

## Technical paper

**Environment Accounts and Statistics Technical Paper Series**

# Controlling the Temperature in Canadian Homes

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# Controlling the Temperature in Canadian Homes

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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0<sup>s</sup> value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- p preliminary
- r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- E use with caution
- F too unreliable to be published

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# Controlling the Temperature in Canadian Homes

by Gordon Dewis

## 1 Introduction

Rising energy costs and environmental concerns about the need to reduce energy consumption are clear incentives for households to adopt energy conservation measures. Canadians spend a lot of money on household energy, especially to heat their homes. Characterized by generally long, cold winters, the heating season in Canada varies quite widely, sometimes lasting up to nine or ten months in certain areas of the country. Thus, adjusting the temperature by just a few degrees at certain times of the day is one way Canadians can reduce their home heating expenses while also reducing their impact on the environment.

Programmable thermostats offer the possibility of saving energy and money by optimizing the operation of heating and cooling systems. By reducing system use when dwellings are unoccupied or when the occupants are asleep, energy consumption is reduced. Using the results of the 2006 Households and the Environment Survey, this paper looks at how these devices are being used during the heating season, the demographic factors associated with their use, and how their usage varies in different parts of the country.

### Household expenditures

Heating the home accounts for a large portion of the total expenses for a Canadian household. The Survey of Household Spending revealed that in 2006, Canadian households spent an average of \$1,895 on electricity, natural gas, and other fuel for heating and cooking in the primary residence, which was slightly less than 15% of total household spending on shelter.

**Source:** Statistics Canada, Survey of Household Spending 2006, CANSIM Table 203-0003, accessed 6 March 2008.

## 2 Controlling the temperature

A wall or baseboard thermostat provides an easy and efficient way to control dwelling temperature and most modern heating systems are regulated by some form of thermostat. In 2006, most Canadian households (90%) had a thermostat although there were some variations in the rate among the provinces (Table 1). In Ontario, for example, the proportion of households with a thermostat was somewhat lower (86%) than in the rest of the country. Prince Edward Island, on the other hand, had the highest proportion of households with thermostats, with 97% of households having one. These variations might be explained by differences in the type and age of dwelling structures across the country and in the heating systems installed. Certain systems, often used for older multi-unit buildings, such as circulating hot water, do not lend themselves to being controlled in individual dwelling units. The system heats the entire structure, with one central thermostat controlling the temperature in all the units in the building. Results from the 2006 survey found that households in Ontario living in apartment buildings were less likely to have a thermostat compared to apartment-dwellers elsewhere in Canada. Similarly, duplexes in Ontario were also less likely to have a thermostat than duplexes in most other provinces.

When asked about their home temperature during the heating season, most Canadian households reported that they set their home temperature between 20°C and 22°C during the time of the day when they were at home and awake. Average home temperature was generally kept between 16°C and 18°C during the time of day when household members were asleep.

### 3 Programmable thermostats are convenient and efficient

A programmable thermostat allows the user to set up a schedule of temperature settings that take effect at different times of the day. These devices often allow different schedules to be used for weekdays and weekends and some offer the ability to have different schedules depending on whether the system is heating or cooling the home. While programmable thermostats have been available for many years in one form or another<sup>1</sup>, the modern ones are generally electronic devices that monitor and regulate the temperature. Advanced models offer multiple schedules and may be remotely controlled. Some energy utilities, such as Hydro One in Ontario, offer some customers free programmable thermostats that can be remotely controlled by the utility during peak demand periods to reduce the energy demand for short periods of time. These programs typically reduce the demand on the electrical system by about 1 kilowatt per home.<sup>2</sup>

Research conducted at the Canadian Centre for Housing Technology in 2003<sup>3</sup> examined the impact of thermostat temperature settings on gas and electricity consumption<sup>4</sup> by a mid-efficiency gas furnace during both the winter and summer heating/cooling seasons. Using a daytime winter temperature of 22°C as the benchmark, setting the temperature at night to 18°C results in a 6.5% savings in natural gas and 0.8% reduced electricity consumption, while setting the temperature to 16°C at night and when the dwelling is unoccupied during the day resulted in a 13% reduction in the amount of gas used and 2.3% savings in the amount of electricity used.<sup>5</sup>

### 4 Where you live is significant

Four out of ten households with a thermostat had one that can be programmed. The majority of these households (83%) used the functionality of these thermostats by actually programming them. Ontario and Prince Edward Island, the two provinces at the extremes of the spectrum for presence of a thermostat, trade positions when it comes to presence of programmable thermostats. One-half of Ontario households with thermostats reported they had a programmable thermostat while slightly less than one-quarter of households in Prince Edward Island said they had one.

About seven households in ten that had programmed their thermostat used it to lower the temperature when asleep during the heating season. Programming a drop in temperature when household members were asleep varied across the country with Saskatchewan and Alberta having the highest proportion of programmed thermostats at 78% and 75%, respectively, compared to Ontario and Manitoba having the lowest shares with 63% and 64%, respectively. Undoubtedly, these results emphasized the distinct preferences among Canadian households when it comes to their "sleep-time comfort zones". There could also be cases where a household does not see the need to lower the home temperature at night, given that it has already programmed the home's temperature settings throughout various times of the day.

Some heating systems, such as forced air furnaces, lend themselves to being controlled by programmable thermostats more readily than others, such as radiators, stoves and fireplaces. Households where hot water radiators were the main heating system were least likely to have a programmable thermostat (22%). However, of those that were programmed, they were among the most likely (72%) to be programmed to lower the temperature when asleep (Table 7).

Seventy-four percent of Ontario households had a forced air furnace as their primary heating system compared to only 56% of households in Prince Edward Island. Prince Edward Island led the country in primary heating systems that were hot water radiators with 19% of households there having them, compared to the national figure of just 5%.

1. *100 Years of Programmable Thermostats*, <http://www.prothermostats.com/history.php> (accessed April 7, 2008).

2. Hydro One. No date. *Frequently Asked Questions (FAQs) About the smartstat™ Program*.

3. Canadian Centre for Housing Technology. 2005. *The Effects of Thermostat Setting on Seasonal Energy Consumption at the CCHT Research Facility*.

4. Electricity consumed by furnace fans and motors.

5. Canada Mortgage and Housing Corporation. 2005. *Effects of thermostat setting on energy consumption (Technical Series 05-100)*.

## 5 Type of dwelling

Dwellings have been classed into one of three broad categories: single-detached homes; multiple-unit dwellings such as duplexes and row homes; and apartment buildings. The remaining dwellings being classified as “other”.<sup>6</sup>

Single-detached homes were most likely to have a thermostat (96%) (Table 2). Almost half (46%) of households in single-detached dwellings had a programmable thermostat, most of which had been programmed (86%). The majority of these households (71%) further used the programmable thermostats to lower their home temperature when household members were asleep. This energy-saving practice was not as prevalent among households in single-detached dwellings equipped with non-programmable thermostats (50%).

Compared to all other dwelling types, households in apartment buildings were less likely to have some sort of thermostat in their homes, least of all a programmable one. Of the apartments that had a thermostat, only about two in ten (22%) households had a programmable thermostat. However, most apartment-dweller households that had the device did use it (70% were actually programmed). Lowering the home temperature during the ‘sleep’ periods was also less common among apartment-dwellers. The practice was evident in only 39% of these households, irrespective of the type of thermostat installed in the apartment unit.

The overall profile of households in multiple-unit dwellings fell somewhere in between single-detached and apartment dwellers. Nine out of ten households living in these units had some form of thermostat in their homes. About four in ten of these households had a programmable thermostat. Much like the households living in single-detached dwellings, the majority of those that had the device used it to program their home temperature settings (83%). However, unlike single-detached dwellers, these households were less likely to lower their home temperature during the time of day when household members were asleep.

## 6 Tenure

In 2006, over two-thirds of Canadian households were homeowners (Table 3). Households that lived in rental units were less likely to be able to control the temperature of their dwelling than those who owned the dwelling they live in. Only three-quarters of rented dwellings had a thermostat, compared to 96% of dwellings owned by the occupants. Owned dwellings were over twice as likely to have had a programmable thermostat (46%) as rented dwellings (22%). This should not come as a surprise as most renters have limited vested interest in investing money to improve a dwelling they do not own.

Many renters do not pay directly for the heating of their dwelling so there is little financial incentive to lower the dwelling temperature when asleep. If they do choose to lower the temperature when asleep, it is likely for comfort or environmental reasons rather than monetary reasons. Almost six out of ten dwellings (58%) owned by the people living in them lowered the temperature when asleep compared to just over four out of ten (41%) dwellings that were rental units. Eighty-five percent of programmable thermostats in dwellings occupied by the owner were programmed, compared to 72% of those in rented dwellings. Seven out of ten programmed thermostats in dwellings owned by the occupants were used to lower the temperature when asleep compared to just under half (48%) in rentals.

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6. “Other” dwellings includes, but is not limited to, mobile homes, hotels, rooming or lodging houses and camps.



### How do people heat their homes?

Almost 6 out of 10 Canadian households reported using a forced air furnace as their primary heating system. Another 3 out of 10 households used electric heat sources, including baseboard heaters, as their primary heating system. The remaining households used wood, hot water or other systems, such as solar and geothermal systems, to heat their homes (Table 7).

There are a number of different sources of energy that can be used to generate heat in the primary heating system in a home. Natural gas was the most common form of energy used by primary heating systems in almost half of Canadian households, while electricity was used by one-third of households.<sup>7</sup>

The majority of electricity in Canada comes from hydroelectric generating stations, with almost all of the rest being generated by the combustion of fossil fuels (coal, natural gas or oil) or by thermal-electric nuclear plants.<sup>8</sup> Electricity is often generated in thermal-electric generating stations where water is turned to steam that turns a turbine that generates the electricity. The water is typically heated by one of two types of fuel: fossil fuels (oil, natural gas or coal) or nuclear. The former are associated with acid rain, smog and greenhouse gas emissions, while the latter have almost none of these emissions, but do have the issue of long-term storage of the used radioactive fuel and higher risks in the event that there is a catastrophic failure of the nuclear reactor.

Wood is a renewable resource and some newer wood stoves can be an efficient source of heat.<sup>9</sup> However, in 2005, residential fuel wood combustion accounted for almost 89% of all non-industrial fuel combustion emissions and slightly more than one third of non-open source emissions of PM<sub>2.5</sub>.<sup>10</sup> Particulate matter less than or equal to 2.5 microns in size (PM<sub>2.5</sub>) is a significant component of air pollution. While only 4% of Canadian households are heated primarily by wood, five times as many households (22%) had a wood stove or wood fireplace that was not their primary heating system.

## 7 Age

While ninety percent of all Canadian households had a thermostat, the prevalence of these devices varied depending on the age group(s) found in the household. For example, the 2006 Census shows that seniors were more likely to live in single-detached dwellings they owned than in any other type of dwelling. The results from the 2006 Households the Environment Survey in Table 4 show that senior-only households were more likely to have had a thermostat present (93%), but were least likely to have had a programmable thermostat (34%) (Table 4). The low uptake of programmable thermostats may only be indirectly related to age. It may be more reflective of the fact that many seniors are on fixed incomes and may view the purchase of programmable thermostats as an unnecessary expense when they already have a functional thermostat. However, this isn't to say that senior-only households weren't careful when it came to conserving energy by dropping the temperature of their home at times. Senior-only households were most likely to manually lower the setting on their thermostat before going to bed (57%). But these households were also least likely to have programmed their programmable thermostat if they had one (72%) and least likely to have used it to lower the temperature when asleep (64%) if it had been programmed.

Households with children but no seniors were among the most likely to have had a programmable thermostat and were most likely to have programmed it, but only two-thirds of these households lowered the temperature when they were asleep. On the other hand, households without children or seniors (only people between the ages of 18 and 64) were the most likely of those with programmable thermostats to have lowered dwelling temperature when asleep. However, if these households did not have a programmable thermostat, or they had one but hadn't programmed it, they were the least likely to lower the temperature when asleep.

7. Statistics Canada. Table 203-0019 - Survey of household spending (SHS), dwelling characteristics at December 31, by province, territory and selected metropolitan areas, annual, CANSIM (database). [http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?CANSIMFile=CII/CII\\_1\\_E.HTM&RootDir=CII/LANG=E](http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?CANSIMFile=CII/CII_1_E.HTM&RootDir=CII/LANG=E) (accessed: September 5, 2008)

8. Statistics Canada. 2005. *Report on Energy Supply-demand in Canada 2005*, Catalogue no. 57-003-X.

9. Natural Resources Canada. 2006. *A Guide to Residential Home Heating*. [http://www.canren.gc.ca/prod\\_serv/index.asp?CaID=1038&PgID=576](http://www.canren.gc.ca/prod_serv/index.asp?CaID=1038&PgID=576) (accessed October 30, 2007).

10. Environment Canada. 2007a. *Criteria Air Contaminants(CAC) Emission Summaries. Criteria Air Contaminants*. [www.ec.gc.ca/pdb/cac/cac\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/cac/cac_home_e.cfm) (accessed October 17,2007).

## 8 Education

At the national level, the likelihood that a thermostat of any kind would have been found in a dwelling was slightly higher when someone in the dwelling's household had completed some form of post-secondary education (91%) than in those where no member of the household had attained a level of education higher than high school (87%) (Table 5).

However, the likelihood that the thermostat temperature would be lowered when the household was asleep was higher in those households in which the highest level of education was some post-secondary (52%) or a university graduate (58%) than in households where the highest level of education attained was high school (48%).

Households (with thermostats) in which no person had graduated high school were the least likely to have had a programmable thermostat (29%). If these households did have a programmable thermostat, they were least likely to have programmed it (72%) or to have used it to lower the temperature when asleep (51%). Households that had a thermostat and in which a member of the household had graduated university, on the other hand, were most likely to have had a programmable thermostat, with slightly less than half (47%) having one of these devices. They were most likely to have programmed the device (88%) and three-quarters of those that were programmed were used to lower the temperature when asleep. While university graduates were more likely to live in single-detached dwellings, which in turn is associated with a higher likelihood to have and use programmable thermostats, the results of one's education as a factor in taking up new and money saving technology cannot be ruled out.

## 9 Income

As the total annual income of a household increased, so too did the likelihood that the household would have a thermostat. Households that reported a total annual income less than or equal to \$30,000 were least likely to have a thermostat (83%), while almost all households (98%) that reported a total annual income in excess of \$100,000 had a thermostat (Table 6).

As a whole, over half (55%) of those households that reported an income<sup>11</sup> and having a thermostat of any type lowered the temperature when they were asleep. The probability that the temperature was lowered when the household members were asleep increased as the total annual household income increased. Those households with the lowest annual incomes were the least likely to lower the temperature when asleep with just under half of those households reporting this behaviour. Fifty-seven percent of households that earned between \$50,000 and \$75,000 a year and that had a thermostat lowered the temperature when asleep. Among households with any type of thermostat, those households that were in the highest income category were most likely (63%) to have lowered the temperature when asleep.

Ownership and use of a programmable thermostat also increased as the total annual household income increased. Only about one in four households (27%) in the lowest income category that had a thermostat had one that could be programmed, while three out of four of these were actually programmed. Almost six out of ten of these thermostats were programmed to lower the temperature when asleep. Of the households in the middle income category that had a thermostat, 42% had a programmable thermostat. Eighty-six percent of these were programmed and 74% of programmed thermostats were used to lower the temperature when asleep. Households in the highest income category were most likely to have had a programmable thermostat with six out of ten reporting one. Almost all (90%) were actually programmed and 80% of those that were programmed lowered the temperature when asleep.

## 10 Conclusions

Programmable thermostats offer home owners the ability to automatically regulate the temperature of their dwellings while at the same time saving both money and energy. Given that these devices save energy the challenge for policy

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11. Includes those households that reported a total annual income of \$0.

makers is two-fold. First, increase the adoption of programmable thermostats by Canadian households and second, get households to program the devices so that they save energy.

Incentive programs, such as offering free programmable thermostats to home owners is one way the uptake of programmable thermostats can be increased. Assisting the homeowner in programming them at the time of installation and explaining their operation are key to ensuring the benefits they offer are realized. Programming some types of programmable thermostats can be an involved process that may be a deterrent to some people. Some programmable thermostats available today come with default programs, but homeowners need to verify that the program is appropriate to their household's usage patterns and modify the programs if necessary.

Seniors and those with lower levels of education are two groups that show a lower level of use of programmable thermostats. These groups may benefit from targeted campaigns explaining the benefits of owning and using one of these devices. Identifying households with seniors is fairly straightforward, but identifying households with lower levels of educations poses a challenge. Since there is a relationship between income and education, targeting households with lower total annual incomes may be an effective way to reach this demographic group.

The investigation conducted to-date has begun to examine relationships between demographic factors such as place of residence, age, education and income and the decisions made by Canadian households when it comes to regulating the temperature in their dwellings. However, because of the intertwined nature of these factors, it is not yet possible to definitely state that there are relationships between these factors and the use of thermostats in general, and programmable thermostats specifically, without the use of more advanced analysis techniques such as factor analyses.

**Table 1**  
**Households with thermostats by province, 2006**

	Had a thermostat <sup>1</sup>	Lowered the temperature when asleep <sup>2</sup>	Had a programmable thermostat <sup>2</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
				That was programmed <sup>3</sup>	To lower the temperature when asleep <sup>4</sup>	Lowered the temperature when asleep <sup>5</sup>
percent						
Newfoundland and Labrador	92	61	21	79	70	59
Prince Edward Island	97	59	23	83	74	56
Nova Scotia	96	57	19	80	74	54
New Brunswick	94	47	21	73	68	43
Quebec	90	53	33	81	69	48
Ontario	86	50	50	85	63	41
Manitoba	94	48	38	78	64	41
Saskatchewan	95	61	36	85	78	54
Alberta	96	57	41	85	75	47
British Columbia	89	56	36	82	73	49
<b>Canada</b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households.

2. As a percentage of all households that had a thermostat.

3. As a percentage of all households that had a programmable thermostat.

4. As a percentage of all households that had a programmable thermostat that was programmed.

5. As a percentage of all households that had an unprogrammed or non-programmable thermostat.

Source(s): Statistics Canada, Households and the Environment Survey, 2006.

**Table 2**  
**Thermostats by type of dwelling, 2006**

	Had a thermostat <sup>1</sup>	Lowered the temperature when asleep <sup>2</sup>	Had a programmable thermostat <sup>2</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
				That was programmed <sup>3</sup>	To lower the temperature when asleep <sup>4</sup>	Lowered the temperature when asleep <sup>5</sup>
percent						
Single-detached	96	58	46	86	71	50
Multiple-unit dwellings	91	51	40	83	63	45
Apartments	75	39	22	70	45	38
Other	93	51	33	77	66	46
<b>All</b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households in that type of dwelling.

2. As a percentage of all households in that type of dwelling that had a thermostat.

3. As a percentage of all households in that type of dwelling that had a programmable thermostat.

4. As a percentage of all households in that type of dwelling that had a programmable thermostat that was programmed.

5. As a percentage of all households in that type of dwelling that had an unprogrammed or non-programmable thermostat.

Source(s): Statistics Canada, Households and the Environment Survey, 2006.

**Table 3**  
**Tenure and thermostats, 2006**

	Households in Canada <sup>1</sup>	Had a thermostat <sup>2</sup>	Lowered the temperature when asleep <sup>3</sup>	Had a programmable thermostat <sup>3</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
					That was programmed <sup>4</sup>	To lower the temperature when asleep <sup>5</sup>	Lowered the temperature when asleep <sup>6</sup>
	percent						
Owned	68	96	58	46	85	70	49
Rented	32	75	41	22	72	48	40
<b>Canada</b>	<b>100</b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households.

2. As a percentage of all households in that tenure category.

3. As a percentage of all households in that tenure category that have a thermostat.

4. As a percentage of all households in that tenure category that have a programmable thermostat.

5. As a percentage of all households in that tenure category that have a programmable thermostat that was programmed.

6. As a percentage of all households in that tenure category that have an unprogrammed or non-programmable thermostat.

Source(s): Statistics Canada, Households and the Environment Survey, 2006.

**Table 4**  
**Households with thermostats by age composition, 2006**

	Had a thermostat <sup>1</sup>	Lowered the temperature when asleep <sup>2</sup>	Had a programmable thermostat <sup>2</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
				That was programmed <sup>3</sup>	To lower the temperature when asleep <sup>4</sup>	Lowered the temperature when asleep <sup>5</sup>
	percent					
Middle-aged only	87	51	36	83	70	43
Middle-aged and children	91	54	48	88	68	43
Seniors-only	93	59	34	72	64	57
Seniors and children	F	F	F	F	F	F
Seniors and middle-aged	94	53	38	81	61	49
Seniors, middle-aged and children	93	45	51	87	37 <sup>E</sup>	52
<b>All</b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households with that age group present.

2. As a percentage of all households with that age group present that had a thermostat.

3. As a percentage of all households with that age group present that had a programmable thermostat.

4. As a percentage of all households with that age group present that had a programmable thermostat that was programmed.

5. As a percentage of all households with that age group present that had an unprogrammed or non-programmable thermostat.

Source(s): Statistics Canada, Households and the Environment Survey, 2006.

**Table 5**  
**Households with thermostats, by highest education attained by at least one member of the household, 2006**

	Had a thermostat <sup>1</sup>	Lowered the temperature when asleep <sup>2</sup>	Had a programmable thermostat <sup>2</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
				That was programmed <sup>3</sup>	To lower the temperature when asleep <sup>4</sup>	Lowered the temperature when asleep <sup>5</sup>
percent						
Less than high school	87	48	29	72	51	48
High school	87	48	36	76	60	44
Some post-secondary	91	52	38	84	66	45
University graduate	91	58	47	88	74	47
<b>Canada</b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households with that level of education.
  2. As a percentage of all households with that level of education that had a thermostat.
  3. As a percentage of all households with that level of education that had a programmable thermostat.
  4. As a percentage of all households with that level of education that had a programmable thermostat that was programmed.
  5. As a percentage of all households with that level of education that had an unprogrammed or non-programmable thermostat.
- Source(s):** Statistics Canada, Households and the Environment Survey, 2006.

**Table 6**  
**Households with thermostats by total household income, 2006**

	Had a thermostat <sup>1</sup>	Lowered the temperature when asleep <sup>2</sup>	Had a programmable thermostat <sup>2</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
				That was programmed <sup>3</sup>	To lower the temperature when asleep <sup>4</sup>	Lowered the temperature when asleep <sup>5</sup>
percent						
Equal or less than \$30,000	83	49	27	75	57	47
\$30,001 to \$50,000	88	51	33	84	62	46
\$50,001 to \$75,000	93	57	42	86	74	47
\$75,001 to \$100,000	96	60	50	88	74	49
Greater than \$100,000	98	63	60	90	80	45
<b>Canada</b>	<b>90</b>	<b>55</b>	<b>40</b>	<b>85</b>	<b>71</b>	<b>47</b>

1. As a percentage of all households with that income.
  2. As a percentage of all households with that income that had a thermostat.
  3. As a percentage of all households with that income that had a programmable thermostat.
  4. As a percentage of all households with that income that had a programmable thermostat that was programmed.
  5. As a percentage of all households with that income that had an unprogrammed or non-programmable thermostat.
- Source(s):** Statistics Canada, Households and the Environment Survey, 2006.

**Table 7**  
**Households with thermostats by type of main dwelling heating system, 2006**

	Households that had this main heating system <sup>1</sup>	Had a thermostat <sup>2</sup>	Lowered the temperature when asleep <sup>3</sup>	Had a programmable thermostat <sup>3</sup>	Programmable thermostat		Unprogrammed or non-programmable thermostat
					That was programmed <sup>4</sup>	To lower the temperature when asleep <sup>5</sup>	Lowered the temperature when asleep <sup>6</sup>
percent							
Forced air natural gas furnace	41	95	57	52	87	70	47
Forced air oil furnace	7	96	63	35	86	76	57
Forced air electric furnace	6	90	50	39	80	63	44
Forced air hot water system	3	81	45	33	78	54	43
Hot water radiators	5	68	47	22	77	72	43
Electric baseboards	25	90	49	27	78	62	45
Other electric heating	2	83	49	33	60	64	45
Other	3	85	49	31	75	61	45
<b>All heating systems</b>	<b>96<sup>7</sup></b>	<b>90</b>	<b>53</b>	<b>40</b>	<b>83</b>	<b>68</b>	<b>46</b>

1. As a percentage of all households.

2. As a percentage of all households with that type of heating system.

3. As a percentage of all households with that type of heating system that had a thermostat.

4. As a percentage of all households with that type of heating system that had a programmable thermostat.

5. As a percentage of all households with that type of heating system that had a programmable thermostat that was programmed.

6. As a percentage of all households with that type of heating system that had an unprogrammed or non-programmable thermostat.

7. Does not add to 100% as some of the households did not specify the main type of heating system.

**Source(s):** Statistics Canada, Households and the Environment Survey, 2006.