularly vacuum or dust the cooling coils on the bottom or back of the equipment.

### Kitchen Ranges and Ovens

- Use self-cleaning system while oven is still hot from baking.
- Bake multiple dishes at once or make extra portions for future meals.
- Arrange dishes in oven for good airflow. Do not line racks with aluminum foil.
- Keep oven door closed during baking.
- Move food to counter for basting, etc.
- Defrost foods in the refrigerator.
- Keep range top clean and reflectors shiny.
- Keep pot lids on and cook with little water.

### Microwave Ovens

- Defrost foods in refrigerator.
- Follow manufacturer's instructions to get best cooking results and greatest energy efficiency.
- Keep oven clean.
- Use one dish for cooking, serving and eating to save dish washing costs. Use only microwave safe dishes.

### Washers and Dryers

- Place washer near water heater to minimize heat loss through pipes.
- Use warm or cold wash cycles and cold rinses to save water heating costs.
- Always do full loads in washer and dryer.
- Presoak heavily soiled laundry when possible.
- Dry loads consecutively.
- Clean filters regularly for maximum efficiency.

### Water Heaters

- Add insulation to older water heaters.
- Set water temperature as low as possible. We suggest 120°F. (If you have a dishwasher, check the manufacturer's instructions.)
- Use water faucet restrictors and water-saving shower heads. Fix leaky faucets.
- Take showers instead of baths to save water.
- Wash dishes in full sink, not running water.



**If your electric use suddenly increases, take time to consider all factors.**

- Possible changes in lifestyle that could increase electric usage.
- Problems with an appliance or other electric equipment.
- Seasonal changes that increase electric use.

If you cannot determine the problem, but feel something is wrong, contact Flint Energies for assistance at 1.800.342.3616.

**Flint**  **nergies**

Your. Lowest. Cost. Energy. 

[www.flintenergies.com](http://www.flintenergies.com)

1.800.342.3616