

Setback thermostats

Setting back the temperature in your home when you are out or while you sleep can reduce heating energy consumption, and reduce energy costs. These setback savings can be achieved either by manually adjusting your thermostat a few times a day or automatically by using a programmable thermostat. Once the initial effort of programming the thermostat is made, programmable thermostats ensure that you never forget to set back manually. However, if your schedule frequently varies from week to week it may not be practical to use a programmable thermostat that would constantly require program changes.

Continuous setback by 1°C will save approximately three per cent of your home's annual heating costs. Heating cost savings are proportional to the length of time that the temperature in the home is reduced. For example, setting back the temperature by 3°C for a period of eight hours per day, seven days per week would also save three per cent. This strategy can be implemented manually by the occupant or automatically with a programmable thermostat.

For example, the space temperature in the home could be set back from 21°C to 18°C for two setback periods. One setback period could be for an eight hour period



while the occupants of the home are sleeping from 10 p.m. to 6 a.m. As well, if no one is home during the day, a second setback period could be from 8 a.m. to 4 p.m. Estimated savings for this example would be 3 per cent per 1°C x 3°C x 16 hours/day divided by 24 hours/day = 6 per cent savings.

Typical percentage fuel savings for setting the space temperature back in Manitoba are shown below. It should be noted that more energy efficient the house is, the less the savings will be for the shorter setback durations.

Temperature reduction	Approximate per cent fuel savings*				
	Setback period in hours/day, 7 days/week				
	8 hrs.	12 hrs.	16 hrs.	20 hrs.	24 hrs.
	%	%	%	%	%
1°C (1.8°F)	1	1.5	2	2.5	3
3°C (5.4°F)	3	4.5	6	7.5	9
5°C (9°F)	5	7.5	10	12.5	15

*Note: per cent fuel savings refers to space heating only; it does not include domestic hot water heating.



Also, savings may not be as great as expected when large setbacks are attempted for short setback periods. In some cases, it could be negligible if the temperature setback is very large and the setback time is too short. It may take a long time for the home to cool down to the setback temperature.

Programmable thermostats use electronic microprocessors. The sensing elements are usually thermistors (temperature sensitive resistors) and use a digital display with no moving parts or mechanical parts.

Programmable thermostats come with a number of different features available to the homeowner.

- **Default Setback Programming** provides a preset setback strategy within the programmable thermostat that the homeowner can use right out of the package.
- **Adaptive or Smart Recovery Control** predicts the time when the system must begin heating or cooling to meet the next set point temperature at the beginning of a new occupancy period.
- **Hold Feature** allows the occupant to override the programs set point temperature for a specified or unlimited period of time. Some thermostats have short-term holds for temporary adjustments until the next occupancy period begins. A long-term hold may be available on some thermostat models for fixed periods of time such as a vacation.

- **Non-Volatile Memory** prevents the programmable settings from being lost from the memory when power is lost to the thermostat.

It is important to use the proper programmable thermostat for your home's heating system whether it is a heating only, heat/cool, or heat pump system.

Temperature setback is not recommended for homes heated with geothermal or air source heat pump systems. Setting back the temperature in these homes could actually result in increased heating costs. Typically more energy will be consumed by the auxiliary electric heating coil while it is heating the home back up to temperature than the small amount of energy saved by operating the heat pump less during the setback period.

Most thermostats that are not electronic will contain some mercury, which is considered hazardous waste. Although the amount is small, if released into the environment mercury can still pose danger to humans, fish, birds and wildlife. Disposing of an older manual thermostat containing mercury should be done in accordance with local recycling guidelines. Contact your local recycling and/or waste management office for further details.

For information about Manitoba Hydro's Power Smart programs:

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