

# Worksheet #13 – Lowering Your Energy Bill

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Use this worksheet to find out how to improve your energy efficiency.

## ***Why should you be concerned?***

- Increasing energy costs means that the average home owner will have to pay more to be comfortable.
- As the world's demand for energy continues to increase, so will the cost of energy. To protect yourself against growing costs, invest in homes, vehicles, appliances, electronics and practices that consume less energy.
- Greenhouse gas concentrations are increasing, leading to alterations in average temperatures known as climate change. Emitted gases also threaten air quality and have resulted in a record high number of 'Smog Days'.
- Climate change can cause an increase in extreme weather events such as droughts, ice storms, floods, and hurricanes.
- The cost of owning and operating a typical car is approximately \$7000 per year. Alternatively, public transportation if available, can be used for an entire year for approximately \$1000.

## ***What can you do?***

1. Realize that small changes can have a cumulative effect in protecting our environment, including air and water quality.
2. Ensure that your home is tightly-sealed, properly insulated and that all mechanical systems such as heating and cooling are operating efficiently. Have a professional conduct a home energy audit of your house and ensure that heating/cooling systems receive regular maintenance.
3. Choose energy-efficient appliances and electronics such as those with the Energy Star label.
4. Reduce the amount of driving that you do, especially in urban areas, and choose the most fuel-efficient vehicle for your needs.
5. Reduce the amount of greenhouse gases that you produce annually.

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>BUILDINGS</b>					
<b>1 Heating and Cooling Units</b>	<p>Use the most energy efficient heating and/or cooling units for your needs, upgrading if necessary,</p> <p><b>AND</b> choose a unit that carries the Energy Star label.</p>	<p>Use the most energy efficient heating and/or cooling unit for your needs, upgrading if necessary,</p> <p><b>OR</b> choose a unit that carries the Energy Star label.</p>	<p>A window air conditioning unit is used but is removed during the winter,</p> <p><b>OR</b> if fixed in place, the unit is sealed with caulking or tape and covered with an airtight, insulated jacket.</p>	<p>Heating or cooling unit inefficient and no upgrading planned,</p> <p><b>OR</b> unit is older than 15 years.</p>	<input type="checkbox"/>
	<p>Heating and cooling units are serviced yearly by a licensed heating contractor,</p> <p><b>AND</b> furnace filters cleaned or replaced every two months and air conditioner filters replaced monthly (central air filters cleaned or changed at the beginning of the warm season each year).</p>	<p>Heating and cooling units serviced yearly by a licensed heating contractor,</p> <p><b>OR</b> furnace filters cleaned or replaced every two months and air conditioner filters replaced monthly (central air filters cleaned or changed at the beginning of the warm season each year).</p>	<p>Heating and cooling units are serviced immediately when malfunctioning or when a problem is suspected.</p>	<p>Heating or cooling units are seldom maintained,</p> <p><b>OR</b> filters are not changed as per energy efficiency recommendations.</p>	<input type="checkbox"/>
	<p>Regularly check that vents, air intakes and chimneys are not blocked and that seals around them are intact,</p> <p><b>AND</b> retrofit fireplaces or older woodstoves with a new, advanced combustion model.</p>	<p>All chimneys are cleaned and inspected annually,</p> <p><b>AND</b> pilot lights of gas fireplaces or wall heaters are turned off in the summer.</p>	<p>Occasionally check that vents, air intakes and chimneys are not blocked,</p> <p><b>OR</b> retrofit fireplaces or older woodstoves with a new, advanced combustion model.</p>	<p>Fireplace dampers are left open when not in use,</p> <p><b>OR</b> heat inefficient fireplaces or older woodstoves are used regularly.</p>	<input type="checkbox"/>

**tip**

Seal and insulate warm air ducts.

**tip**

In winter, naturally warm your home by ensuring that sunlight can enter through all south-facing windows. Close drapes or shutters in the evening.

In summer, close windows and doors during the day, especially those along the south and south-west facing wall. Open in the evening to catch cool breezes.

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>BUILDINGS</b> <i>continued</i>					
<b>2 Lights</b>  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <b>tip</b>                      Locate working spaces and high activity areas that need light near south-facing windows.                 </div>	Minimize light-bulb use by maximizing the use of natural lighting,  <b>AND</b> all incandescent light bulbs are replaced with Energy Star-qualified compact florescent light bulbs.	Lights are turned off when not in use,  <b>OR</b> motion detectors or automatic timers are installed on outdoor lights.	Attempt to minimize light bulb use,  <b>AND</b> Energy Star qualified compact florescent light bulbs used in the most commonly used areas.	Everyday practices do not attempt to minimize light-bulb use,  <b>OR</b> lights are left on for a prolonged period of time such as overnight or while occupants are away.	<input type="checkbox"/>
<b>3 Building Components</b>  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <b>tip</b>                      Install storm windows and doors over single-pane windows and use weather-stripping around all joints.                       Alternatively, install double-glazed windows that carry the Energy Star label.                 </div>	Hire a professional to conduct an energy audit and develop an energy plan of your home ( <i>see Resources section</i> ),  <b>AND</b> inform yourself of alternative energies such as solar power and wind energy.	Check regularly for drafts or leaks around doors, windows, baseboards, ducts, attic – hatches, window air conditioning units and electrical outlets/switches,  <b>AND</b> immediately take the appropriate action to fix the situation.	Check occasionally for drafts or leaks throughout the building.	Seldom check for drafts or leaks,  <b>OR</b> condensation or frost appears on windows.	<input type="checkbox"/>
	All duct work is located in heated and/or cooled space within the building,  <b>AND</b> weather-stripped.	All duct work is located in heated and/or cooled space within the building.	Some duct work located in unheated and/or un-cooled space (e.g., attic, garage),  <b>AND</b> insulated.	Ducts are not insulated,  <b>OR</b> ducts have no weather-stripping around joints.	<input type="checkbox"/>

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<b>BUILDINGS</b> <i>continued</i>					
<b>4 Building Design</b>	Construction uses R-2000 building practices and technologies.	Energy efficiency is an important factor in building design and layout.	Passive solar heating used where possible.	Building is difficult to heat in winter, and difficult to cool in summer.	<input type="checkbox"/>
<b>5 Heating and Cooling Practices</b>	<p>Use a programmable system and in the winter, lower your thermostat at night and while you are away during the day,</p> <p><b>AND</b> in the summer, naturally cool the building by closing blinds/shutters/ drapes, and using awnings and strategically-placed shade trees outside.</p>	<p>Use a programmable system and in the winter, lower your thermostat at night and while you are away during the day,</p> <p><b>AND</b> use a ceiling fan, especially in rooms with high ceilings or with electric baseboards to help circulate the air. In winter ensure that blade direction pushes warm air downwards.</p>	<p>In the winter, lower the thermostat at night and while you are away during the day,</p> <p><b>AND</b> in the summer, set your air conditioner to 24°C (75°F) while you are at home and raise it when you leave.</p>	<p>Heating and cooling systems are not adjusted to time of day or activity within the space,</p> <p><b>OR</b> no attempt is made to adopt practices that minimize energy use.</p>	<input type="checkbox"/>

**tip**

Every 1°C that a thermostat is lowered results in a 2% savings in energy costs. The most cost-effective change is to lower it by 3°C.

**tip**

24°C (75°F) is the most cost-effective setting for cooling.



Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>APPLIANCES AND ELECTRONICS</b>					
<b>9 Energy Efficiency</b>  <b>tip</b> Choose front-loading washing machines or water-efficient, top-loading models with the Energy Star label.	Always purchase high energy efficiency Energy Star appliances, especially the refrigerator, oven, dishwasher, and laundry washer/dryer,  <b>AND</b> electronics such as computers and printers that go into 'Standby' mode when not in use.	Always turn off and unplug appliances that are not in use, especially older, inefficient appliances,  <b>AND</b> minimize the use of appliances and electronics.	Locate the refrigerator or freezer away from heat sources (including other appliances) or windows,  <b>AND</b> keep the refrigerator between 1.7°C (35°F) and 3.3°C (38°F) and the freezer unit at -18°C (0°F).	Energy efficiency is not considered when purchasing appliances or electronics,  <b>OR</b> no action is taken to improve the energy efficiency of appliances or electronics.	<input type="checkbox"/>
	During hot weather, all baking, washing, drying, and ironing are done early in the morning or in the evening,  <b>AND</b> whenever possible, clothes are hung to dry.	Dishwasher is used but always runs full and is set to the 'no-heat' or 'air-drying' option,  <b>AND</b> clothes washer/dryer are almost always run full and cold settings are used most of the time.	Dishwasher is used but always runs full,  <b>AND</b> clothes washer/dryer are almost always run full and cold settings are used often.	No consideration given to actions or practices that minimize energy waste.	<input type="checkbox"/>
<b>10 Maintenance</b>	Check appliances regularly to ensure that seals remain in good condition, especially refrigerators and freezers.		Appliances rarely checked to ensure that seals remain in good condition, especially refrigerators and freezers.	Appliances never checked to ensure that seals remain in good condition, especially refrigerators and freezers.	<input type="checkbox"/>

# Resources List

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## Lowering your Energy Bill

*For more information...*

**Green Communities Canada**

[www.greencommunities.canada.org](http://www.greencommunities.canada.org)

**Natural Resources Canada**

Office of Energy Efficiency

[www.oeenrcan.gc.ca/residential/12152](http://www.oeenrcan.gc.ca/residential/12152)

R-2000 Residential Buildings

[www.oeenrcan.gc.ca/residential/new-homes/r-2000/7334](http://www.oeenrcan.gc.ca/residential/new-homes/r-2000/7334)