



Natural Resources
Canada

Ressources naturelles
Canada

NEUD

National Energy Use Database

Survey of Houses Built in Canada in 1994

STATISTICAL REPORT



Canada

APRIL 97

To obtain additional copies of this publication, please write to:

Energy Publications
c/o Canada Communication Group
Ottawa, ON K1A 0S9
Fax: (819) 994-1498

© Minister of Public Works and Government Services Canada 1997
Cat. no. M92-136/1994
ISBN 0-662-62970-1



Survey of Houses Built in Canada in 1994

STATISTICAL REPORT

FOREWORD

This report is the fifth in a series intended to present the results of surveys conducted on behalf of Natural Resources Canada (NRCan) on energy end use in the residential sector. These surveys were developed as part of the National Energy Use Database initiative.

In 1993, Statistics Canada conducted the first national *Survey of Household Energy Use* for NRCan. The main findings of this survey were published in two reports that present the national and provincial results (Cat. no. M92-85-/1994E and Cat. no. M92-96/1995, respectively). NRCan plans to repeat this major survey in 1997.

In the meantime, NRCan has been conducting annual small-scale surveys or supplementary studies. The information gathered is used to monitor trends in energy-consuming equipment, new housing and renovations of existing homes.

The *Survey of Canadian New Household Equipment Purchases* was conducted in 1994 and 1995. The findings of these surveys were released in two statistical reports. The first presents the primary data from the 1994 and 1995 surveys (Cat. no. M92-133/1997), while the second compares these data with those on the 1993 stock from the *Survey of Household Energy Use* (Cat. no. M92-131/1997).

The *Home Energy Retrofit Survey* was also conducted in 1994 and 1995. Its findings will be released in forthcoming reports.

This report reviews the findings of the survey used to collect information on new housing, i.e., the *Survey of Houses Built in Canada in 1994*. The report presents the main survey results, namely the characteristics of the thermal envelope and the characteristics of heating and air conditioning equipment.

This survey was conducted by Criterion Research Corp. between September 1995 and February 1996. This statistical report was prepared with the collaboration of Victor Tremblay from the firm STATPLUS.

The entire project was supervised by Maryse Courchesne of NRCan. The following individuals participated in the implementation of the project: Michelle Allaire, Vadim Belotserkovski, Michel Francoeur, Cristobal Miller, Jean-Pierre Moisan, Mark Pearson and Robin Sinha.

For more information on the surveys and topics covered in this report, please contact:

André Bourbeau
Senior Economist
Data Development Group
Demand Policy and Analysis Division
Energy Efficiency Branch
Natural Resources Canada
580 Booth Street, 18th Floor
Ottawa, Ontario
K1A 0E4

Fax: (613) 947-4120
E-mail: neud.bncc@nrcan.gc.ca

To obtain copies of this publication (Cat. no. M92-136/1994; ISBN 0-662-62970-1) and the documents mentioned above, write to:

Energy Publications
c/o Canada Communication Group
Ottawa, Ontario
K1A 0E4

HIGHLIGHTS

Residential heating and air conditioning

- Three out of five houses built in 1994 have a furnace with hot air vents as the **primary heating system**, and four out of five of these central systems are fuelled by natural gas.
- One-quarter of these new homes have electric baseboard heaters.
- For all systems combined, natural gas is the **primary energy source** for heating in one new home in two.
- As expected, significant regional variations can be observed in the **primary energy source** for heating. While electricity is clearly the predominant source in New Brunswick and Quebec, natural gas accounts for three-quarters of the market in Ontario and Manitoba and is the sole energy source in Saskatchewan and Alberta. In British Columbia, the ratio of natural gas to electricity is two to one.
- Gas fireplaces, either natural gas or propane, are the most frequent **supplementary heating** equipment in Canadian households that purchased a new home built in 1994. This is the case of approximately one home in two in the provinces west of Quebec. In Quebec, one new home in four uses electric baseboard heaters as supplementary heating.
- **Wood stoves and fireplaces** can be used as both primary and supplementary heating sources. Half of the new houses built have a gas fireplace, either natural gas or propane. This proportion is higher in the western provinces. One house in six built in 1994 has a wood-burning fireplace; Quebec has the highest rate of this type of equipment.
- The majority of recently built homes have **central ventilation**. Three times out of five, this system is equipped with a heat exchanger. Central ventilation is most common in the Atlantic provinces and Quebec.

- Three out of ten new houses are equipped with **central air conditioning**. This convenience is most common in new houses in Ontario and Manitoba. Window air conditioners are not commonly found in recently built houses.

Water-heating systems

- Nine times out of ten, the **water-heating systems** installed in houses built in 1994 are hot water heaters separate from the home's heating system and not shared with other dwellings.
- Three out of five of these **separate water heaters** are fuelled by natural gas, while the remainder are virtually all electrically powered.
- Approximately one in five hot water tanks has an insulating blanket; the percentage of those with insulation around the pipes is only slightly higher. In terms of **hot water energy-saving devices**, low-flow shower heads are found in three out of five new homes, while tap aerators are found in only one home in three.
- Virtually all new **hot water heaters** in Quebec are electric, while natural gas clearly dominates this market in Ontario and the western provinces.
- One home in four built in 1994 has an **indoor hot tub/jacuzzi/whirlpool**. These tubs are particularly common in the western provinces.

Building characteristics

- Houses built in 1994, in general, have a **large square footage**, particularly in Ontario and British Columbia. Quebec and New Brunswick, on average, have the smallest new houses.
- The majority of homes recently built in Canada are two or more **storeys**. This figure is three out of four houses in Ontario. Single-storey houses are the most common type of construction in New Brunswick, Saskatchewan and especially Manitoba.

- Brick or vinyl siding, in almost equal proportions, is the **exterior wall covering** of nearly three-quarters of new Canadian houses. Stucco also plays a fairly significant role, with this material being found mainly in Manitoba, Saskatchewan and British Columbia. Vinyl siding is characteristic of new houses in Alberta. Only in Quebec are aluminum and steel siding used on a significant scale, with these materials covering approximately one-sixth of the surface of exterior walls.
- While four out of five new houses have a **garage**, heated garages continue to be rather uncommon, found in just over 10% of all new houses. Almost all houses in Ontario and the western provinces have garages; however, heated garages are more common in Quebec.
- More than four-fifths of the area below the **ground floor** is a basement; more rarely, this area is a crawl space or simply a concrete slab. British Columbia is the notable exception to this rule, since just over a third of this area is a basement.
- **Ceiling crawl spaces** usually have approximately 10 inches of insulation, composed primarily of blown fibreglass (particularly in Ontario, Saskatchewan and British Columbia), fibreglass batts (particularly in Quebec) or blown cellulose (in the Maritimes and Alberta). New Brunswick and Manitoba have the best R-values for insulation in ceiling crawl spaces.
- Nine out of ten new houses have an **attic**. Attics are almost never finished and most often are low. Quebec architecture differs in this regard, since one out of two new houses has an attic that is high enough to stand up in.
- Wood is the main **structural framing material** of recently built houses in nine cases out of ten. One Ontario home in five has a masonry structure.
- Fibreglass batting is the insulating material found commonly in **exterior walls**, either alone or with rigid foam board. This insulation combination is used especially in Ontario.

Basements and crawl spaces

- Nearly all **basements** of houses built in 1994 are heated; however, the finished and habitable portion accounts for only two-fifths of the surface area. On the other hand, the majority of basements in Quebec houses have been finished as living space.
- Just over one-third of heated basements have a **thermostat**. In Quebec, nearly nine in ten basements have a thermostat, while in Ontario and the Prairies, there are virtually no thermostats in basements.
- **Basement walls** are nearly all insulated, and when this is the case, the insulation covers nine-tenths of the surface; fibreglass batting is generally the insulating material used. In the basements of these new houses, floors and ceilings are rarely insulated. British Columbia has the best-insulated basements.
- Nearly half of the **crawl spaces** of houses built in Canada in 1994 are heated. Three-quarters of these crawl spaces have insulated exterior walls. In British Columbia, which has the largest concentration of crawl spaces, rigid foam board is used extensively for insulating the exterior walls of crawl spaces.

Windows

- If patio doors are counted along with ordinary **windows** as window surface area, an average of 19 windows in houses built in Canada in 1994 is obtained. These windows are broken down as follows: 16.6 regular windows (including 13 on the main floors and the rest in the basement) and 2.4 windows of other types (including 1.2 patio doors). New houses in Ontario and British Columbia have the most windows; British Columbia has the largest number of picture windows. Recently built houses in Quebec, New Brunswick and Manitoba have fewer windows than the national average.
- Most **basement windows** are small (2 out of 3.7); the main floors have on average 13 windows, about half of which are of medium size (between 5 and 12 sq. ft.), while four of them are even larger.

- Five out of six new houses have a **patio door**, which is usually located at the back of the house. In Quebec and Ontario, nearly all new houses have a patio door. **Bay windows** are found in one-third of recently built houses (about half in the western provinces), while **skylights** are found in approximately one home in five.
- The overwhelming majority of windows installed in new houses are **double paned**: 17.5 out of 19 windows. Single-pane windows are often found in basements. Triple pane windows have made significant inroads only in Saskatchewan and Manitoba.
- A wide variety of **window types** are installed on the main floors, but the most common types are casement windows (5.7 out of 15.4), sliding windows (2.8) and picture windows (2.3). In basements, sliding windows remain the most popular (2.1 out of 3.7).
- In terms of the **window airtightness**, one new home out of five has air leaks or drafts around certain windows. Three in ten Ontario homeowners complain of this problem compared to one in ten in British Columbia.

CONTENTS

FOREWORD	II
HIGHLIGHTS	IV
INTRODUCTION	1
1. PROFILE OF HOUSEHOLDS OWNING A HOUSE BUILT IN 1994	2
2. THE PRIMARY HEATING SYSTEM	5
3. SUPPLEMENTARY HEATING	9
4. VENTILATION AND AIR CONDITIONING	15
5. HOT WATER HEATING SYSTEM, SWIMMING POOLS AND OTHER EQUIPMENT	19
6. ARCHITECTURAL CHARACTERISTICS OF HOUSES BUILT IN 1994	23
6.1 GENERAL CHARACTERISTICS	23
6.1.1 Canadian profile	23
6.1.2 Provincial differences	26
6.2 BASEMENTS AND CRAWL SPACES	44
6.2.1 Basements	44
6.2.2 Crawl spaces	54
6.3 WINDOWS	57

APPENDIX 1 - METHODOLOGY NOTES	77
APPENDIX 2 - QUESTIONNAIRE	81
APPENDIX 3 - BIBLIOGRAPHY	107

LIST OF TABLES

Table 1	Profile of households owning a house built in 1994 - by province or region	3
Table 2.2	Primary heating system, average temperature maintained in house - by province and region	7
Table 3.1	Use and characteristics of supplementary heating systems - Canada	10
Table 3.3	Presence and use of a fireplace or wood stove and supplementary heating equipment - by province and region	12
Table 3.4	Frequency of use and areas heated by certain types of supplementary heating equipment in several regions or provinces	14
Table 4.2	Ventilation and air conditioning of houses - by province or region	17
Table 5.2	Hot water-heating system and peripheral equipment - by province or region	21

LIST OF DIAGRAMS

Diagram 2.1	Primary heating system - Canada	6
Diagram 3.2	Fireplaces and wood stoves - Canada	11
Diagram 4.1	Ventilation and air conditioning equipment - Canada	16
Diagram 5.1	Hot water-heating system and peripheral equipment - Canada	20
Diagram 6.1.1a	General characteristics of houses built in 1994 - Canada	24
Diagram 6.1.1b	General characteristics of houses built in 1994 - Canada	25
Diagram 6.1.2a	General characteristics of houses built in 1994 - New Brunswick	28
Diagram 6.1.2b	General characteristics of houses built in 1994 - New Brunswick	29
Diagram 6.1.3a	General characteristics of houses built in 1994 - Atlantic Provinces	30
Diagram 6.1.3b	General characteristics of houses built in 1994 - Atlantic Provinces	31
Diagram 6.1.4a	General characteristics of houses built in 1994 - Quebec	32
Diagram 6.1.4b	General characteristics of houses built in 1994 - Quebec	33
Diagram 6.1.5a	General characteristics of houses built in 1994 - Ontario	34
Diagram 6.1.5b	General characteristics of houses built in 1994 - Ontario	35
Diagram 6.1.6a	General characteristics of houses built in 1994 - Manitoba	36
Diagram 6.1.6b	General characteristics of houses built in 1994 - Manitoba	37
Diagram 6.1.7a	General characteristics of houses built in 1994 - Saskatchewan	38
Diagram 6.1.7b	General characteristics of houses built in 1994 - Saskatchewan	39

HOUSES BUILT IN 1994

Diagram 6.1.8a	General characteristics of houses built in 1994 - Alberta	40
Diagram 6.1.8b	General characteristics of houses built in 1994 - Alberta	41
Diagram 6.1.9a	General characteristics of houses built in 1994 - British Columbia	42
Diagram 6.1.9b	General characteristics of houses built in 1994 - British Columbia	43
Diagram 6.2.1.1	Basements of houses built in 1994 - Canada	45
Diagram 6.2.1.2	Basements of houses built in 1994 - New Brunswick	46
Diagram 6.2.1.3	Basements of houses built in 1994 - Atlantic Provinces	47
Diagram 6.2.1.4	Basements of houses built in 1994 - Quebec	48
Diagram 6.2.1.5	Basements of houses built in 1994 - Ontario	49
Diagram 6.2.1.6	Basements of houses built in 1994 - Manitoba	50
Diagram 6.2.1.7	Basements of houses built in 1994 - Saskatchewan	51
Diagram 6.2.1.8	Basements of houses built in 1994 - Alberta	52
Diagram 6.2.1.9	Basements of houses built in 1994 - British Columbia	53
Diagram 6.2.2.1	Crawl spaces of houses built in 1994 - Canada	55
Diagram 6.2.2.2	Crawl spaces of houses built in 1994 - British Columbia	56
Diagram 6.3.1a	Breakdown of windows around the house by size - All houses built in 1994 - Canada	59
Diagram 6.3.1b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Canada	60
Diagram 6.3.2a	Breakdown of windows around the house by size - All houses built in 1994 - New Brunswick	61
Diagram 6.3.2b	Breakdown of windows around the house by number of panes - All houses built in 1994 - New Brunswick	62

HOUSES BUILT IN 1994

Diagram 6.3.3a	Breakdown of windows around the house by size - All houses built in 1994 - Atlantic Provinces	63
Diagram 6.3.3b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Atlantic Provinces	64
Diagram 6.3.4a	Breakdown of windows around the house by size - All houses built in 1994 - Quebec	65
Diagram 6.3.4b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Quebec	66
Diagram 6.3.5a	Breakdown of windows around the house by size - All houses built in 1994 - Ontario	67
Diagram 6.3.5b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Ontario	68
Diagram 6.3.6a	Breakdown of windows around the house by size - All houses built in 1994 - Manitoba	69
Diagram 6.3.6b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Manitoba	70
Diagram 6.3.7a	Breakdown of windows around the house by size - All houses built in 1994 - Saskatchewan	71
Diagram 6.3.7b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Saskatchewan	72
Diagram 6.3.8a	Breakdown of windows around the house by size - All houses built in 1994 - Alberta	73
Diagram 6.3.8b	Breakdown of windows around the house by number of panes - All houses built in 1994 - Alberta	74
Diagram 6.3.9a	Breakdown of windows around the house by size - All houses built in 1994 - British Columbia	75
Diagram 6.3.9b	Breakdown of windows around the house by number of panes - All houses built in 1994 - British Columbia	76

INTRODUCTION

The *Survey of Houses Built in Canada in 1994* was conducted in early 1995 by Criterion Research Corp. on behalf of Natural Resources Canada using a methodology based primarily on the conclusions of a feasibility study conducted in December 1994. The objective of the survey was to provide a picture of the architectural and energy characteristics of new houses.

The sampling methodology was based primarily on the Canada Mortgage and Housing Corporation (CMHC) list of houses built during the reference year in areas with a population of more than 10,000. The information was collected using a mail-in questionnaire after participants were contacted by telephone. Reminder cards were sent out to improve the response rate, and a number of homeowners and builders were also contacted by telephone to validate certain information collected.

The accuracy and reliability of the published results are documented in an appendix to this report. For more information on the methodology, readers can consult the *1994 New Housing Survey Review - Final Report* and the *1994 New Housing Survey Review - Methodology Summary* prepared by Criterion.

1. PROFILE OF HOUSEHOLDS OWNING A HOUSE BUILT IN 1994

In 1994, the majority of the households that purchased a new house could be classified as high-income households; nearly half (48.3%) of these households had an annual income of more than \$60,000. Only one household in five reported an income of \$40,000 or less. The new home purchasers in 1994 with the highest incomes were in Ontario, where 59.7% had an annual income of more than \$60,000.

These new homeowners tend to be highly educated. For example, 40% of these households have at least one person with a university degree. This figure increases to 48.5% in Ontario.

These households occupying a new home contain on average 3.3 persons and often have young children. The largest households are found in British Columbia, with 3.6 persons. This province also has the highest number of new-home-purchasing households that include persons over 65 years of age, namely 17%; elsewhere in the country, this figure is generally less than 10%.

Finally, 5.8% of new home purchasers in 1994 also have another residence.

Table 1
**Profile of households owning
a house built in 1994
- by province or region -**

	Canada	Atlantic Provinces	New Brunswick
Total household income	100 %	100 %	100 %
\$30,000 or less	6.3 %	7.2 %	19.2 %
\$30,001 to \$40,000	13.7 %	23.7 %	21.9 %
\$40,001 to \$50,000	15.5 %	18.0 %	16.9 %
\$50,001 to \$60,000	16.2 %	7.6 %	16.8 %
\$60,001 to \$70,000	13.7 %	11.7 %	8.8 %
\$70,001 to \$80,000	11.1 %	11.7 %	9.0 %
\$80,001 to \$100,000	13.6 %	11.3 %	6.0 %
more than \$100,000	9.9 %	8.8 %	1.3 %
Highest level of formal education attained by any of the adults in the household			
Elementary school	0.6 %	0.6 %	2.1 %
Some high school	4.0 %	7.9 %	3.7 %
Completed high school	16.2 %	9.2 %	19.2 %
Some College	13.4 %	9.0 %	13.8 %
Some university	8.5 %	18.1 %	7.6 %
Completed college	17.1 %	11.8 %	24.7 %
Completed University	40.0 %	43.4 %	28.8 %
Number of people in the household...			
over 65 years of age	3.3	3.1	3.2
30 to 65 years of age	0.1	0.0	0.1
18 to 29 years of age	1.6	1.7	1.4
14 to 17 years of age	0.5	0.4	0.6
10 to 13 years of age	0.2	0.1	0.1
5 to 9 years of age	0.2	0.2	0.2
2 to 4 years of age	0.3	0.2	0.3
under 2 years of age	0.2	0.3	0.3
Percentage of household with at least one person...			
over 65 years of age	9.0 %	2.3 %	6.0 %
30 to 65 years of age	84.8 %	90.1 %	79.2 %
18 to 29 years of age	31.9 %	27.3 %	40.2 %
14 to 17 years of age	13.3 %	6.6 %	12.3 %
10 to 13 years of age	14.6 %	15.9 %	15.2 %
5 to 9 years of age	21.7 %	19.1 %	25.7 %
2 to 4 years of age	20.8 %	24.1 %	22.9 %
under 2 years of age	16.8 %	27.3 %	15.7 %
Owning another residence	5.8 %	8.4 %	5.7 %

Table 1
**Profile of households owning
 a house built in 1994
 - by province or region -**

Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia
100 %	100 %	100 %	100 %	100 %	100 %
6.2 %	2.4 %	8.3 %	6.1 %	5.4 %	13.6 %
19.6 %	9.7 %	16.2 %	14.6 %	9.2 %	10.3 %
17.4 %	13.2 %	15.0 %	12.4 %	17.9 %	15.1 %
19.2 %	15.0 %	17.4 %	17.7 %	20.8 %	17.0 %
13.6 %	14.5 %	16.3 %	19.2 %	12.1 %	13.1 %
11.2 %	13.1 %	10.3 %	9.2 %	8.8 %	8.0 %
7.9 %	19.9 %	8.5 %	11.5 %	14.1 %	10.7 %
4.7 %	12.2 %	8.0 %	9.2 %	11.7 %	12.2 %
0.0 %	0.9 %	2.0 %	0.7 %	0.0 %	1.0 %
3.8 %	2.8 %	5.6 %	3.6 %	2.6 %	5.2 %
22.2 %	11.6 %	20.2 %	20.1 %	10.0 %	23.3 %
11.1 %	11.9 %	12.4 %	14.4 %	18.5 %	19.1 %
10.4 %	4.9 %	12.8 %	13.7 %	6.7 %	8.9 %
18.4 %	19.3 %	13.8 %	18.0 %	20.7 %	12.3 %
34.1 %	48.5 %	33.2 %	29.5 %	41.5 %	30.2 %
3.1	3.3	3.3	3.5	3.2	3.6
0.0	0.2	0.1	0.1	0.1	0.3
1.5	1.6	1.7	1.7	1.5	1.8
0.5	0.6	0.4	0.4	0.5	0.4
0.1	0.1	0.2	0.2	0.2	0.3
0.2	0.1	0.2	0.3	0.2	0.2
0.3	0.3	0.4	0.4	0.3	0.3
0.2	0.3	0.2	0.2	0.2	0.2
0.2	0.2	0.1	0.2	0.1	0.1
3.1 %	11.0 %	6.7 %	7.5 %	7.1 %	17.0 %
81.3 %	82.2 %	87.8 %	88.4 %	85.5 %	90.9 %
34.8 %	35.0 %	25.2 %	30.6 %	32.3 %	24.9 %
12.2 %	11.5 %	12.3 %	15.0 %	17.0 %	19.8 %
12.8 %	11.4 %	17.6 %	22.4 %	18.4 %	19.9 %
22.1 %	20.5 %	27.1 %	26.5 %	23.4 %	22.8 %
19.8 %	22.5 %	19.3 %	21.1 %	16.3 %	19.3 %
17.3 %	18.5 %	13.6 %	15.6 %	12.8 %	10.3 %
8.0 %	5.2 %	7.4 %	3.5 %	4.3 %	5.9 %

2. THE PRIMARY HEATING SYSTEM

The most common type of heating system in houses built in 1994 is a furnace with hot air vents (62.8%). Four times out of five (78.2%), these central systems are fuelled by natural gas.

Baseboard heaters are found in 23% of these new houses. Central boilers (furnaces) with hot water radiators (5.8%), heat pumps (3.9%) and wood stoves (1.6%) account for a small share of this market.

Whether the heating system is a furnace with hot air vents, a boiler (furnace) with hot water radiators or a wood stove, homeowners estimate the average efficiency of their new systems at 85%, insofar as they are able to provide such technical information.

Approximately one system in four has a central electronic air filter (23.9%), a central humidifier (27.0%) or a programmable thermostat (22.9%). Central dehumidifiers are less common (11.8%).

As expected, primary heating systems and energy sources vary considerably from coast to coast. Electricity is the primary energy source of the majority of new houses in New Brunswick (80.7%) and Quebec (87.6%), with approximately seven out of ten houses heated with baseboard heaters.

Natural gas accounts for three-quarters of the market in Ontario and Manitoba and for the entire market in Saskatchewan and Alberta. In all of these provinces, furnaces with hot air vents are the primary heating systems in new houses.

In British Columbia, one new house in three (33.3%) is heated primarily with electricity; virtually all the others (64.8%) are heated with natural gas. Hence, the primary heating systems in this province are more varied compared to other provinces: 55.8% have furnaces with hot air vents, 14.6% have boilers (furnaces) with hot water radiators and 14.4% have electric baseboard heating.

Finally, the average temperature at which respondents reported keeping their home during the heating season was 20°C. The temperature is kept slightly higher in the evening compared to overnight (20.5° vs. 19.0°), but the difference is slight.

**Diagram 2.1
Primary heating system
- Canada -**

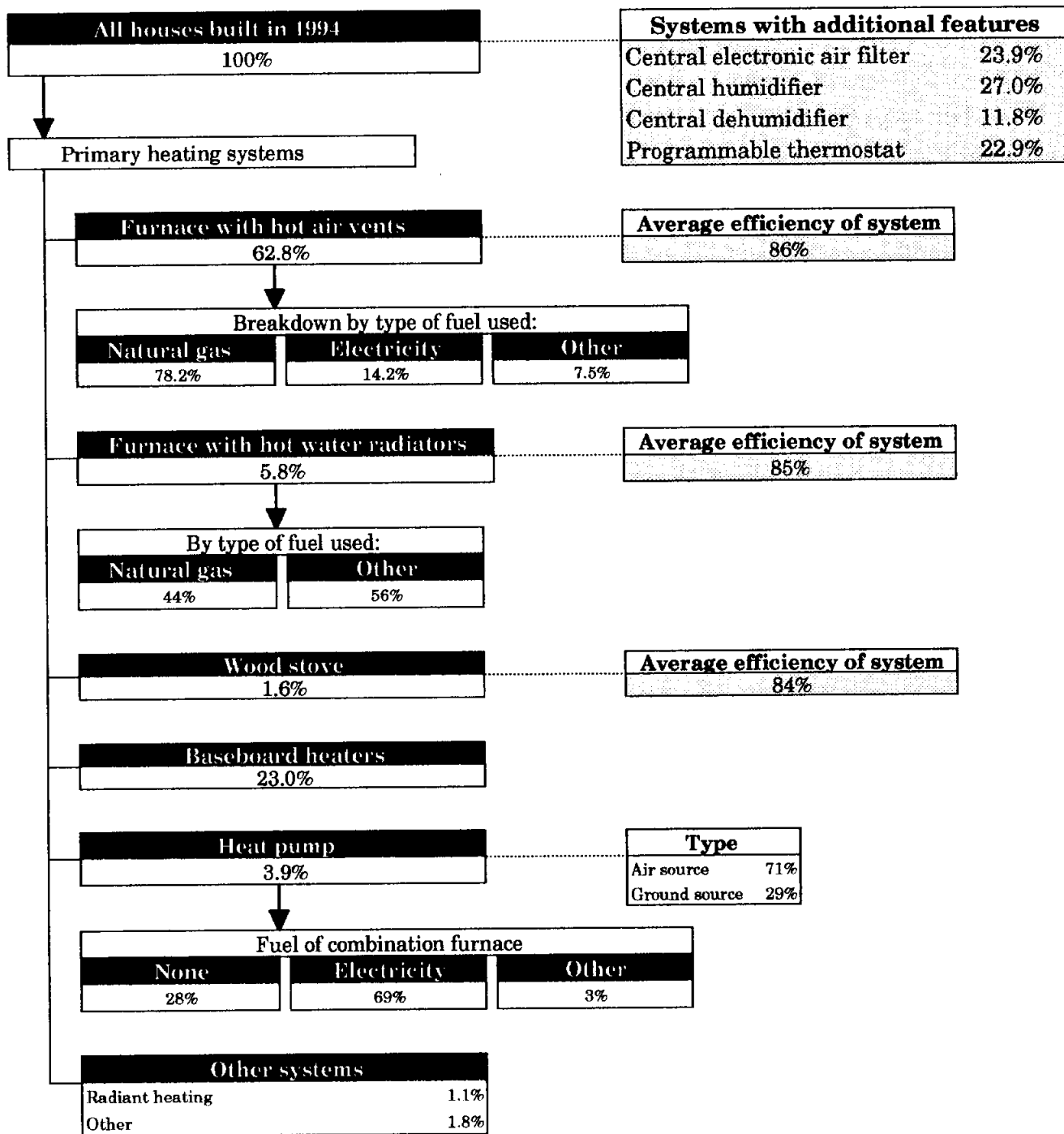


Table 2.2
Primary heating system,
average temperature maintained in house
- by province and region -

	Canada	Atlantic Provinces	New Brunswick
All new houses	100 %	100 %	100 %
Furnace with hot air vents:	62.8 %	25.4 %	11.1 %
Natural gas	78.2 %	***	***
Oil	5.7 %	***	***
Electricity	14.2 %	***	***
Other	1.9 %	***	***
Boiler (furnace) with hot water radiator	5.8 %	24.8 %	0.1 %
Wood stove	1.6 %	5.0 %	9.5 %
Baseboard heaters	23.0 %	40.4 %	67.5 %
Other	6.8 %	4.3 %	11.7 %
Fuel (all types of systems combined)			
Natural gas	52.7 %	0.0 %	0.0 %
Oil	5.9 %	42.9 %	1.6 %
Wood	2.3 %	10.4 %	16.6 %
Electricity	37.3 %	45.3 %	80.7 %
Other	1.8 %	1.4 %	1.2 %
Average Temperature maintained in house (degrees Celsius)			
Daytime	19.6	19.9	19.3
Evening	20.5	20.6	20.2
Overnight	19.0	19.0	18.7

***Insufficient sample size.

Table 2.2
Primary heating system,
average temperature maintained in house
- by province and region -

Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
100 %	100 %	100 %	100 %	100 %	100 %
16.1 %	94.2 %	94.4 %	98.6 %	99.3 %	55.8 %
23.8 %	80.7 %	75.4 %	100 %	100 %	86.8 %
13.6 %	3.6 %	0.0 %	0.0 %	0.0 %	0.0 %
56.1 %	14.3 %	23.8 %	0.0 %	0.0 %	12.6 %
6.5 %	1.5 %	0.7 %	0.0 %	0.0 %	0.7 %
1.3 %	1.3 %	1.5 %	1.4 %	0.7 %	14.6 %
4.4 %	0.0 %	0.8 %	0.0 %	0.0 %	0.7 %
70.0 %	0.0 %	0.9 %	0.0 %	0.0 %	14.4 %
8.2 %	4.5 %	2.4 %	0.0 %	0.0 %	14.5 %
Fuel (all types of systems combined)					
3.8 %	77.0 %	72.2 %	100 %	100 %	64.8 %
2.7 %	3.9 %	0.0 %	0.0 %	0.0 %	0.0 %
5.2 %	0.0 %	1.5 %	0.0 %	0.0 %	0.7 %
87.6 %	15.6 %	25.6 %	0.0 %	0.0 %	33.3 %
0.6 %	3.4 %	0.8 %	0.0 %	0.0 %	1.1 %
Average temperature maintained in house (degrees Celsius)					
19.4	19.7	20.0	19.8	19.8	19.4
20.4	20.7	20.8	20.8	20.7	20.3
18.9	19.5	19.4	18.9	19.1	18.3

3. SUPPLEMENTARY HEATING

Natural gas or propane fireplaces are the most frequently used supplementary heating equipment, being used occasionally by 37.3% of Canadian households that purchased a new house in 1994. This figure rises to nearly one home in two in Ontario, Saskatchewan and Alberta and to about two out of three homes in British Columbia. These fireplaces are used less than 25% of the time for two-thirds of the households that have this supplementary heating equipment.

Electric baseboard heaters are also used for supplementary heating in one new home in seven (13.6%). Supplementary electric baseboard heaters are often used in basements (51.9%) but may also be used to heat part of the main living space (45.5%) or even the garage (20.2%). In Quebec, one new home in four (25.4%) uses electric baseboard heaters as supplementary heating. In this province, 51.4% of the users of this equipment use it 25% of the time or more, and it is often used to heat the basement (74.7%) or the garage (31.7%).

Other supplementary heating equipment used less frequently in houses built in 1994 includes portable heaters (8.1%, nearly all electric), wood stoves (5.6%) and various other devices (4.9%). Wood stoves are used to heat the basement (45.6%) but are more often used to heat the upper floors (82.4%).

Fireplaces and wood stoves can also be used as both primary and supplementary heating systems. For instance, 48% of new houses have a natural gas or propane fireplace. This proportion increases in the western provinces, climbing to 85% in British Columbia. One in six houses (16.3%) built in 1994 has a wood-burning fireplace; Quebec has the largest number of such fireplaces (28.8%). The majority (62.2%) of households with a wood-burning fireplace use it at least once a week. On average, they burn two cords of wood in the fireplace annually.

Finally, 7.4% of households living in a new house built in 1994 use a wood stove to heat the home, both as the primary source of heating and as a secondary source. The highest percentage of houses using wood stoves for this purpose is found in the Atlantic Provinces (23.5%) and Quebec (16.1%).

Table 3.1
Use and characteristics of supplementary heating systems
- Canada -

All houses built in 1994	Supplementary equipment				
	Electric baseboard heaters	Portable heaters	Wood stoves	Gas or propane fireplace	Other supplement- ary
Use this equipment for supplementary heating	13.6 %	8.1 %	5.6 %	37.3 %	4.9 %
A) Frequency of use					
Less than 25% of the time	64.7 %	77.4 %	29.7 %	65.4 %	48.7 %
25% to 75% of the time	19.0 %	18.8 %	56.6 %	28.1 %	21.0 %
More than 75% of the time	16.3 %	3.8 %	13.7 %	6.5 %	30.3 %
B) Areas heated					
Part of main living space	45.5 %	34.4 %	82.4 %	91.7 %	57.5 %
Basement	51.9 %	22.0 %	45.6 %	12.3 %	30.5 %
Garage	20.2 %	25.1 %	0.4 %	0.2 %	34.2 %
Attic	1.5 %	0.9 %	0.9 %	0.0 %	3.0 %
Solarium/Sunroom	1.6 %	0.0 %	0.4 %	0.5 %	0.4 %
Other	15.6 %	24.0 %	4.5 %	6.5 %	11.3 %
C) Fuel used					
Electricity	100 %	94.9 %	n.a.	0.0 %	39.1 %
Natural Gas	n.a.	2.2 %	n.a.	90.1 %	22.5 %
Oil	n.a.	0.0 %	n.a.	0.0 %	18.6 %
Propane	n.a.	2.3 %	n.a.	9.7 %	4.1 %
Other	n.a.	2.1 %	100 %	0.2 %	16.3 %

***Insufficient sample size.

**Diagram 3.2
Fireplaces and wood stoves
- Canada -**

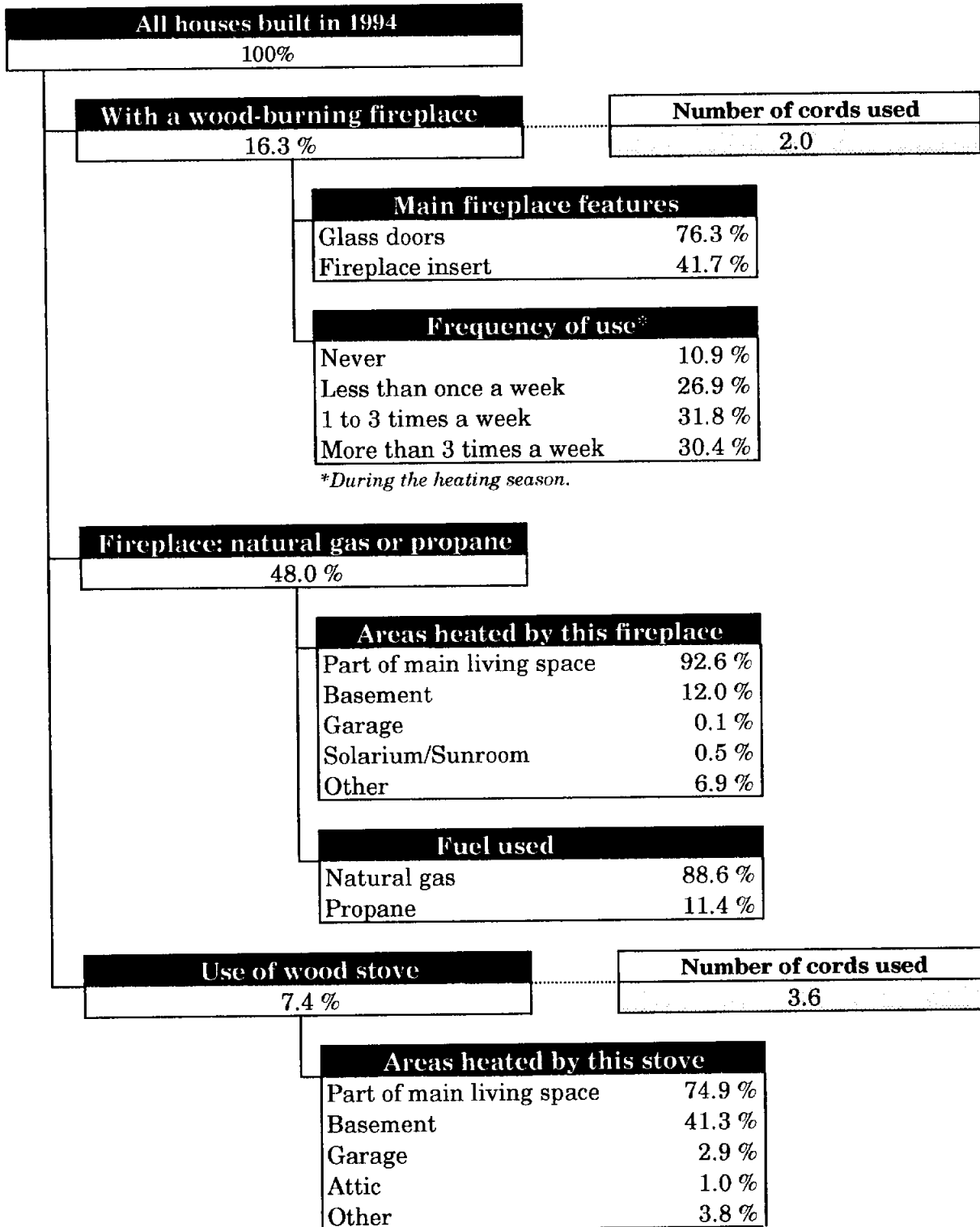


Table 3.3
Presence and use of a fireplace or wood stove
and supplementary heating equipment
- by province and region -

	Canada	Atlantic Provinces	New Brunswick
Presence in the house of a fireplace:			
wood	16.3 %	10.8 %	7.0 %
gas or propane	48.0 %	24.5 %	11.3 %
Use of a wood stove (as primary or supplementary heating)	7.4 %	23.5 %	22.7 %
Equipment used for supplementary heating			
Electric baseboard heaters	13.6 %	11.8 %	28.6 %
Portable heaters	8.1 %	1.9 %	4.6 %
Wood stove	5.6 %	17.9 %	15.1 %
Gas or propane fireplace	37.3 %	21.6 %	8.5 %
Other supplementary equipment	4.9 %	9.8 %	5.6 %

Table 3.3
Presence and use of a fireplace or wood stove
and supplementary heating equipment
- by province and region -

Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia
28.8 %	16.7 %	10.6 %	4.8 %	10.0 %	6.4 %
4.8 %	56.8 %	34.9 %	61.6 %	72.0 %	85.0 %
16.1 %	1.7 %	5.1 %	0.0 %	1.4 %	3.8 %
25.4 %	8.1 %	7.1 %	2.7 %	1.8 %	17.0 %
6.1 %	9.4 %	8.1 %	6.8 %	9.6 %	10.6 %
12.2 %	1.1 %	3.6 %	0.0 %	1.4 %	2.7 %
4.4 %	44.4 %	25.8 %	46.9 %	56.4 %	64.2 %
7.3 %	2.3 %	4.1 %	6.1 %	5.3 %	4.6 %

Table 3.4
Frequency of use and areas heated
by certain types of supplementary heating equipment
in several regions or provinces

Electric baseboard heaters				
Among users of this equipment		Atlantic Provinces	Quebec	
A) Frequency of use during the heating season				
Less than 25% of the time		62.2 %	48.6 %	
25% to 75% of the time		23.7 %	31.9 %	
More than 75% of the time		14.2 %	19.4 %	
B) Areas heated				
Part of main living space		77.4 %	42.2 %	
Basement		49.8 %	74.7 %	
Garage		10.4 %	31.7 %	
Attic		0.3 %	0.9 %	
Solarium/Sunroom		5.4 %	1.9 %	
Other		14.0 %	9.2 %	

Natural gas or propane fireplace					
Among users of this equipment	Ontario	Manitoba	Saskatchewan	Alberta	B. C.
A) Frequency of use during the heating season					
Less than 25% of the time	66.5 %	66.3 %	66.2 %	73.8 %	60.0 %
25% to 75% of the time	28.0 %	30.8 %	27.7 %	24.8 %	30.1 %
More than 75% of the time	5.5 %	2.9 %	6.2 %	1.4 %	9.9 %
B) Areas heated					
Part of main living space	91.0 %	86.1 %	97.1 %	86.4 %	95.5 %
Basement	8.1 %	11.4 %	8.8 %	20.1 %	15.4 %
Garage	0.0 %	0.9 %	0.0 %	1.3 %	0.0 %
Attic	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Solarium/Sunroom	0.4 %	1.4 %	0.0 %	0.0 %	1.0 %
Other	4.3 %	5.8 %	2.9 %	1.9 %	12.1 %

4. VENTILATION AND AIR CONDITIONING

Houses built in 1994 often have central ventilation (56.2%) and fairly often have central air conditioning (30.6%). Less commonly (4.5%), these houses have been equipped with window air conditioners.

Central ventilation systems are used year-round by 76.6% of their owners and are equipped with a heat exchanger in 60.8% of cases. In more than half (56.1%) of the houses using this equipment, the ventilator operates continually. One in three (34.7%) such systems have only a single speed, while another one in three (34%) run less than half the time at full speed even though they have several operating speeds.

Central air conditioning systems operate half of the summer or more in 66.7% of new houses in which they are installed. In the case of window air conditioners, only 39.5% of their owners operate them as frequently during the summer season.

Central ventilation systems in new houses are most common in the Atlantic Provinces (83.3%) and Quebec (75.6%). West of Manitoba, about 33% of houses are equipped with such systems. Central air conditioning is a particularly popular feature of newly built houses in Ontario (63.1%) and Manitoba (58.5%).

**Diagram 4.1
Ventilation and air conditioning
equipment
- Canada -**

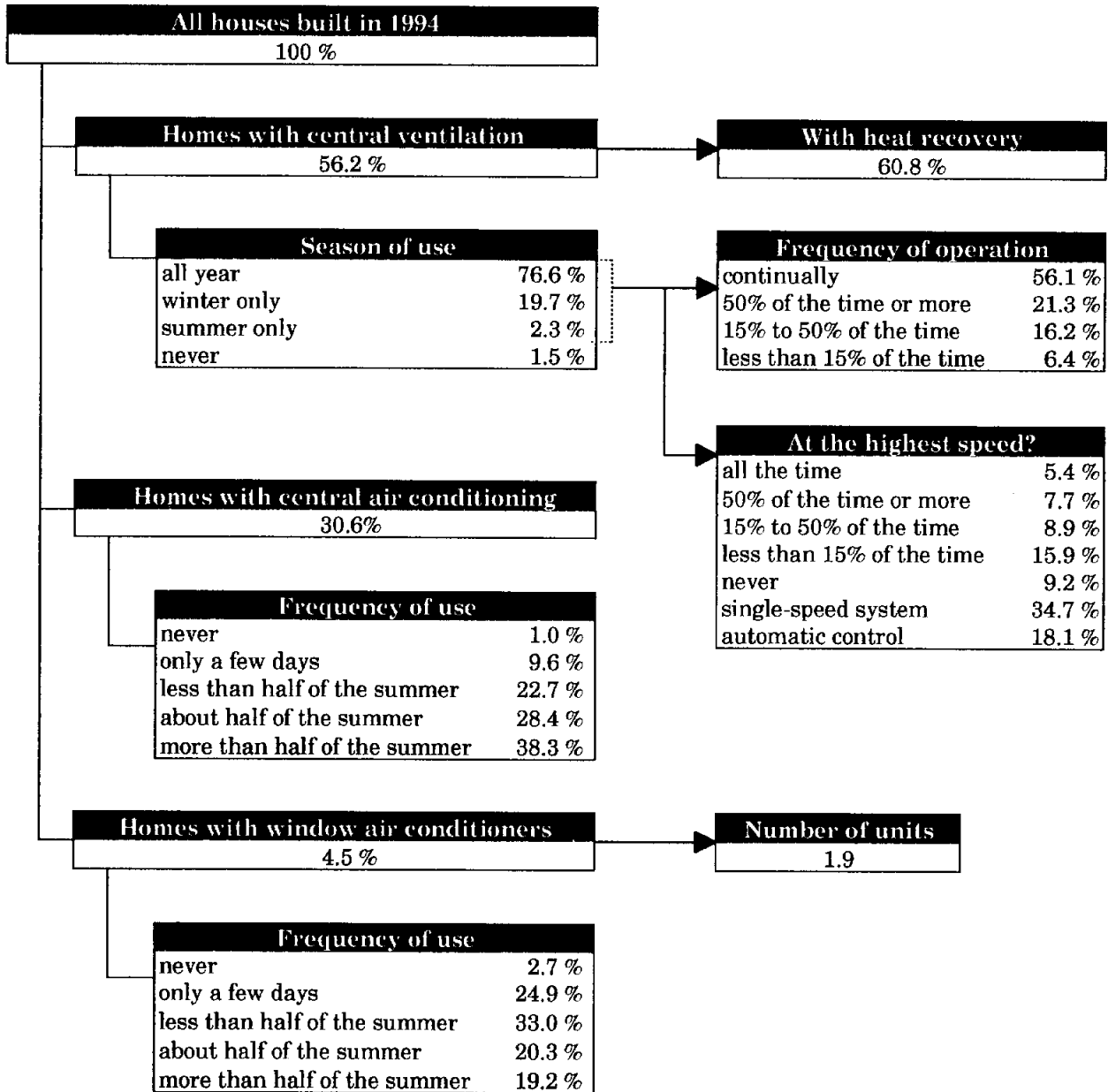


Table 4.2
Ventilation and air conditioning of houses
- by province or region -

	Canada	Atlantic Provinces	New Brunswick
All houses built in 1994	100 %	100 %	100 %
With central ventilation	58.2 %	83.3 %	85.0 %
With heat recovery	60.8 %	58.2 %	76.0 %
Season of use			
All year	76.6 %	80.6 %	80.1 %
Winter only	19.7 %	18.7 %	17.8 %
Summer only	2.3 %	0.7 %	2.1 %
Never	1.5 %	0.0 %	0.0 %
Frequency			
Continually	56.1 %	40.0 %	55.8 %
50% of the time or more	21.3 %	29.1 %	23.9 %
15% to 50% of the time	16.2 %	26.3 %	18.8 %
Less than 15% of the time	6.4 %	4.6 %	1.5 %
At the highest speed			
Single-speed system	34.7 %	11.8 %	15.9 %
All the time	5.4 %	13.1 %	7.8 %
50% of the time or more	7.7 %	13.3 %	3.1 %
15% to 50% of the time	8.9 %	16.5 %	19.7 %
Less than 15% of the time	15.9 %	11.7 %	24.4 %
Never	9.2 %	12.7 %	6.4 %
Automatic control	18.1 %	20.9 %	22.8 %
With central air conditioning	30.6 %	2.5 %	5.3 %
Frequency of use			
Never	1.0 %	***	***
Only a few days	9.6 %	***	***
Less than half the summer	22.7 %	***	***
About half of the summer	28.4 %	***	***
More than half of the summer	38.3 %	***	***
With window air conditioner	4.5 %	7.9 %	3.6 %

***Insufficient sample size

Table 4.2
Ventilation and air conditioning of houses
- by province or region -

Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
100 %	100 %	100 %	100 %	100 %	100 %
75.6 %	53.9 %	42.5 %	33.8 %	36.1 %	32.6 %
45.2 %	79.1 %	63.8 %	45.9 %	61.4 %	72.4 %
77.2 %	72.5 %	81.8 %	***	***	85.4 %
19.5 %	22.5 %	14.8 %	***	***	10.9 %
2.9 %	1.3 %	2.2 %	***	***	3.7 %
0.3 %	3.8 %	1.1 %	***	***	0.0 %
56.2 %	65.5 %	47.9 %	***	***	53.4 %
26.5 %	13.2 %	13.3 %	***	***	17.2 %
12.4 %	13.7 %	22.1 %	***	***	20.3 %
4.9 %	7.6 %	16.7 %	***	***	9.1 %
47.3 %	30.9 %	30.5 %	***	***	27.5 %
4.7 %	3.5 %	3.6 %	***	***	2.7 %
11.0 %	3.5 %	5.3 %	***	***	2.7 %
6.9 %	6.6 %	13.2 %	***	***	13.4 %
11.8 %	19.1 %	22.5 %	***	***	29.7 %
5.1 %	14.7 %	2.6 %	***	***	5.3 %
13.3 %	21.6 %	22.4 %	***	***	18.6 %
9.1 %	63.1 %	58.5 %	25.2 %	10.6 %	13.3 %
***	1.2 %	0.0 %	***	***	***
***	5.5 %	7.2 %	***	***	***
***	23.3 %	20.2 %	***	***	***
***	29.6 %	26.6 %	***	***	***
***	40.4 %	46.0 %	***	***	***
4.6 %	4.4 %	1.8 %	2.0 %	2.5 %	4.6 %

5. HOT WATER-HEATING SYSTEM, SWIMMING POOLS AND OTHER EQUIPMENT

Nine times out of ten, the water-heating systems installed in houses built in 1994 are hot water tanks that are separate from the home-heating system and not shared with other dwellings.

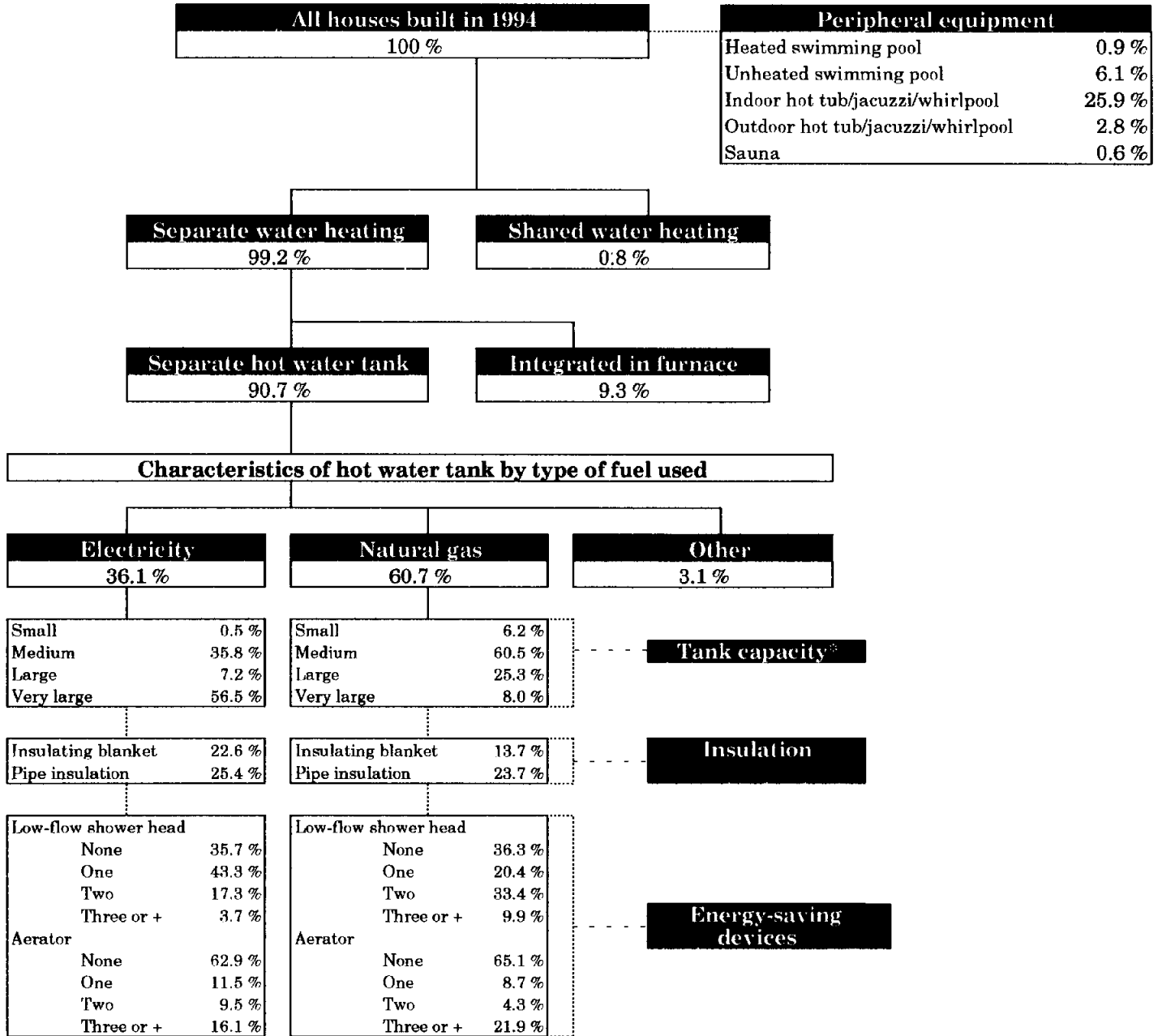
Some 60.7% of these separate hot water tanks are fuelled by natural gas, while the remainder, just over one-third (36.1%), are electric. Electric hot water tanks tend to be large capacity (56.5% contain 60 gallons or more), while natural gas fuelled water tanks usually have a capacity of 40 gallons (60.5%) or 50 gallons (25.3%).

Approximately one hot water tank in five (18.3%) has an insulating blanket; the use of insulation around the pipes is slightly more common (25.4%). In terms of hot water energy-saving devices, low-flow shower heads are found in three out of five new houses (60.8%), while tap aerators are found in only one home in three (32.3%).

Provincial variations tend to reflect primarily the availability of energy sources. It is therefore not surprising to note that 95.3% of all new hot water tanks in Quebec are electric, while natural gas clearly dominates this market in Ontario and the western provinces (98% of hot water tanks in Saskatchewan and Alberta). Another regional difference is that in Quebec nearly seven out of ten (69.6%) hot water tanks have a 60-gallon capacity, while elsewhere in Canada tanks of this size are the exception.

Although, at the time of the interviews, houses built in 1994 rarely had a heated swimming pool (0.9%), unheated swimming pool (6.1%), sauna (0.6%) or outdoor hot tub/jacuzzi/whirlpool, a fairly large number had an indoor hot tub/jacuzzi/whirlpool (25.9%). These tubs are particularly popular in the western provinces (for example, 48.2% in Alberta).

**Diagram 5.1
Hot water-heating system
and peripheral equipment
- Canada -**



*Capacity: small = 30 gal. or less; medium = 40 gal.; large = 50 gal.; very large = 60 gal. or more

Table 5.2
Hot water-heating system and peripheral equipment
- by province or region -

	Canada	Atlantic Provinces	New Brunswick
All houses built in 1994	100 %	100 %	100 %
Hot water supply			
Separate water heating	99.2 %	99.7 %	99.0 %
Shared water heating	0.8 %	0.3 %	1.0 %
Equipment for separate hot water			
Separate hot water tank	90.7 %	73.8 %	93.6 %
Hot water tank integrated with furnace	9.3 %	26.2 %	6.4 %
Characteristics of separate hot water tank			
Fuel used			
Electricity	36.1 %	78.7 %	99.1 %
Natural Gas	60.7 %	0.0 %	0.0 %
Other	3.1 %	21.3 %	0.9 %
Capacity			
30 gallons or less	5.0 %	12.2 %	2.0 %
40 gallons	49.8 %	61.1 %	59.8 %
50 gallons	18.8 %	12.8 %	8.4 %
60 gallons or more	26.3 %	13.9 %	29.9 %
Insulation			
Insulating blanket around tank	18.3 %	33.2 %	20.8 %
Insulation around pipes	25.4 %	25.2 %	34.9 %
Energy-saving devices			
Low-flow shower head			
None	39.2 %	30.5 %	34.6 %
One	27.1 %	24.3 %	41.8 %
Two or more	33.7 %	45.2 %	23.6 %
Aerator			
None	67.7 %	74.2 %	72.6 %
One	9.6 %	17.5 %	7.6 %
Two or more	22.7 %	8.3 %	19.8 %
Peripheral equipment			
Heated swimming pool	0.9 %	0.0 %	0.1 %
Unheated swimming pool	6.1 %	3.3 %	4.9 %
Indoor hot tub/jacuzzi/whirlpool	25.9 %	40.0 %	25.7 %
Outdoor hot tub/jacuzzi/whirlpool	2.8 %	0.1 %	0.4 %
Sauna	0.6 %	0.1 %	0.4 %

Table 5.2
Hot water-heating system and peripheral equipment
- by province or region -

Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
100 %	100 %	100 %	100 %	100 %	100 %
99.5 %	98.7 %	99.6 %	99.3 %	100.0 %	99.3 %
0.5 %	1.3 %	0.4 %	0.7 %	0.0 %	0.7 %
86.8 %	92.6 %	96.6 %	97.1 %	98.9 %	95.6 %
13.2 %	7.4 %	3.4 %	2.9 %	1.1 %	4.4 %
95.3 %	6.2 %	31.3 %	1.5 %	1.9 %	26.4 %
3.9 %	90.5 %	68.5 %	98.5 %	98.1 %	72.8 %
0.8 %	3.4 %	0.2 %	0.0 %	0.0 %	0.8 %
0.0 %	3.6 %	9.9 %	7.8 %	11.8 %	6.7 %
25.4 %	59.9 %	65.1 %	68.7 %	56.7 %	50.9 %
5.0 %	26.5 %	12.0 %	20.3 %	22.8 %	22.8 %
69.6 %	10.0 %	12.9 %	3.1 %	8.7 %	19.6 %
21.3 %	11.6 %	19.1 %	9.4 %	17.7 %	21.7 %
24.9 %	34.8 %	20.3 %	16.5 %	12.6 %	15.9 %
43.3 %	41.1 %	39.1 %	53.2 %	40.9 %	32.8 %
48.7 %	25.5 %	22.1 %	9.2 %	15.8 %	10.5 %
8.0 %	33.4 %	38.8 %	37.6 %	43.2 %	56.7 %
68.3 %	69.1 %	69.5 %	75.4 %	67.1 %	60.2 %
11.5 %	8.9 %	10.0 %	7.2 %	4.8 %	6.6 %
20.2 %	21.9 %	20.5 %	17.4 %	28.2 %	33.2 %
1.5 %	0.9 %	0.0 %	0.0 %	0.4 %	0.7 %
14.9 %	3.3 %	3.1 %	1.5 %	1.9 %	4.4 %
14.3 %	22.6 %	32.8 %	38.8 %	48.2 %	28.5 %
0.5 %	1.8 %	2.7 %	0.7 %	5.3 %	7.8 %
0.2 %	0.4 %	1.7 %	1.4 %	0.4 %	1.6 %

6. ARCHITECTURAL CHARACTERISTICS OF HOUSES BUILT IN 1994

6.1 GENERAL CHARACTERISTICS

6.1.1 *Canadian profile*

In general, houses built in 1994 have a large square footage; 35.2% of houses have more than 2,000 sq. ft. of heated living space, excluding the basement and garage. Single-storey new houses are fairly rare (22.5%); the most common configuration is two full storeys (55.4%).

Although a variety of materials can be used as exterior wall coverings, a significant proportion of new houses are covered with either brick (35.6%) or vinyl siding (36.4%). Stucco is also on a fairly significant scale (16.0%).

While four out of five new houses (80.7%) have a garage, heated garages remain fairly rare (12.2% of all new houses). When there is a heated garage attached to the home, it is most often under a heated room (57%), and the garage door is insulated on the inside (76%).

In the majority of new houses, the area below the ground floor is a basement (82.6%); more rarely, this area is a crawl space (9.1%) or simply a concrete slab (6.2%). On average, the basement or crawl space occupies 1,119 sq. ft.

The ceiling crawl space usually has approximately 10 inches of insulation, consisting primarily of blown fibreglass (35.7%), fibreglass batts (34.9%) or blown cellulose (24.0%). These houses usually have an unfinished attic that is either low in height (52.4%) or has sufficient room to stand up in (38.6%). The main structural framing material of recently built houses is usually wood (91.0%). Fibreglass batting is the insulating material used almost without exception in exterior walls, either alone (77.9%) or in combination with rigid foam board (19.1%).

In terms of the airtightness of windows, one new home out of five has air leaks or drafts around certain windows.

Diagram 6.1.1a
General characteristics of
houses built in 1994
- Canada -

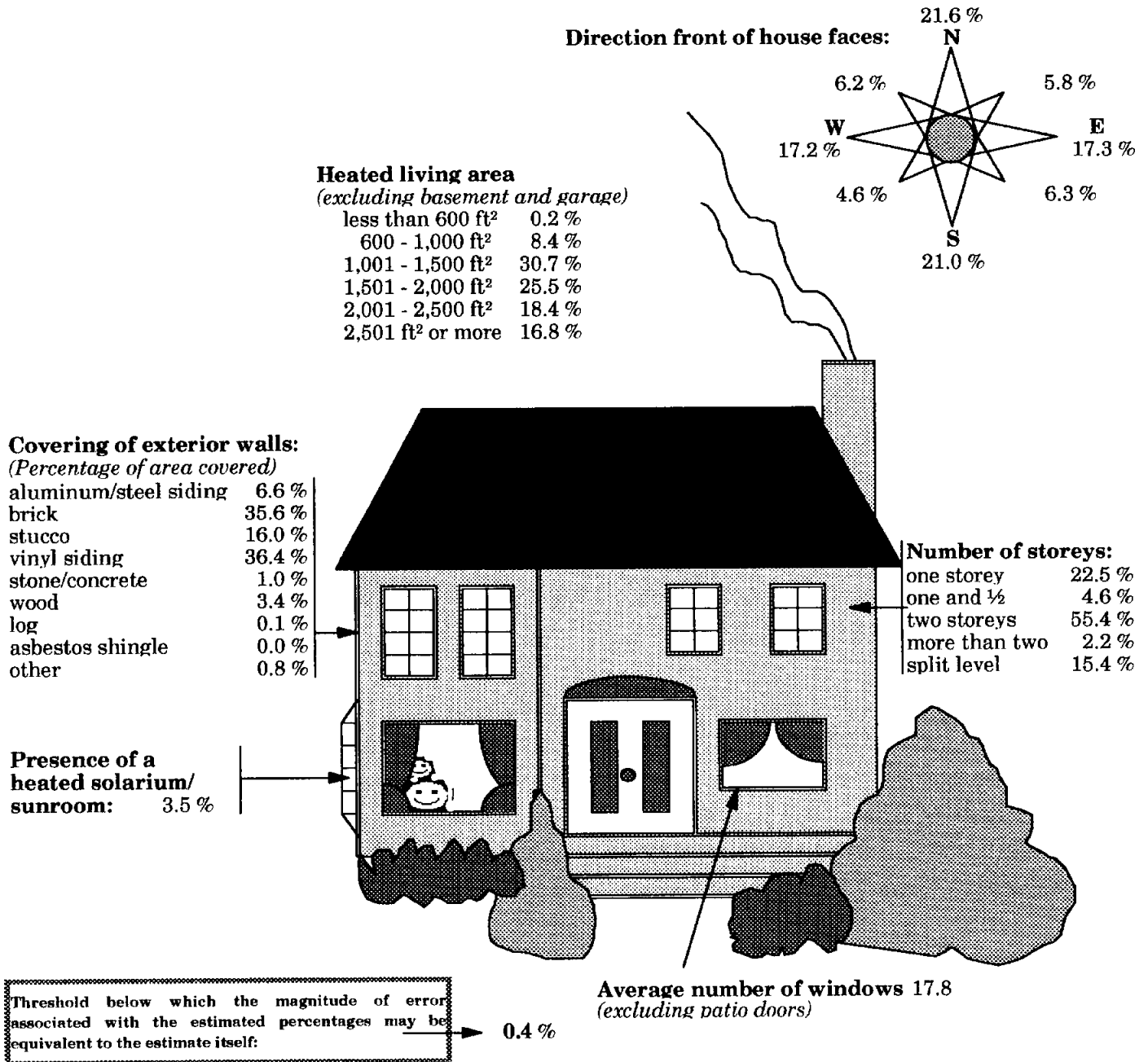
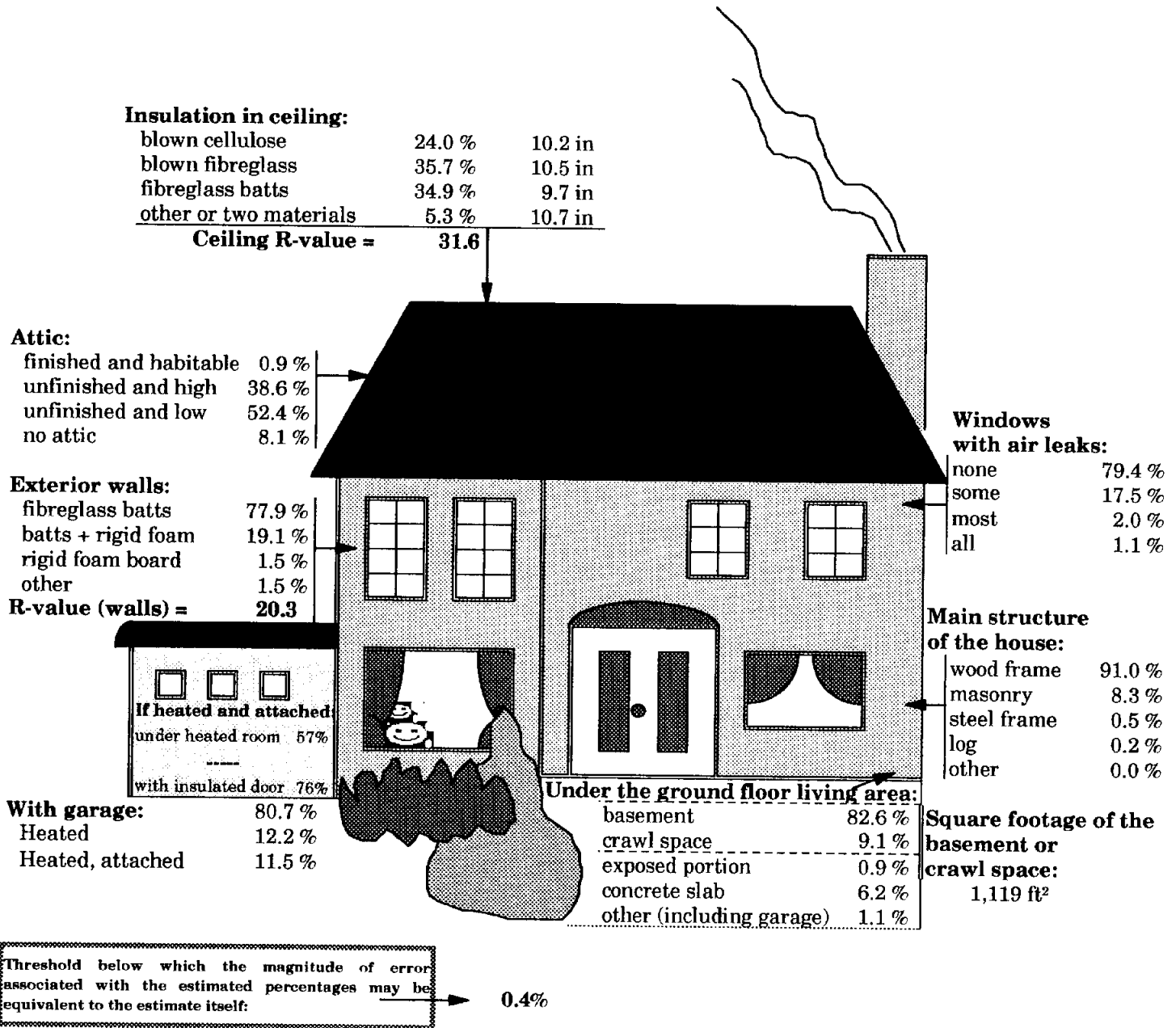


Diagram 6.1.1b
General characteristics of
houses built in 1994
- Canada -



6.1.2 Provincial differences

Houses built in 1994 in New Brunswick differ from the national profile presented above in the following ways: the heated living space is smaller (58.9% have 1,500 sq. ft. or less); more often, they are only one storey (43.5%); the exterior covering is virtually limited to vinyl siding (83.0%); they have on average fewer windows (14.2); and they less often have a garage (58.6%).

In general, the profile of new houses built in 1994 in all Atlantic Provinces is fairly similar to this portrait of New Brunswick, except that houses are slightly larger and rooms are less often concentrated on a single floor. New Brunswick has the highest R-value for attic insulation at 35.3.

Compared to the average Canadian profile, Quebec houses built in 1994 are also smaller (70.3% have 1,500 sq. ft. or less), slightly more often are only one storey (30.4%) and, although the exterior covering is primarily brick (28.7%) and vinyl siding (44.8%), aluminium and steel siding cover 17.6% of surfaces. In addition, recently built houses in Quebec have fewer windows (13.1) and less often have a garage (44.2%), but the garage is more often heated and attached (27.6% of all new houses). Finally, almost all Quebec houses (94.6%) have a basement, while unfinished but high attics are more common than elsewhere in Canada (50.4%).

Houses built in Ontario in 1994, on the other hand, differ in terms of their size (42.3% have more than 2,000 sq. ft. and 71.1% are two full storeys) and their exterior covering (72.5% of the surface is covered with brick). Almost all houses have a basement (94.5%) and a garage (98.0%); however, the garages are almost never heated (1.2%). Although, as elsewhere in Canada, wood is the most common structural framing material, new Ontario houses use masonry (19.0%) more often than in the rest of the country. Finally, attics/ceiling crawl spaces have an R-value comparable to the national average (R=31.0), although three Ontario homeowners in ten complain of air leaks and drafts around certain windows.

Manitoba has a large proportion of new houses of medium size (74.4% have a heated living space of between 1,000 and 2,000 sq. ft.), with only one storey (53.5%) and with stucco as the exterior covering (65.2%). Wood-framing is the norm (99.4%), and nearly all houses have a basement (91.1%) and a garage (88.5%). The basements are large (1,245 sq. ft.) but the garages are rarely heated (7%). Finally, attics have an average R-value of 34.2.

Essentially the same trends were observed in houses built in Saskatchewan in 1994: medium size (80.9% have a heated living space of between 1,000 and 2,000 sq. ft.), stucco covered (73.5%), houses with wood framing (100%), a garage (95.2%) and a basement (92.1%). These houses differ from the national profile in terms of the split-level structure (24.5%) and low attics (68.3%) as well as the frequent use of fibreglass batts in the walls (96.4%) and blown fibreglass in the attic/ceiling crawl space (53.7%).

These specific features found in houses built in Saskatchewan are also found in Alberta: split-level structure (26.3%) and low attics (67.0%), and frequent use of fibreglass batts in the walls (94.7%); however, blown cellulose is the main insulation used in the attic/ceiling crawl space (40.5%). In addition, the use of vinyl siding (60.2%) on exterior walls clearly differentiates new Albertan houses from other recent housing built in the Prairies.

Houses built in British Columbia in 1994 differ most in terms of the size of the heated living space and the lack of a basement: 63.6% have more than 2,000 sq. ft., 58.8% have two or more storeys (not counting the 13.9% of split levels) but only 35.8% have a basement. The area below the ground floor is often a crawl space (37.3%) or simply a concrete slab (23.5%). With an average of 22.9 windows, new houses in British Columbia far exceed the national average (17.8). In terms of exterior wall covering, stucco (48.2%), vinyl siding (36.4%) and wood (9.6%) give new houses in this province a unique character.

Diagram 6.1.2a
General characteristics of
houses built in 1994
- New Brunswick -

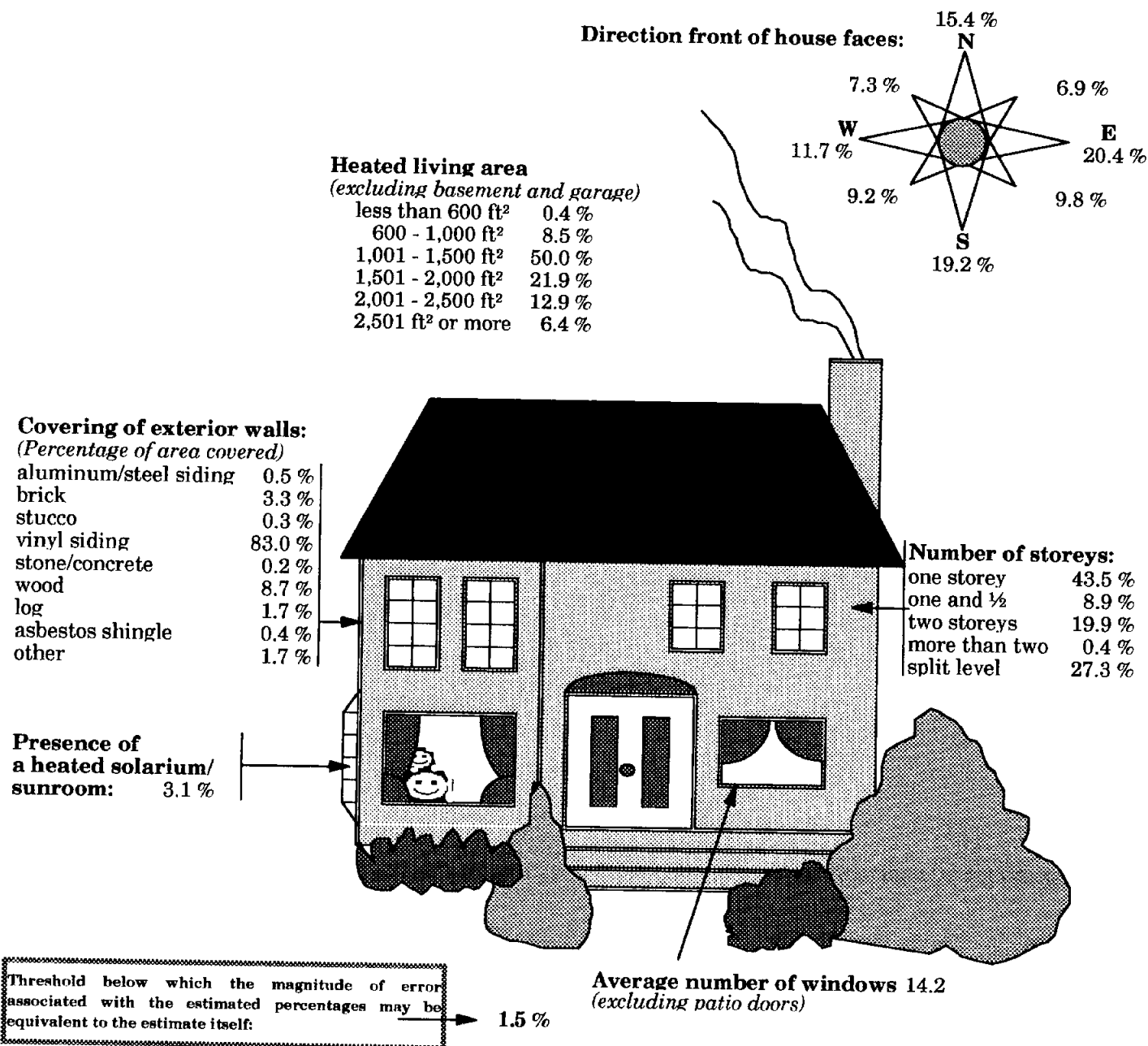


Diagram 6.1.2b
**General characteristics of
houses built in 1994**
- New Brunswick -

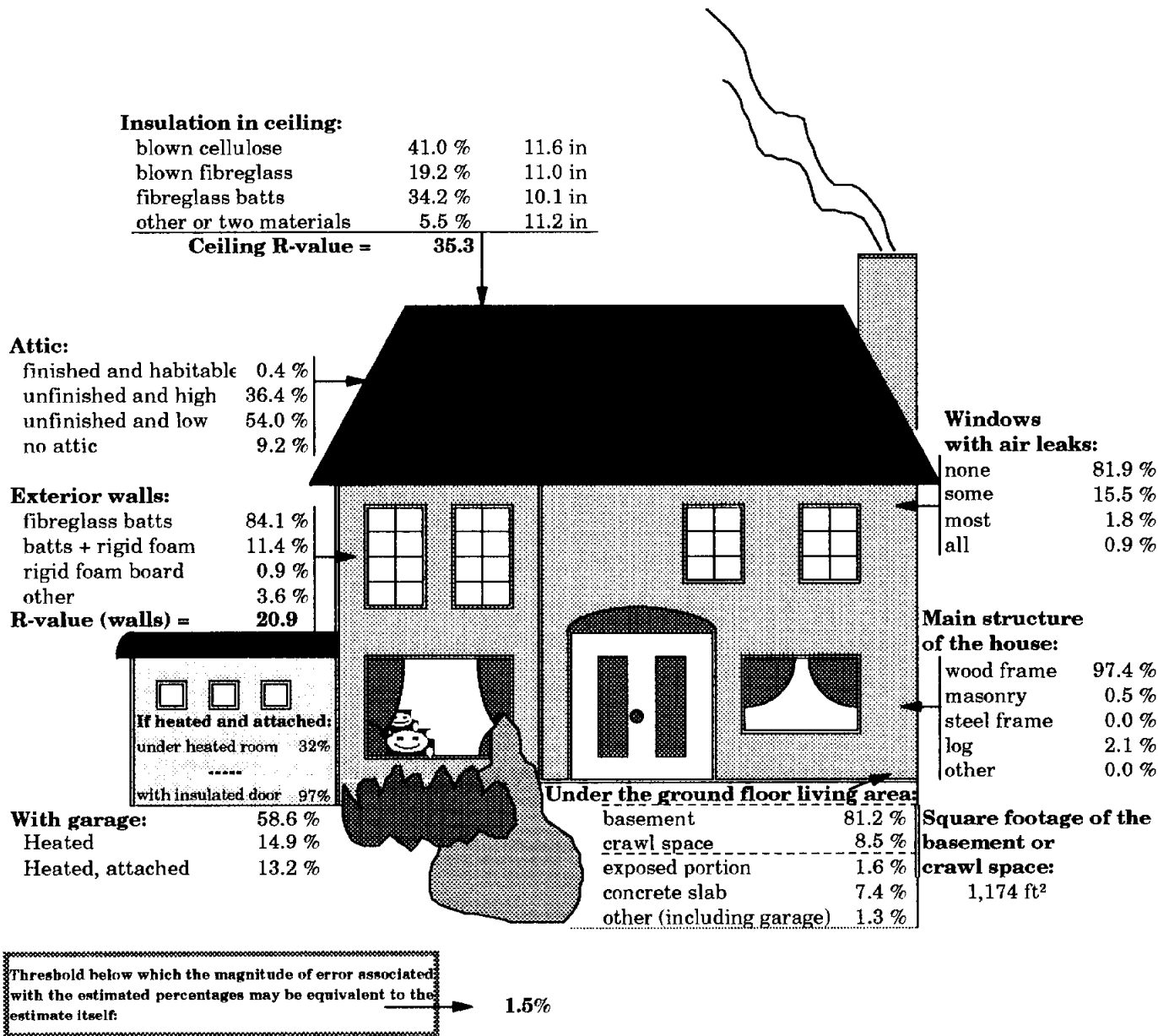


Diagram 6.1.3a
General characteristics of
houses built in 1994
- Atlantic Provinces -

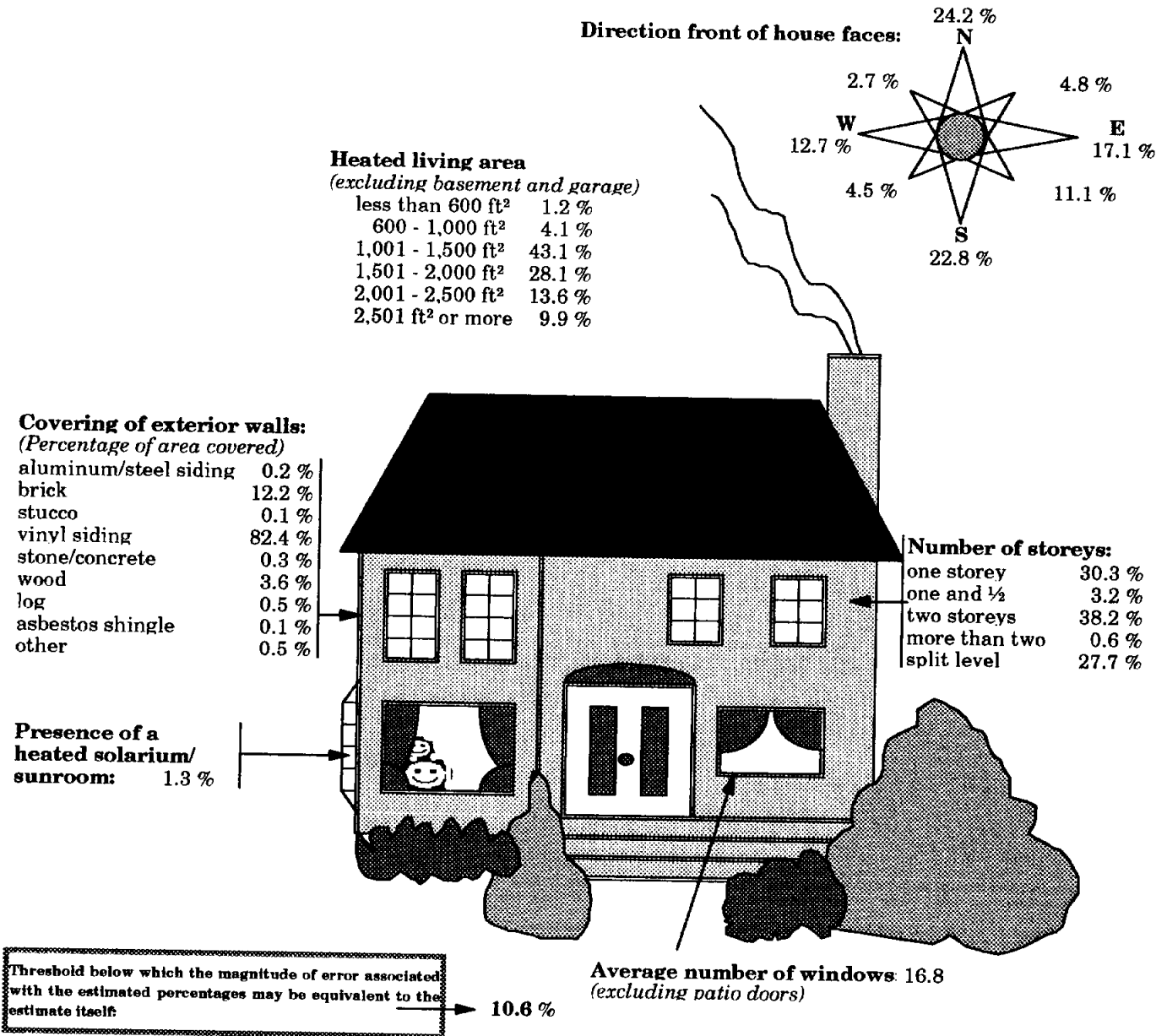


Diagram 6.1.3b
General characteristics of
houses built in 1994
- Atlantic Provinces -

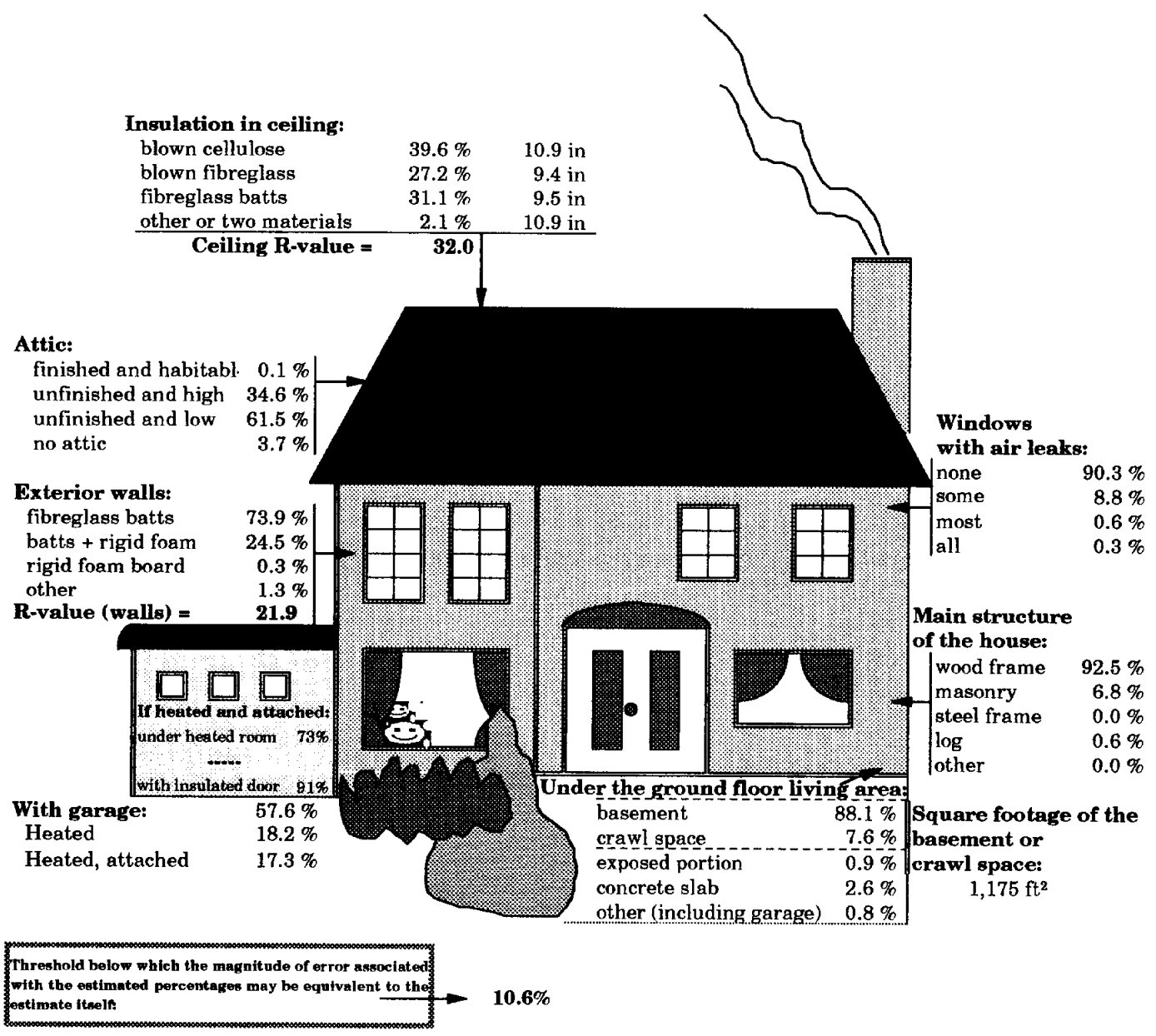


Diagram 6.1.4a
General characteristics of
houses built in 1994
- Quebec -

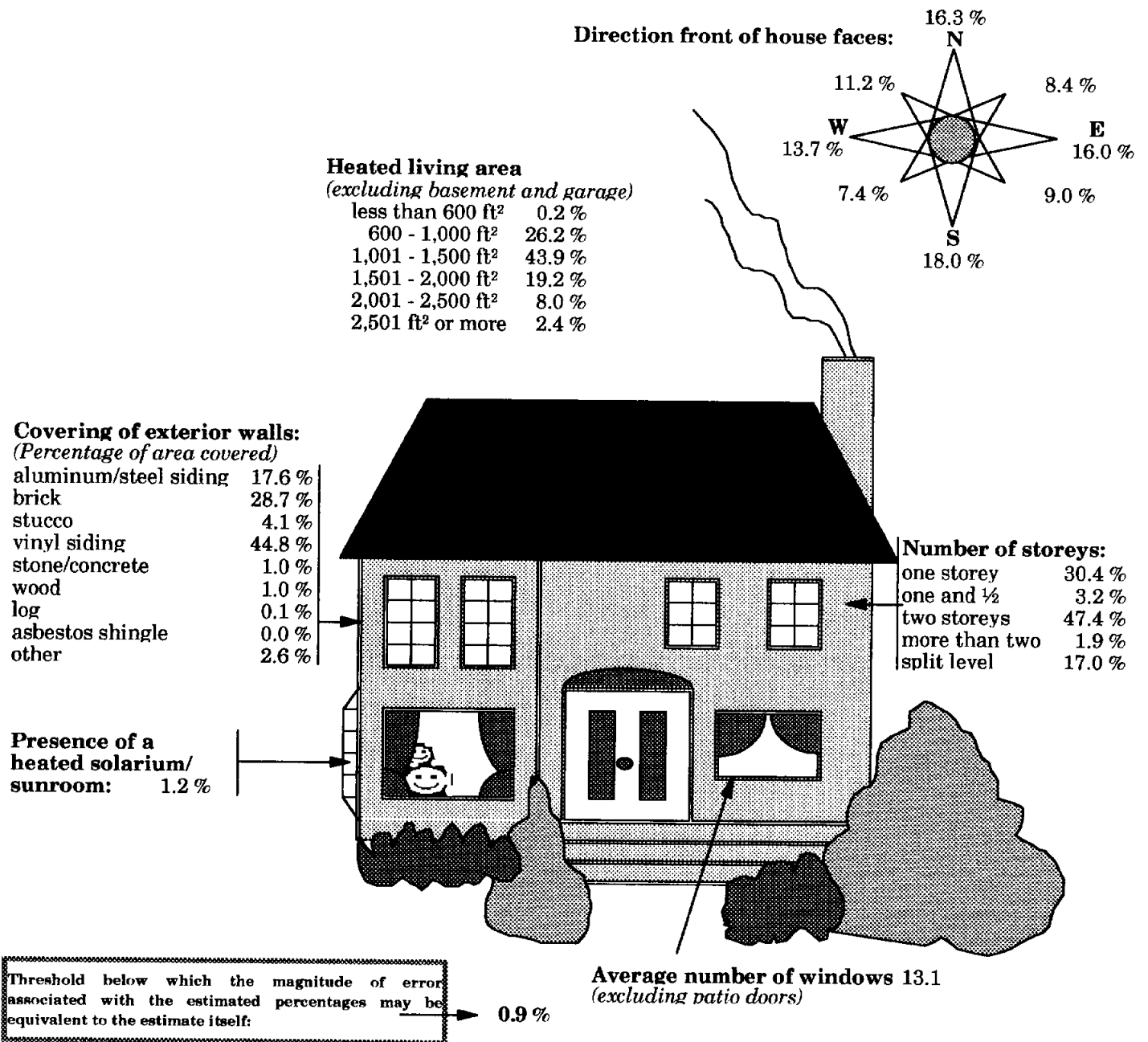


Diagram 6.1.4b
General characteristics of
houses built in 1994
- Quebec -

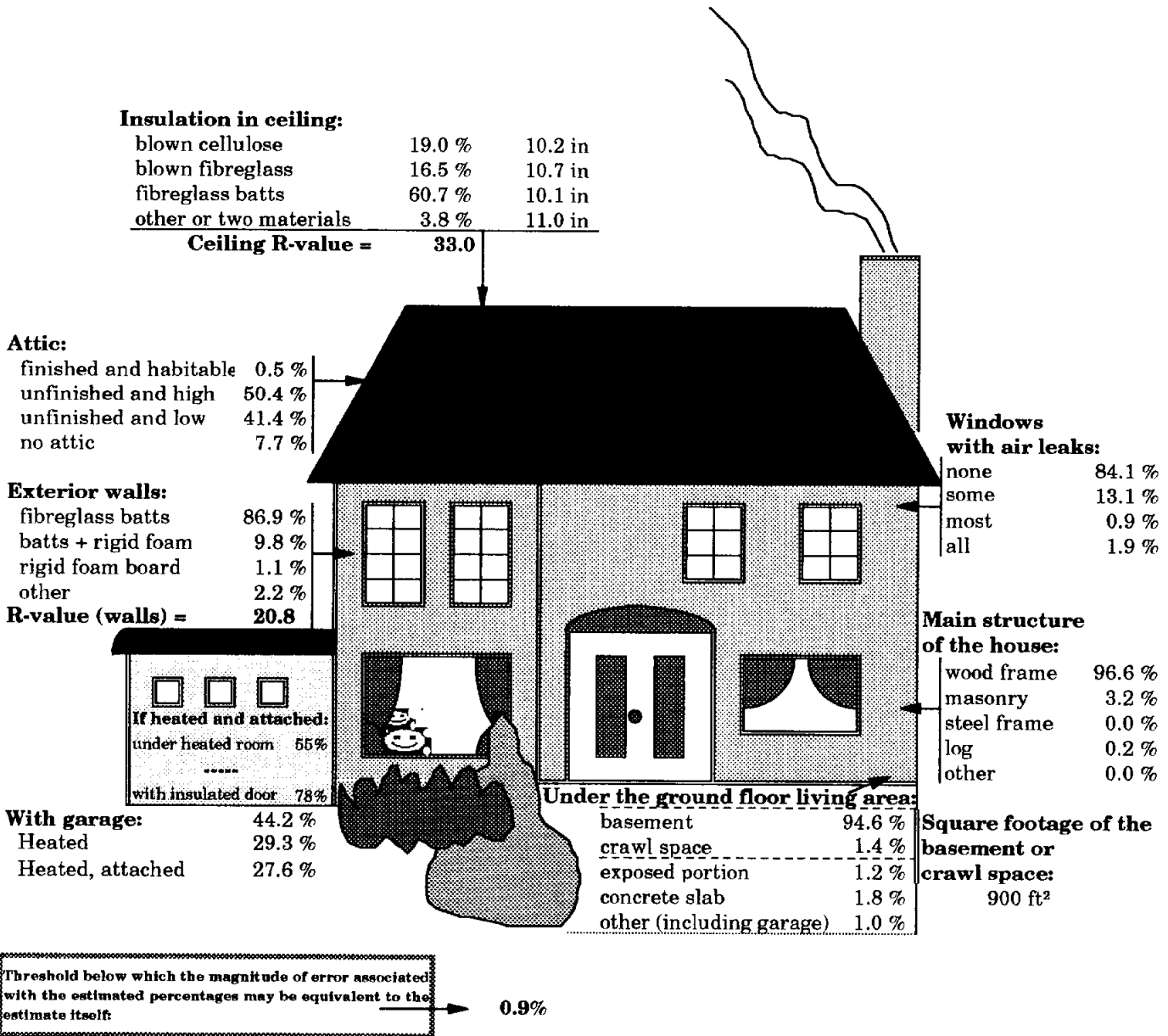


Diagram 6.1.5a
General characteristics of
houses built in 1994
- Ontario -

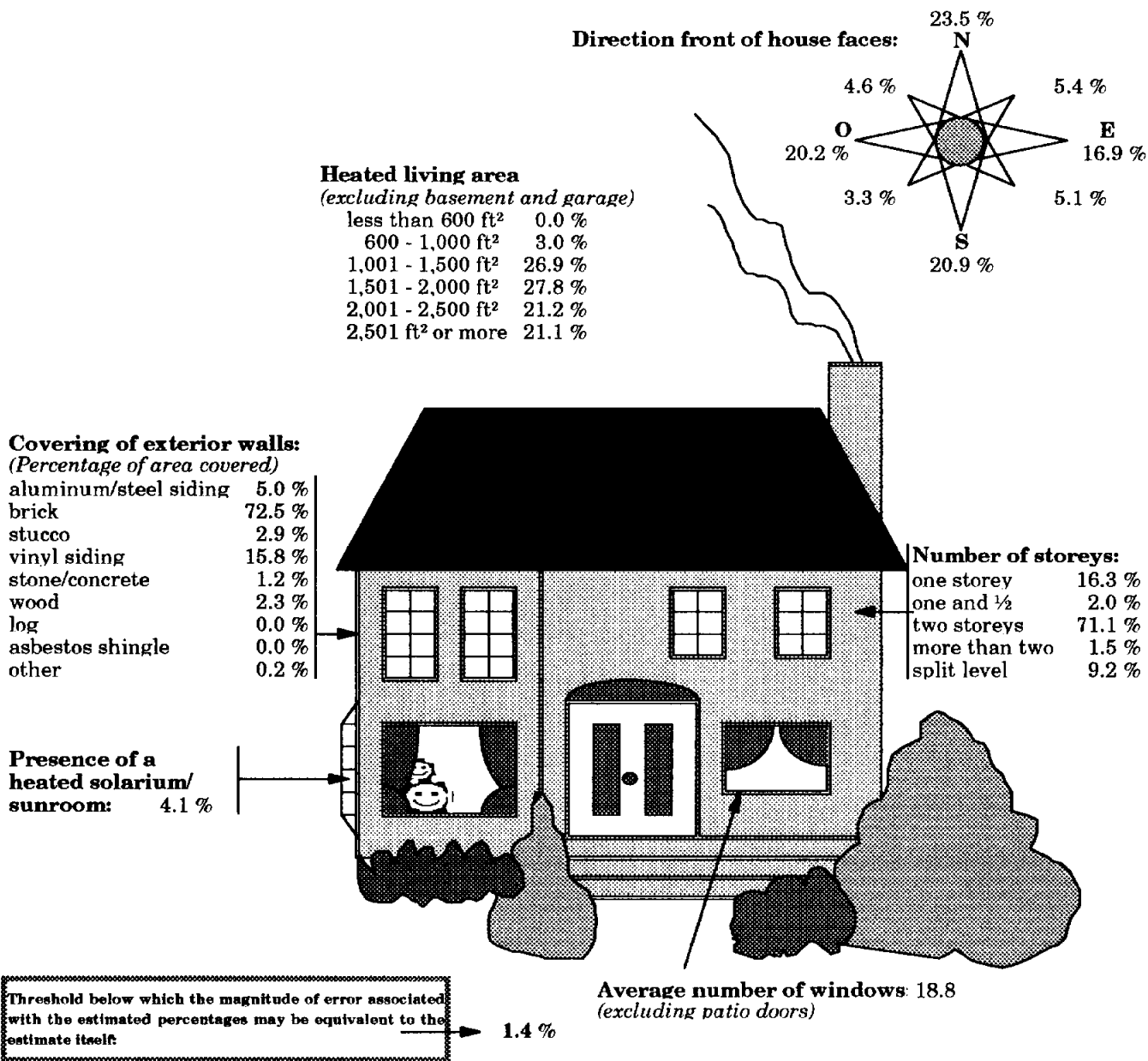
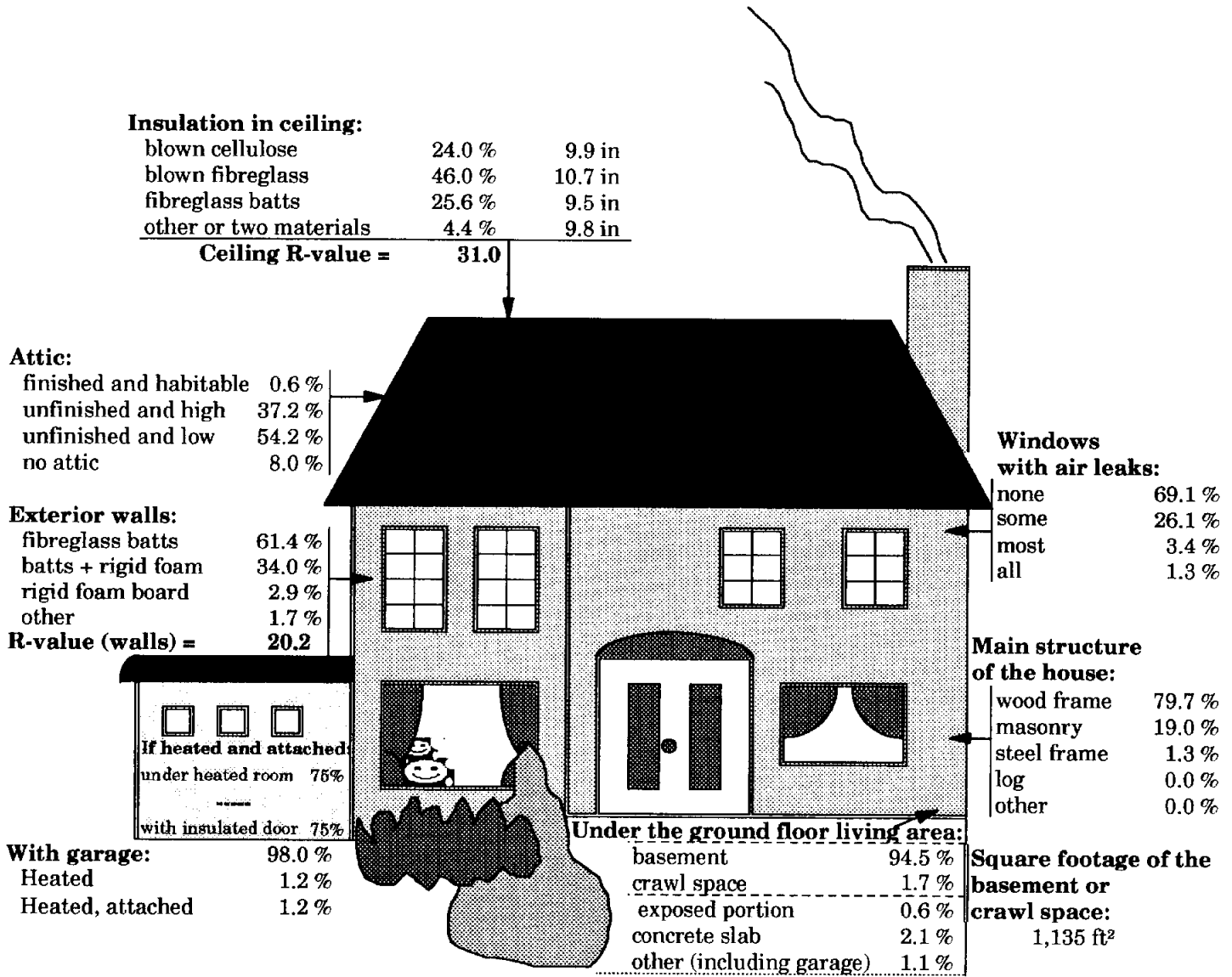


Diagram 6.1.5b
General characteristics of
houses built in 1994
- Ontario -



Threshold below which the magnitude of error associated with the estimated percentages may be equivalent to the estimate itself: 1.4%

Diagram 6.1.6a
General characteristics of
houses built in 1994
- Manitoba -

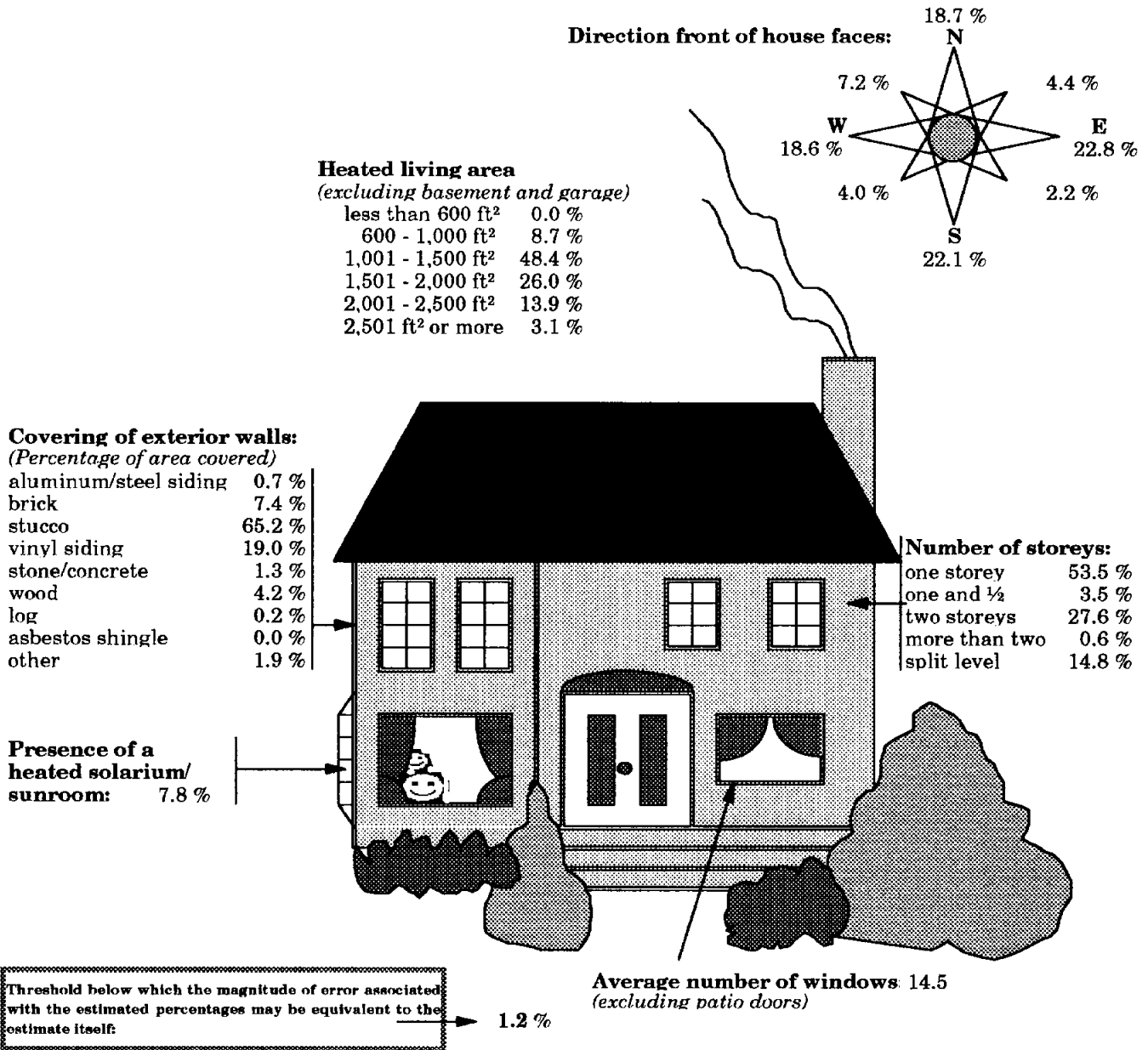


Diagram 6.1.6b
General characteristics of
houses built in 1994
- Manitoba -

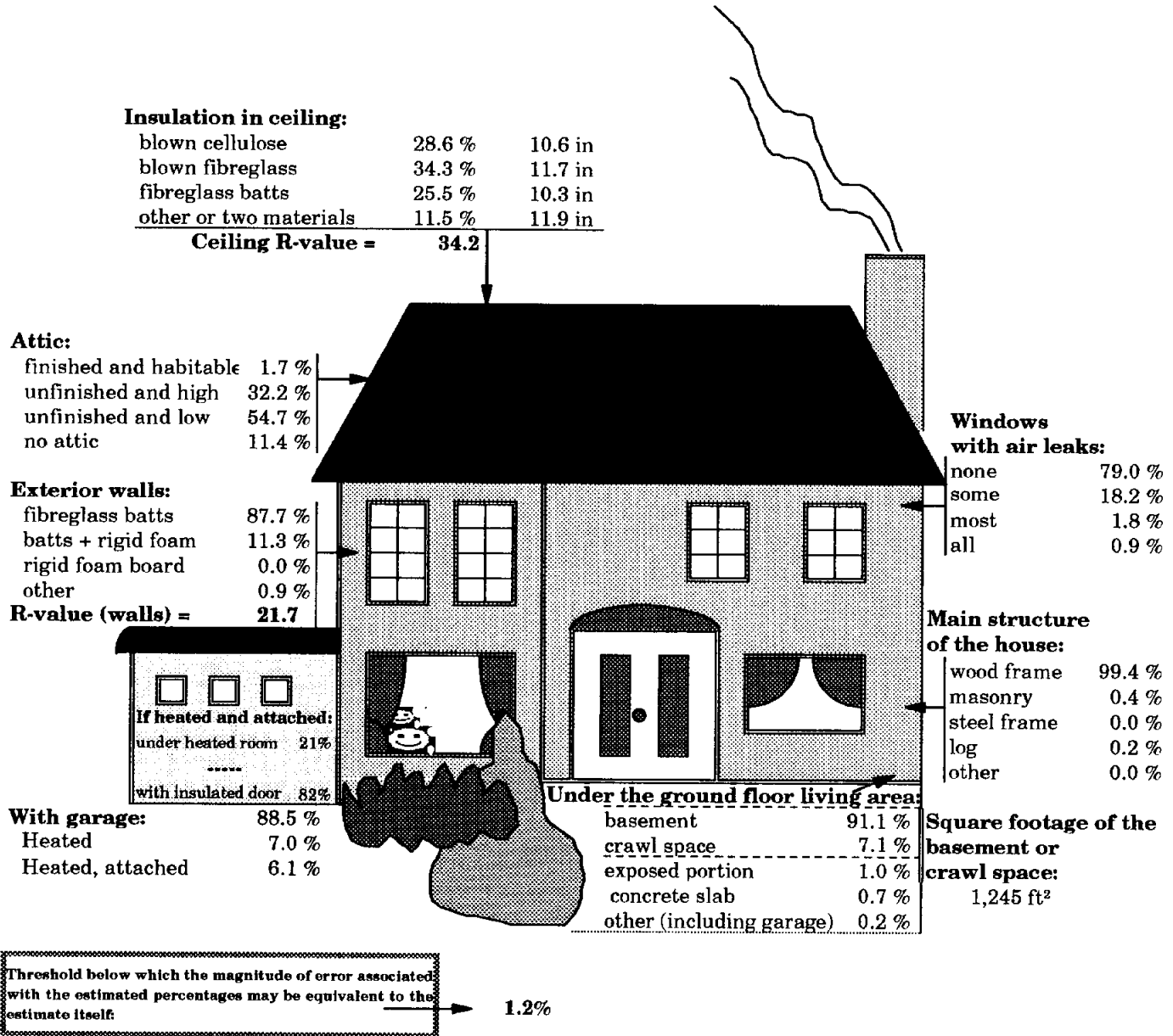


Diagram 6.1.7a
General characteristics of
houses built in 1994
- Saskatchewan -

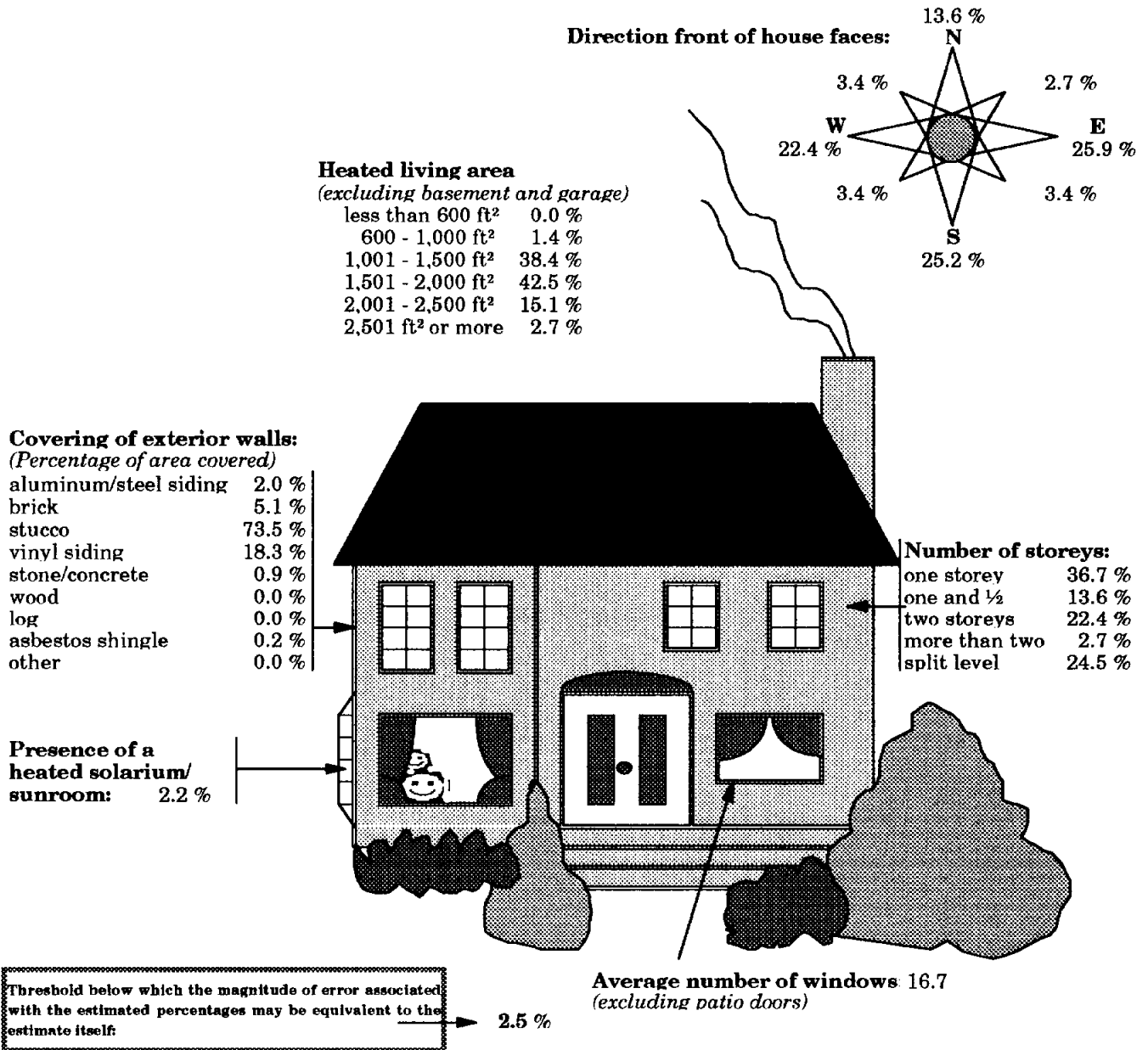


Diagram 6.1.7b
General characteristics of
houses built in 1994
- Saskatchewan -

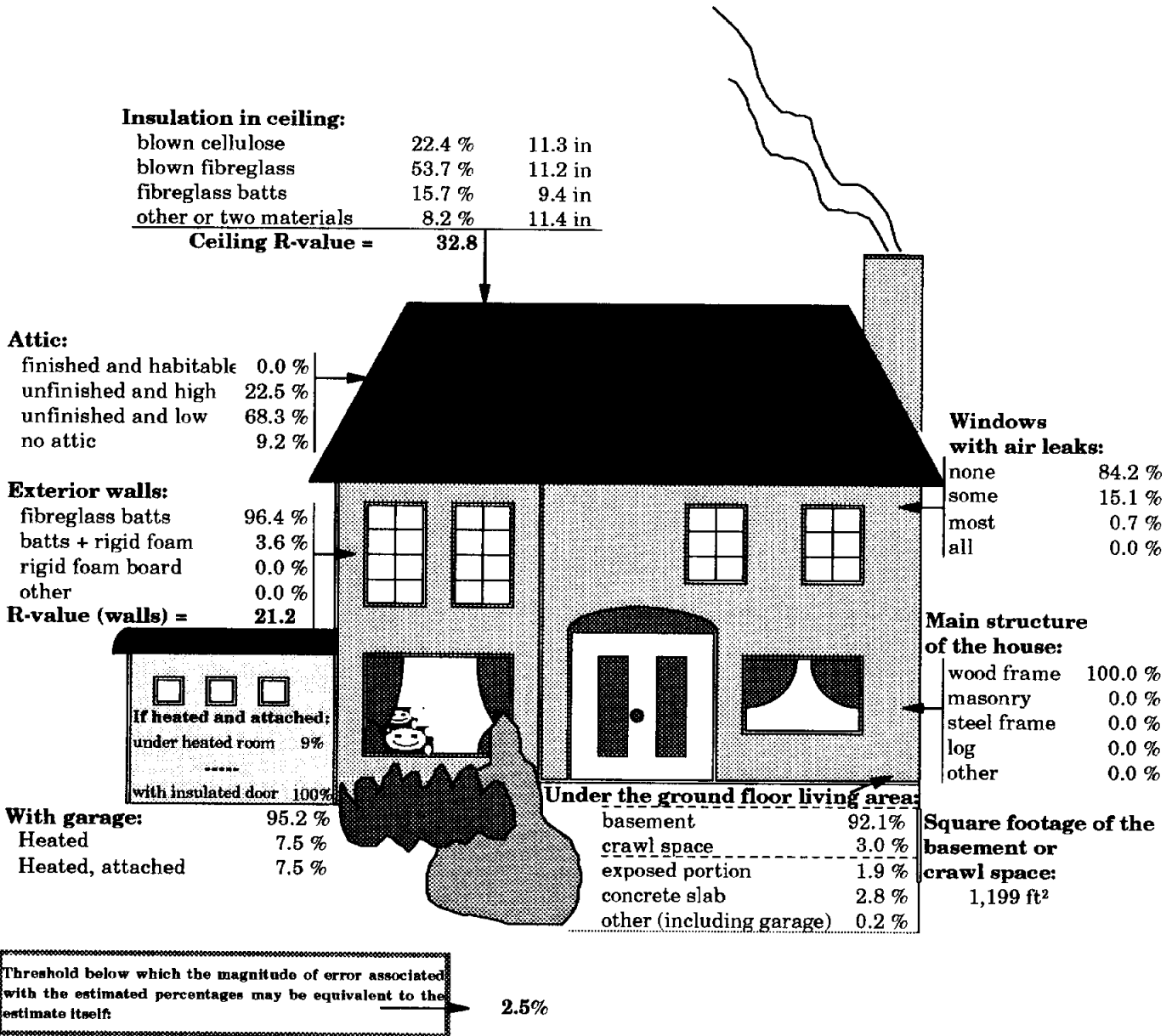


Diagram 6.1.8a
General characteristics of
houses built in 1994
- Alberta -

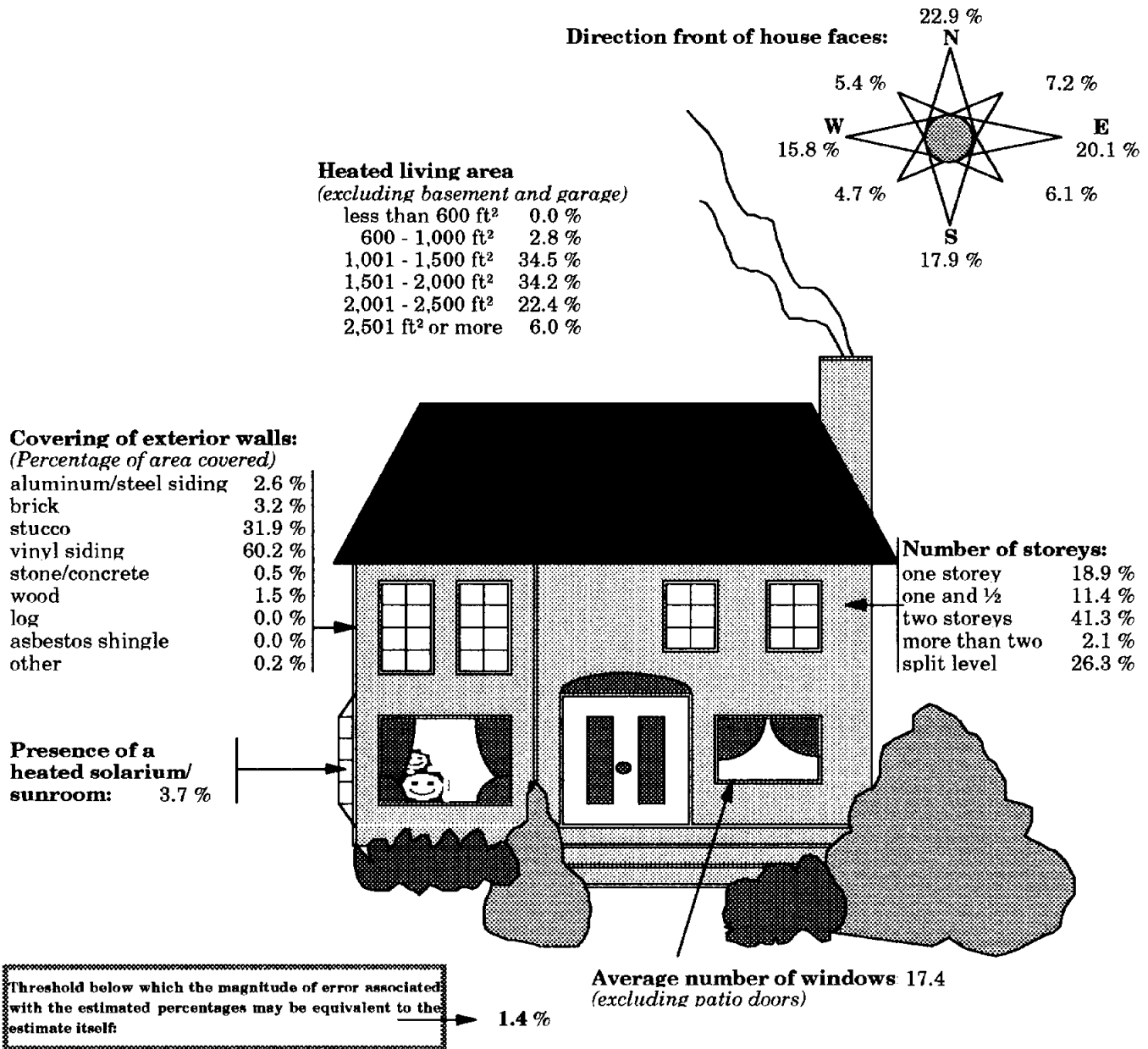


Diagram 6.1.8b
General characteristics of
houses built in 1994
- Alberta -

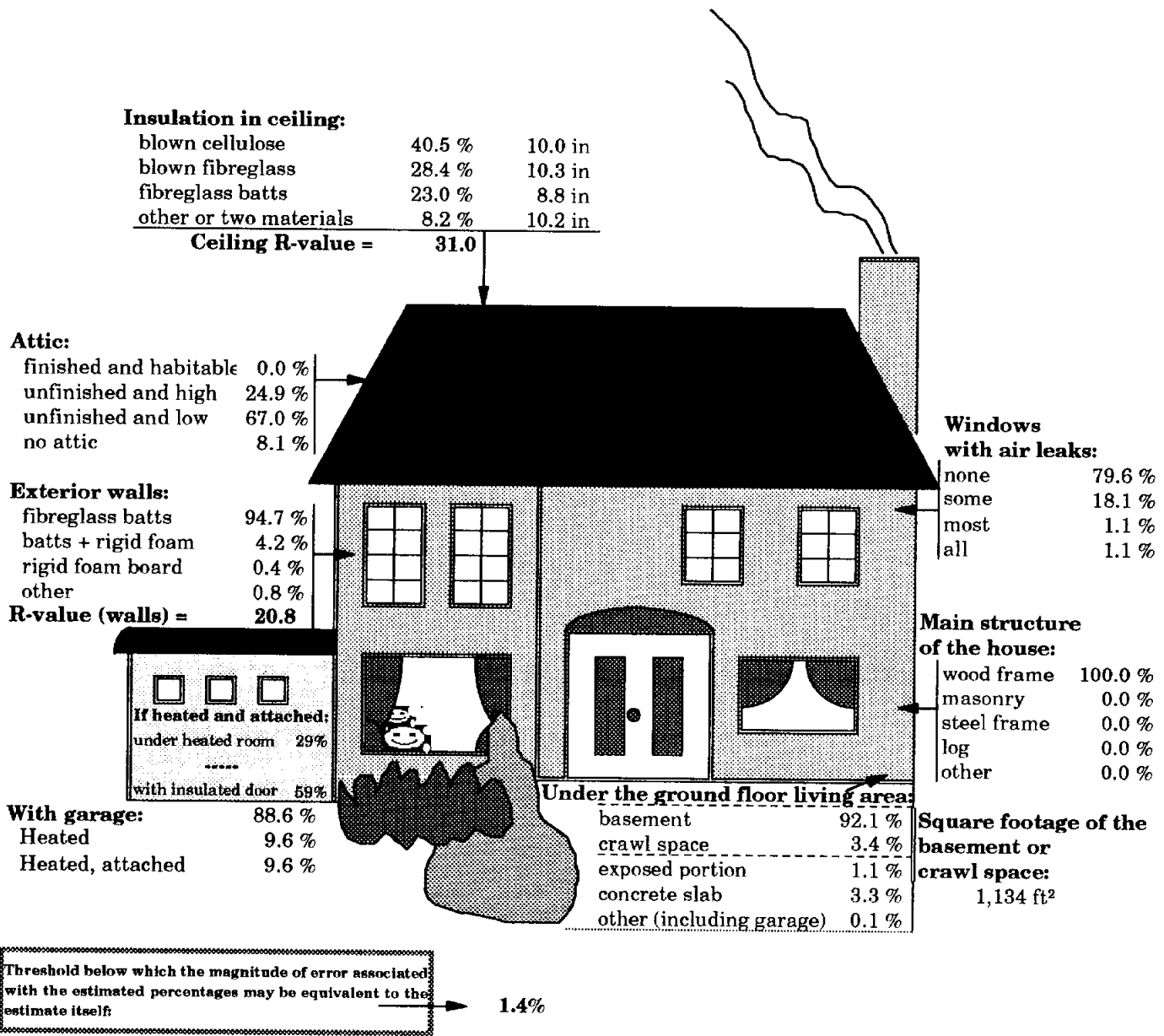
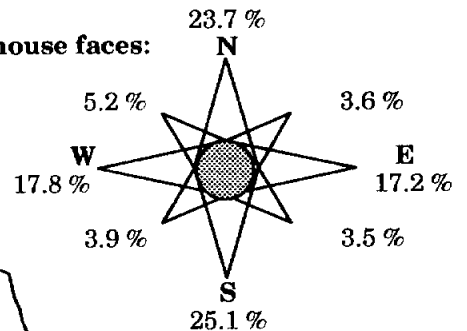


Diagram 6.1.9a
General characteristics of
houses built in 1994
- British Columbia -

Direction front of house faces:



Heated living area
(excluding basement and garage)

less than 600 ft ²	0.0 %
600 - 1,000 ft ²	2.1 %
1,001 - 1,500 ft ²	11.9 %
1,501 - 2,000 ft ²	22.5 %
2,001 - 2,500 ft ²	26.9 %
2,501 ft ² or more	36.7 %

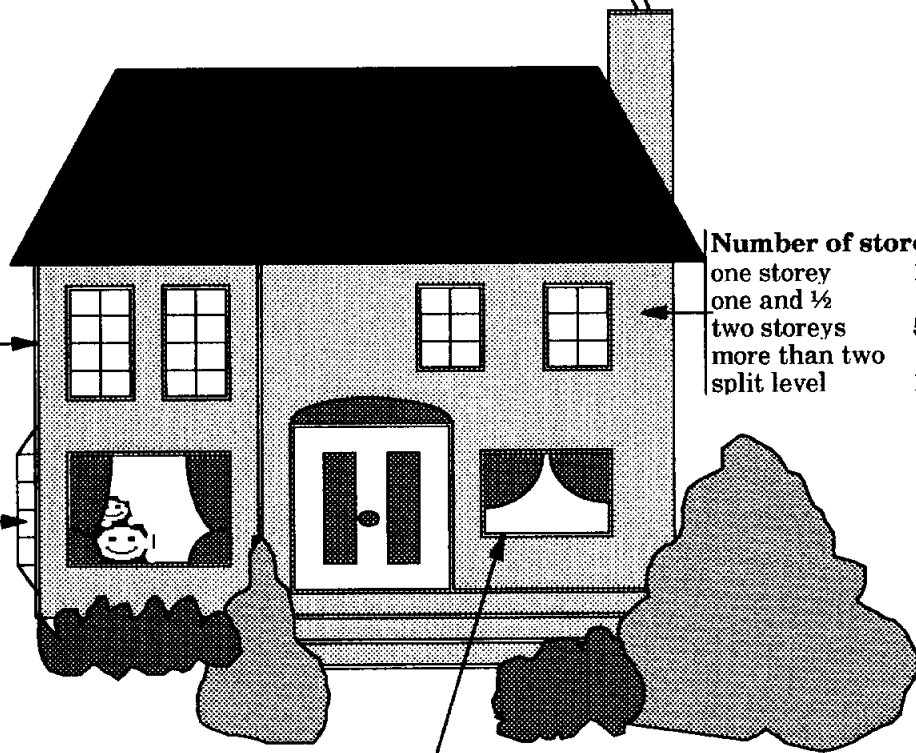
Covering of exterior walls:
(Percentage of area covered)

aluminum/steel siding	1.3 %
brick	3.0 %
stucco	48.2 %
vinyl siding	36.4 %
stone/concrete	0.8 %
wood	9.6 %
log	0.2 %
asbestos shingle	0.0 %
other	0.3 %

Number of storeys:

one storey	18.8 %
one and ½	8.6 %
two storeys	54.1 %
more than two	4.7 %
split level	13.9 %

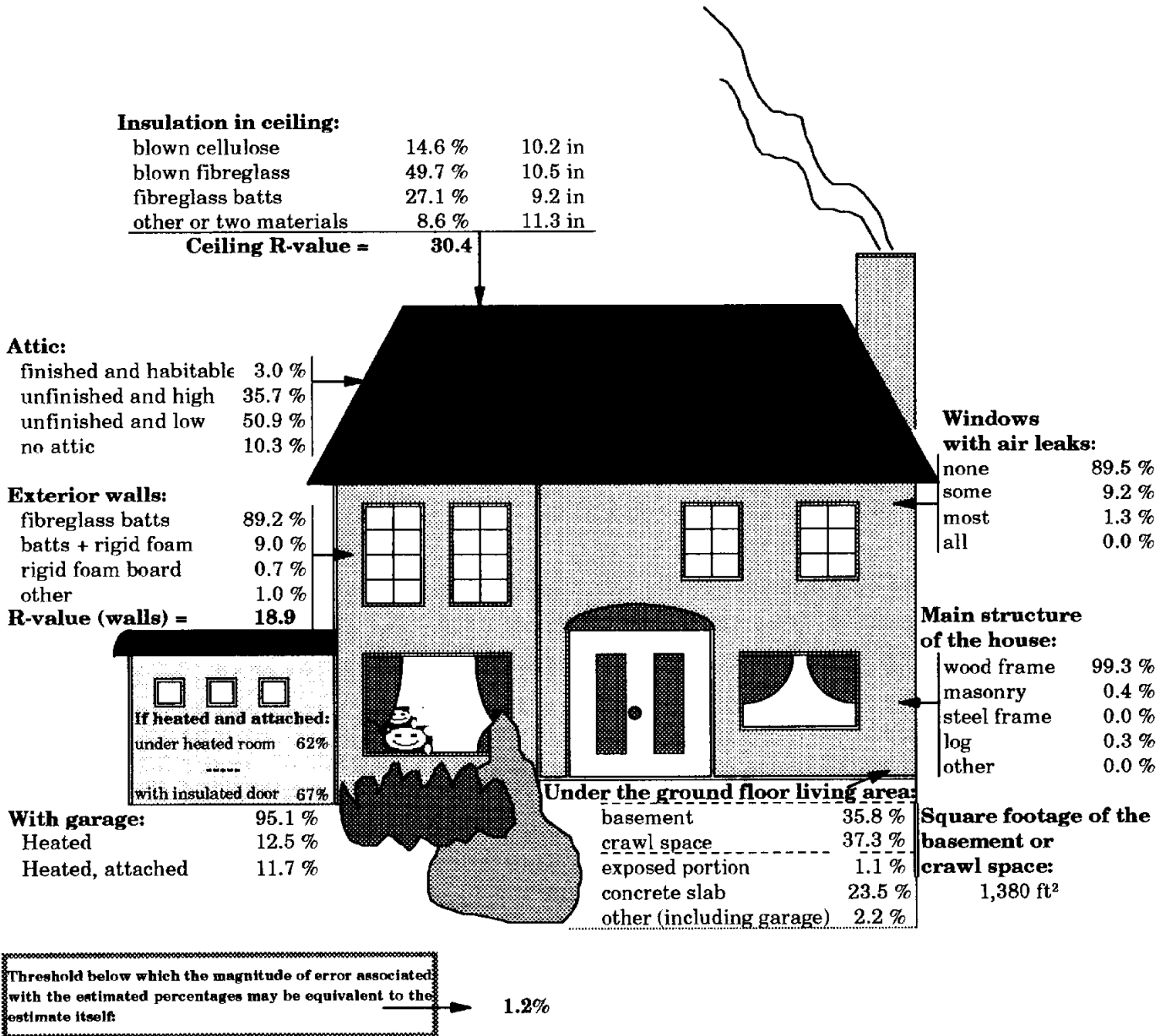
Presence of a heated solarium/sunroom: 5.5 %



Average number of windows 22.9
(excluding patio doors)

Threshold below which the magnitude of error associated with the estimated percentages may be equivalent to the estimate itself: 1.2 %

Diagram 6.1.9b
General characteristics of
houses built in 1994
- British Columbia -



6.2 BASEMENTS AND CRAWL SPACES

6.2.1 Basements

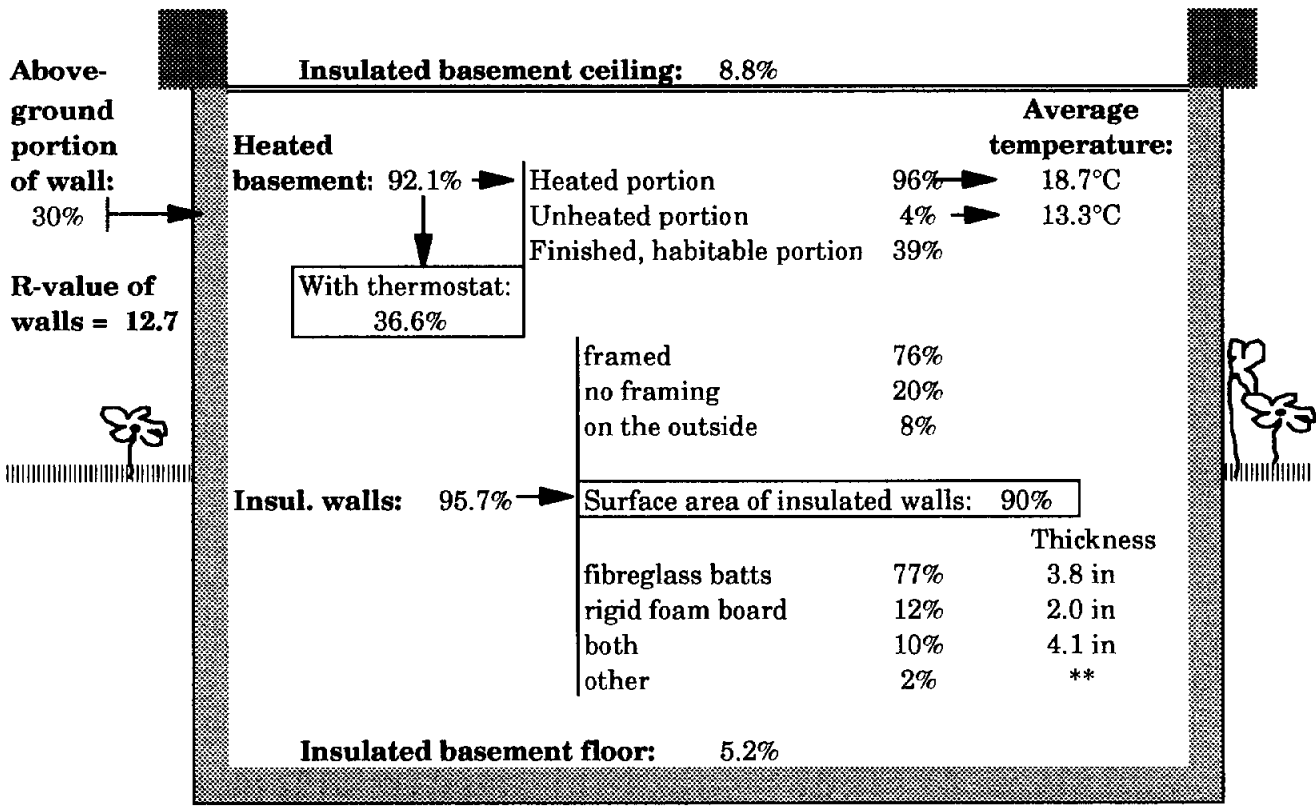
In houses built in Canada in 1994, 92.1% of basements are heated, and in these heated basements, nearly all of this surface area is heated (96%) and maintained at an average temperature of 18.7°C; however, the finished and habitable portion accounts for only 39% of the area. Only 36.6% of heated basements have a thermostat. Almost all basement walls are insulated, and when this is the case, the insulation covers 90% of the surface area; fibreglass batting is the insulating material most often used (77%) and is held in place by framing (76%). Approximately 30% of the basement wall is aboveground. Finally, in the basements of these new houses, the ceilings (8.8%) and floors (5.2%) are rarely insulated. On the whole, this same profile can be found in New Brunswick and in all the Atlantic Provinces; however, thermostats are much more common (72.3%).

In Quebec, basement thermostats are also common (87.1%), but in this province, more basement finishing work is done to make them habitable (54%), and electric baseboard heaters are most often used to heat the living space. Even the floor is insulated in 13.2% of cases. Rigid foam board is used more often to insulate the walls than elsewhere in the country: it is used alone (39%) or in combination with fibreglass batts (17%).

The basements of new Ontario houses are characterized, on the one hand, by the lack of thermostats (only 1.1%), which is largely explained by the penetration of central warm air systems, and on the other hand, by the almost universal use of fibreglass batting to insulate the walls (93%).

In Manitoba, basements match the national profile except for the virtual absence of thermostats (only 6.0%). This also applies to Saskatchewan and Alberta, where thermostats are found in only 9.2% and 8.5% of basements, respectively. In these two provinces, fibreglass batts are used almost exclusively to insulate walls. Saskatchewan is the province with the lowest percentage of insulated walls, namely 59.6%. Although basements are not common in British Columbia, when they are insulated, they have the best R-value of all the provinces at 15. British Columbia also has the highest percentage of insulated basement ceilings at 22.7%.

Diagram 6.2.1.1
Basements of houses built in 1994
- Canada -



**Insufficient sample size

Diagram 6.2.1.2
Basements of houses built in 1994
- New Brunswick -

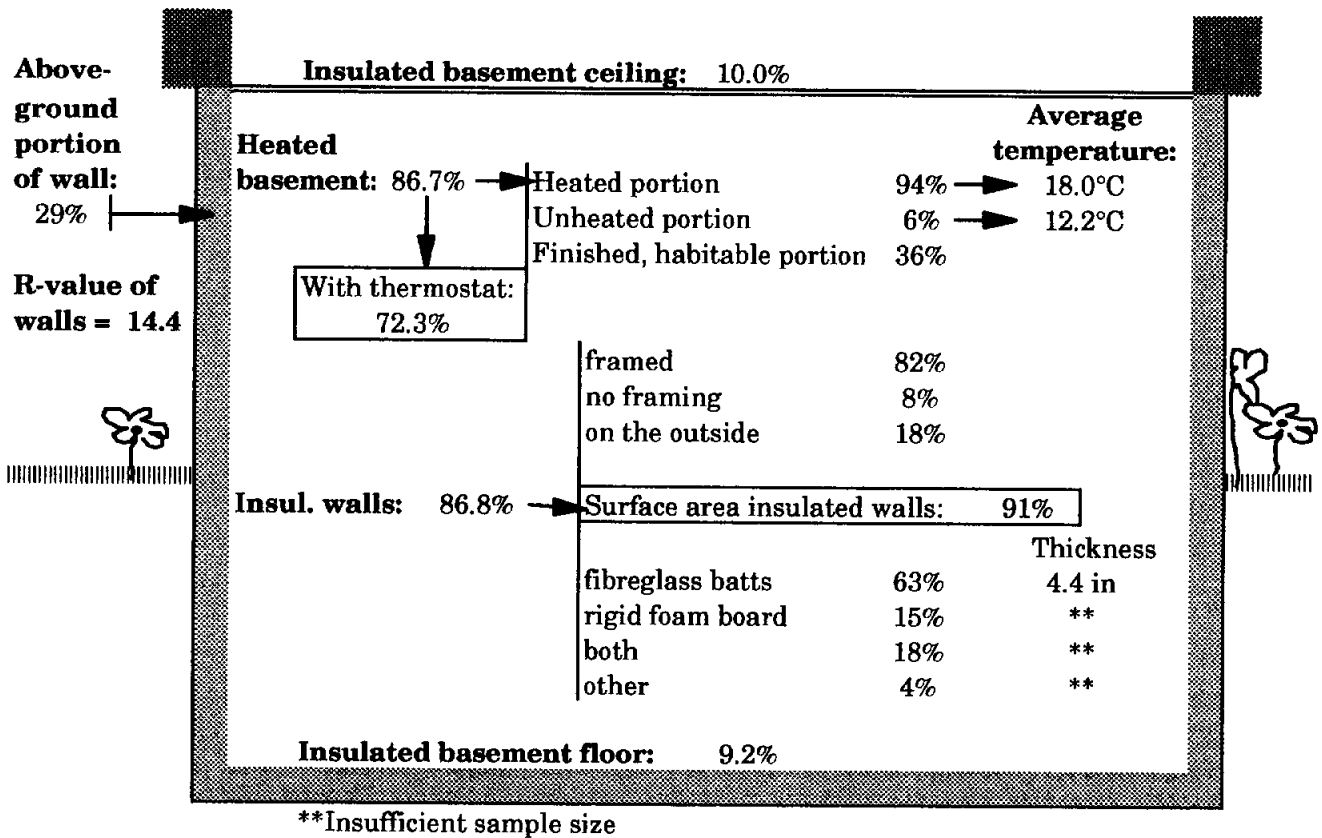
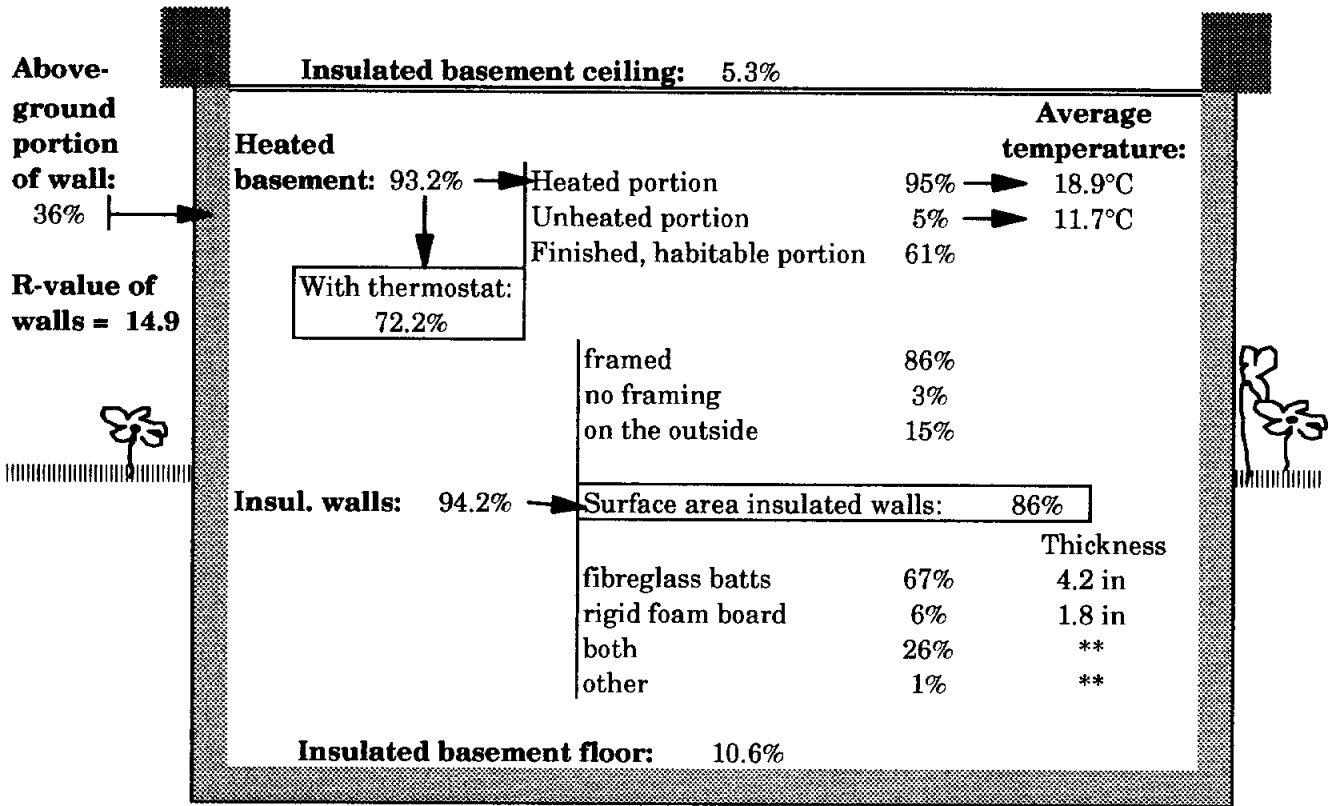
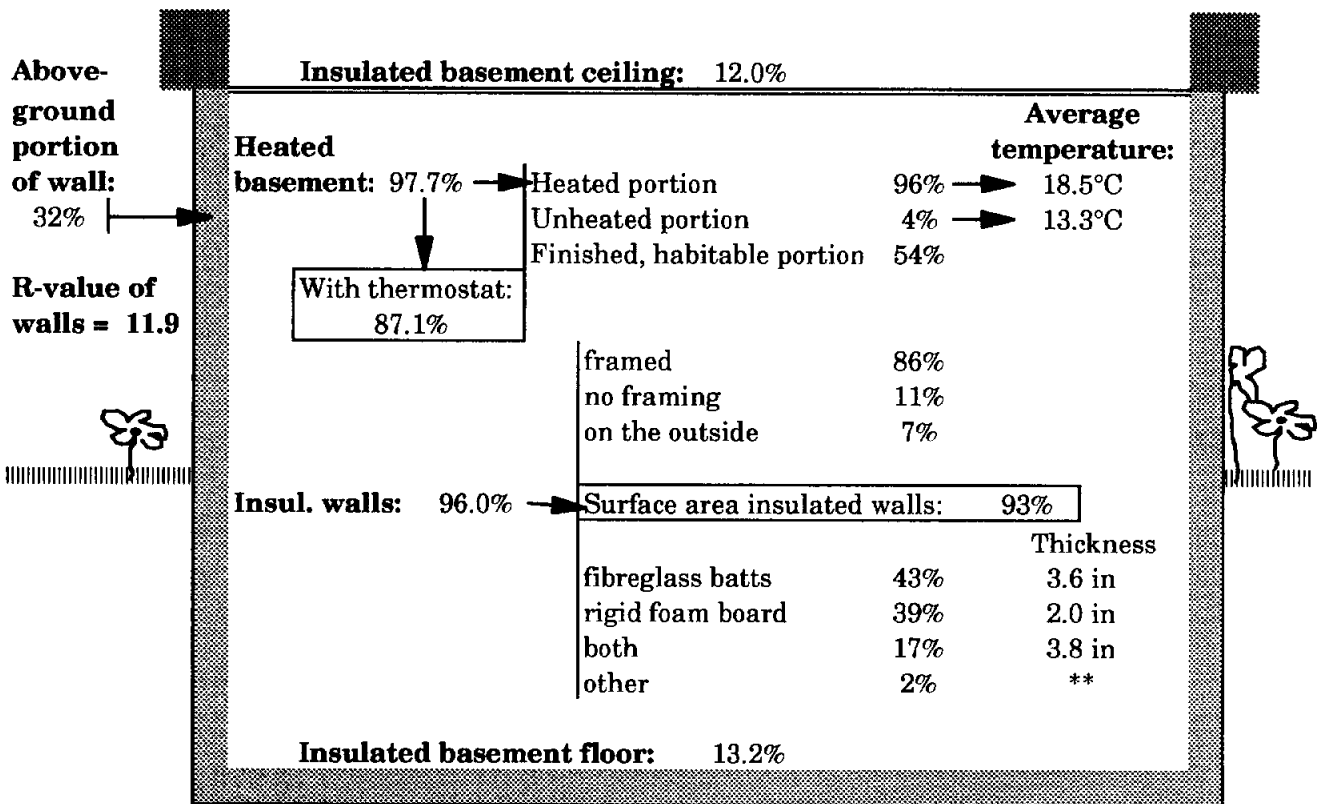


Diagram 6.2.1.3
Basements of houses built in 1994
- Atlantic Provinces -



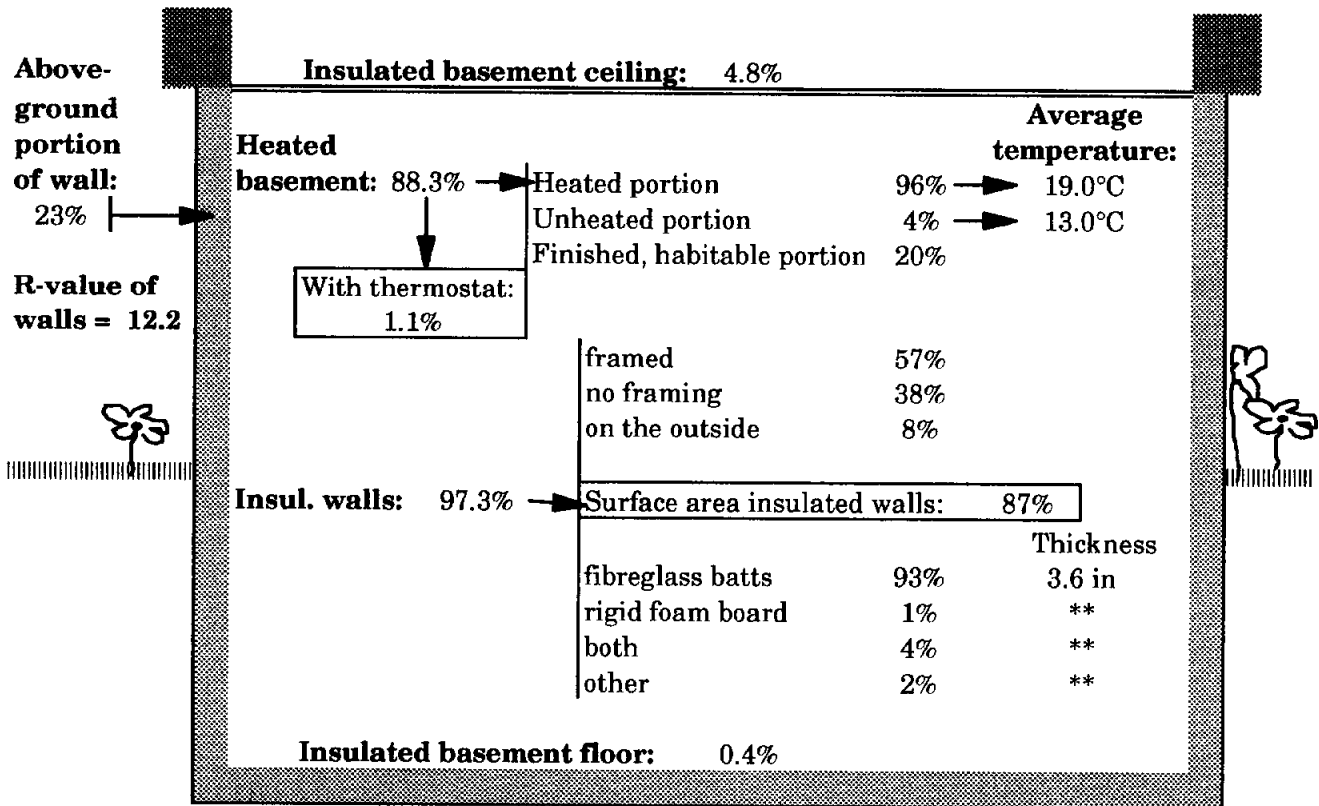
**Insufficient sample size

Diagram 6.2.1.4
Basements of houses built in 1994
- Quebec -



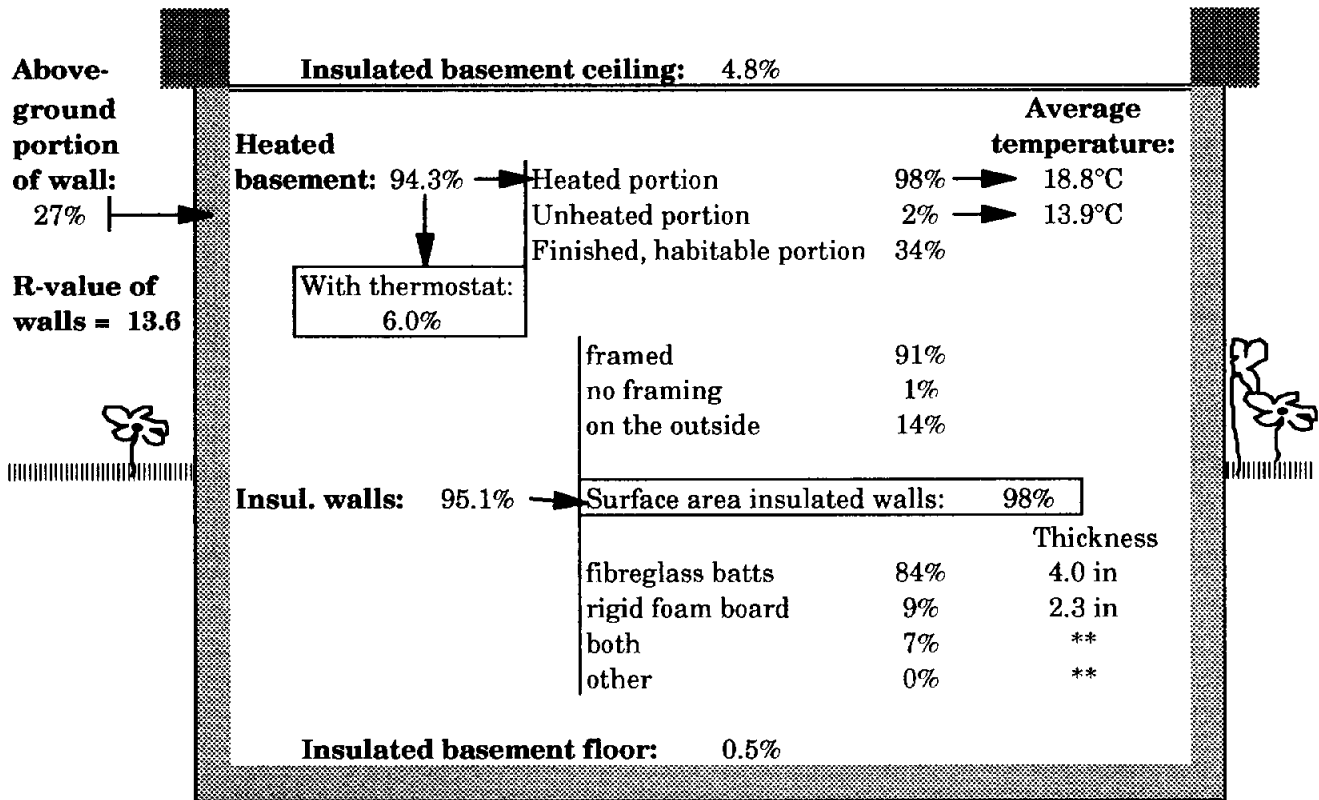
**Insufficient sample size

Diagram 6.2.1.5
Basements of houses built in 1994
- Ontario -



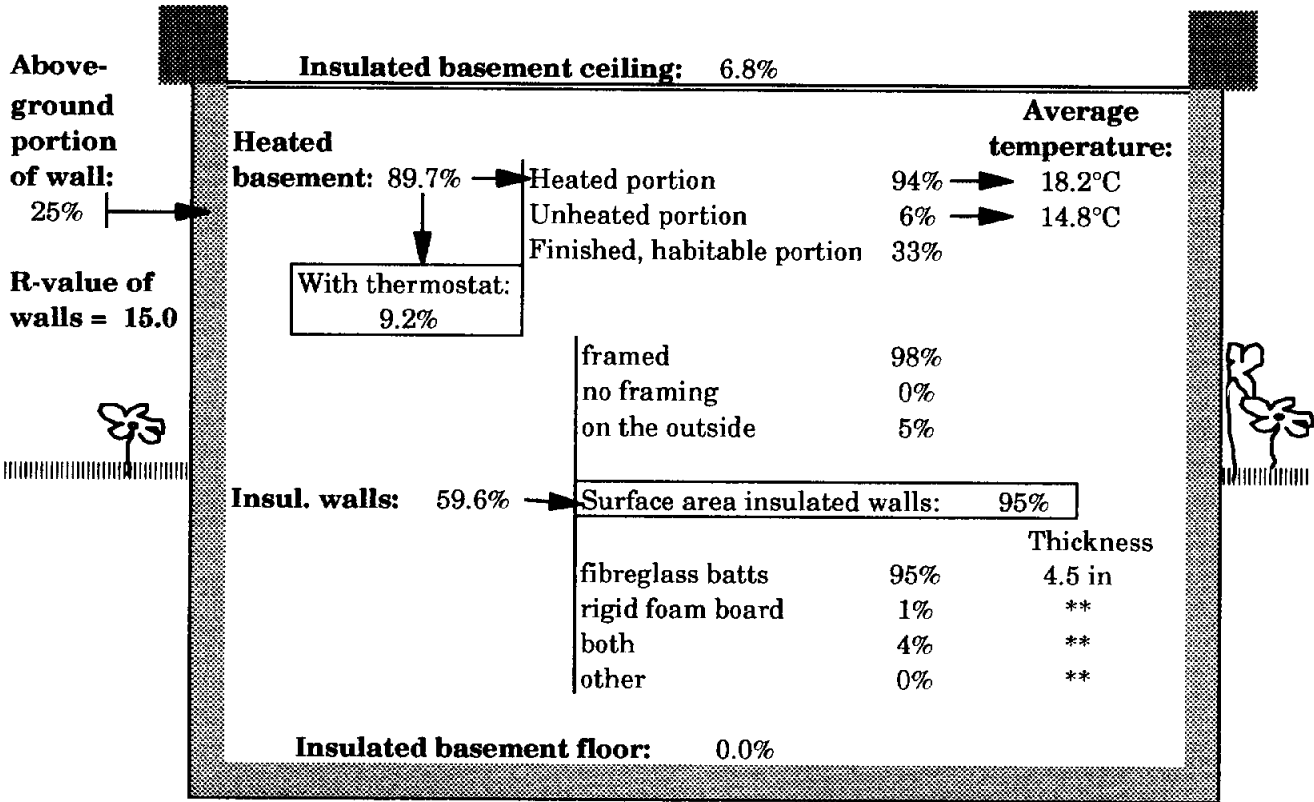
**Insufficient sample size

Diagram 6.2.1.6
Basements of houses built in 1994
- Manitoba -



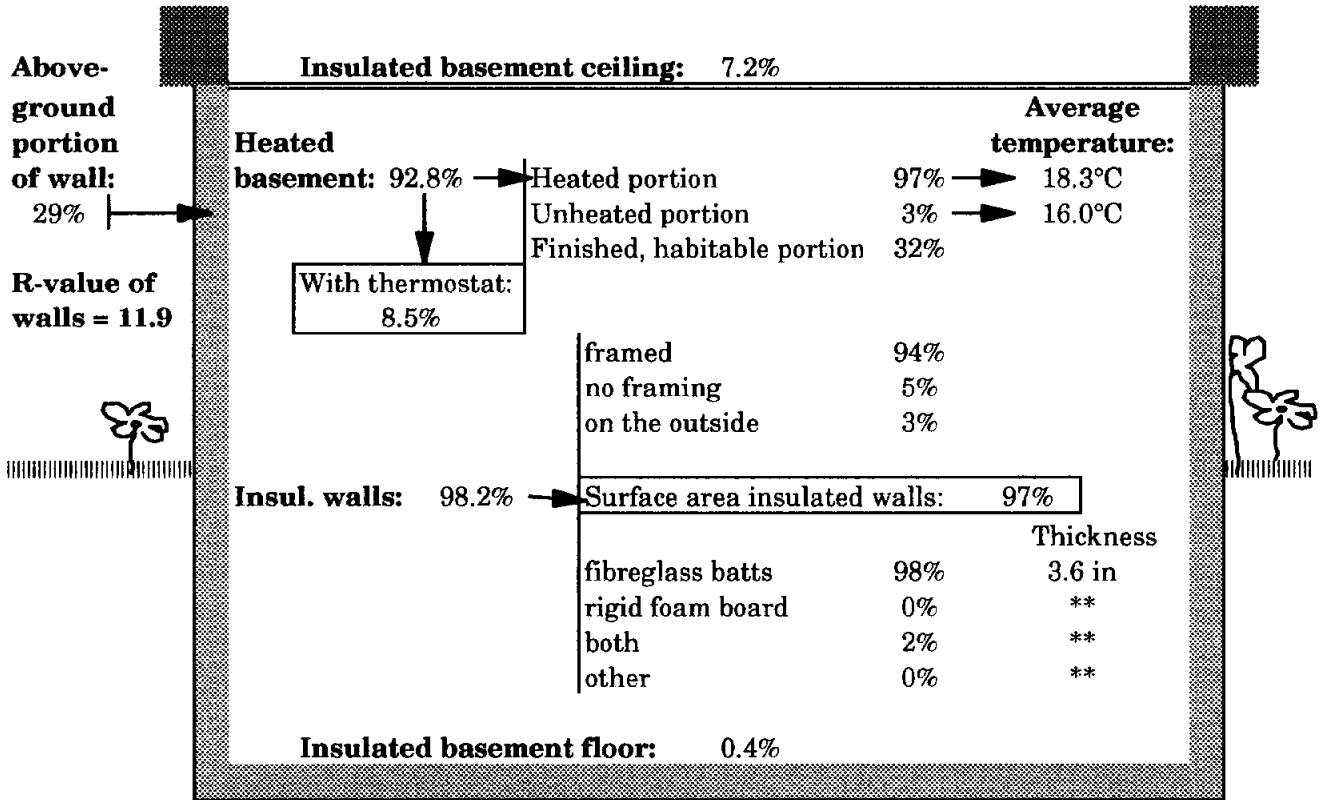
**Insufficient sample size

Diagram 6.2.1.7
Basements of houses built in 1994
- Saskatchewan -



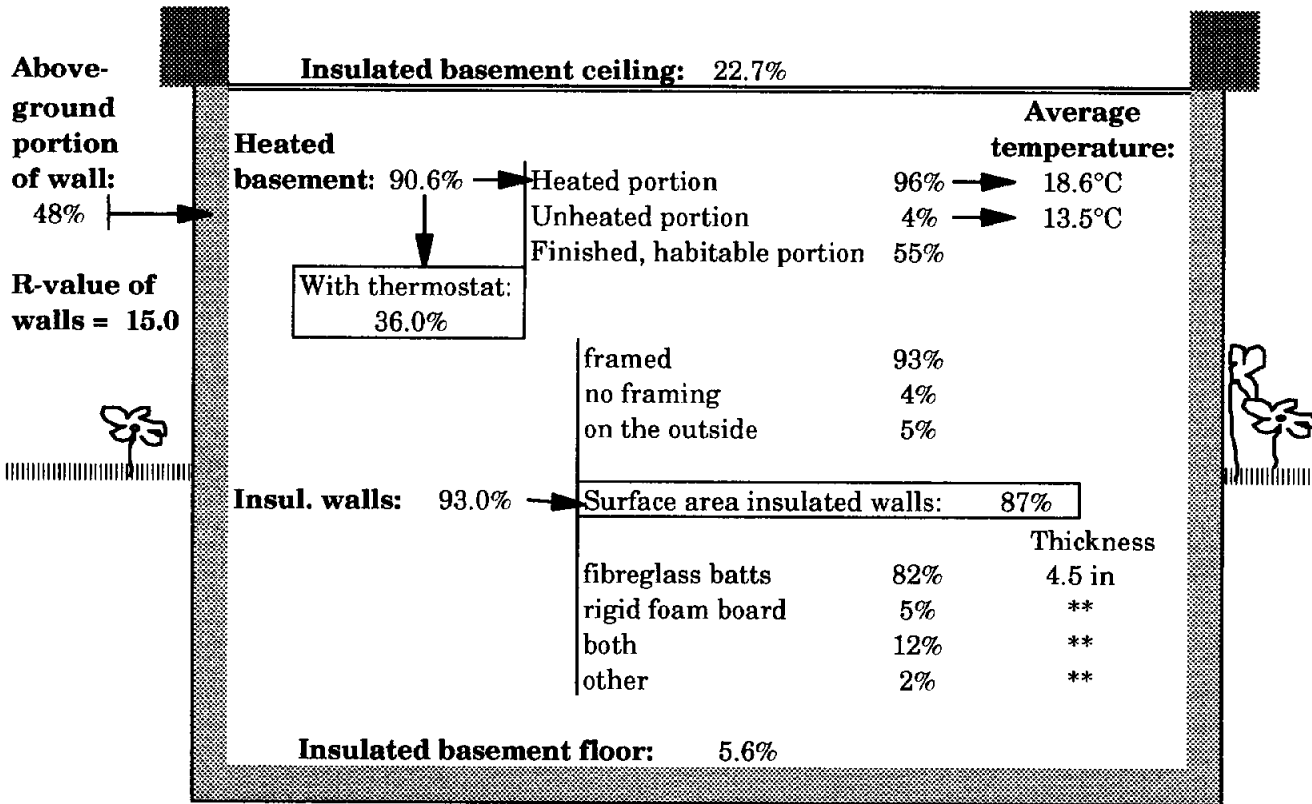
**Insufficient sample size

Diagram 6.2.1.8
Basements of houses built in 1994
- Alberta -



**Insufficient sample size

Diagram 6.2.1.9
Basements of houses built in 1994
- British Columbia -



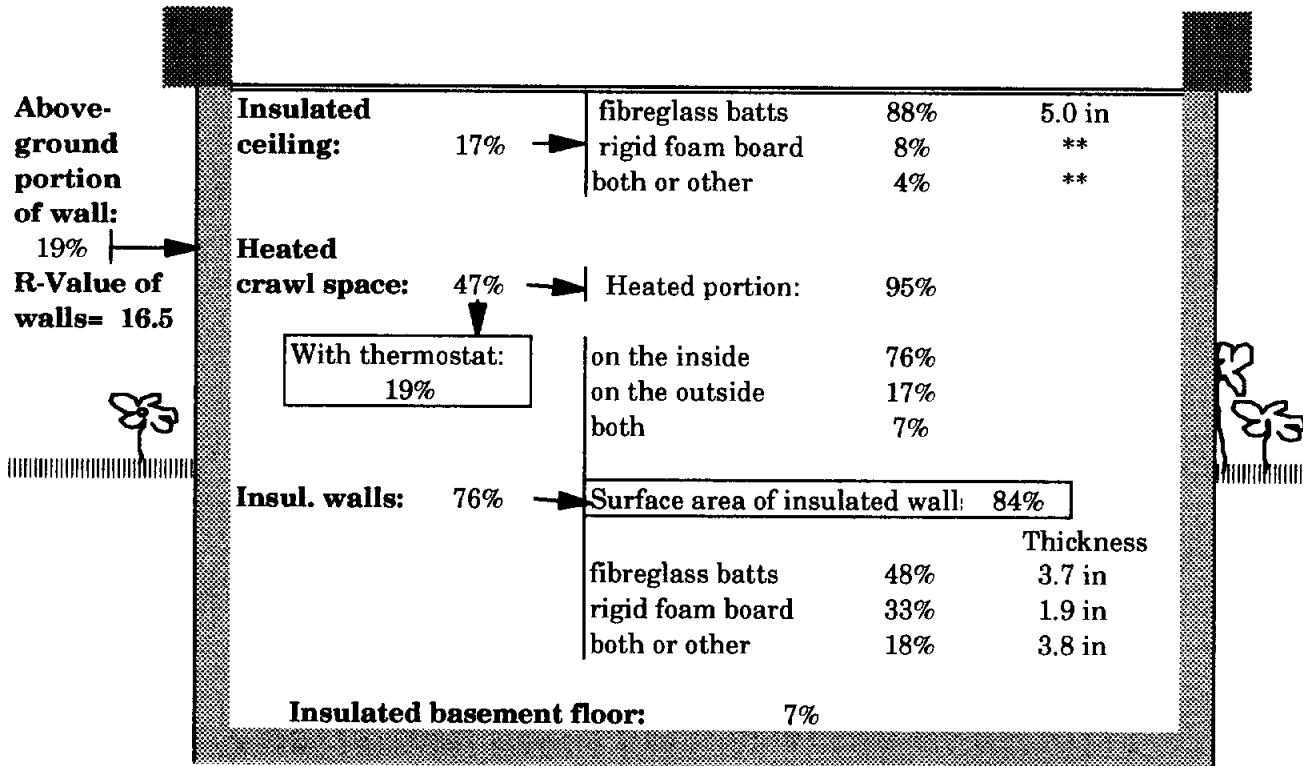
**Insufficient sample size

6.2.2 Crawl spaces

Close to half the crawl spaces of houses built in Canada in 1994 are heated (47%), and when this is the case, 95% of their surface area is heated. Only one heated crawl space in five (19%) has a thermostat; however, 76% of these spaces have insulated exterior walls. Although fibreglass batting is the most common insulating material (48% have only fibreglass batting), rigid foam board is also frequently used. The insulation is mainly on the inside (76% inside only plus 7% inside and outside).

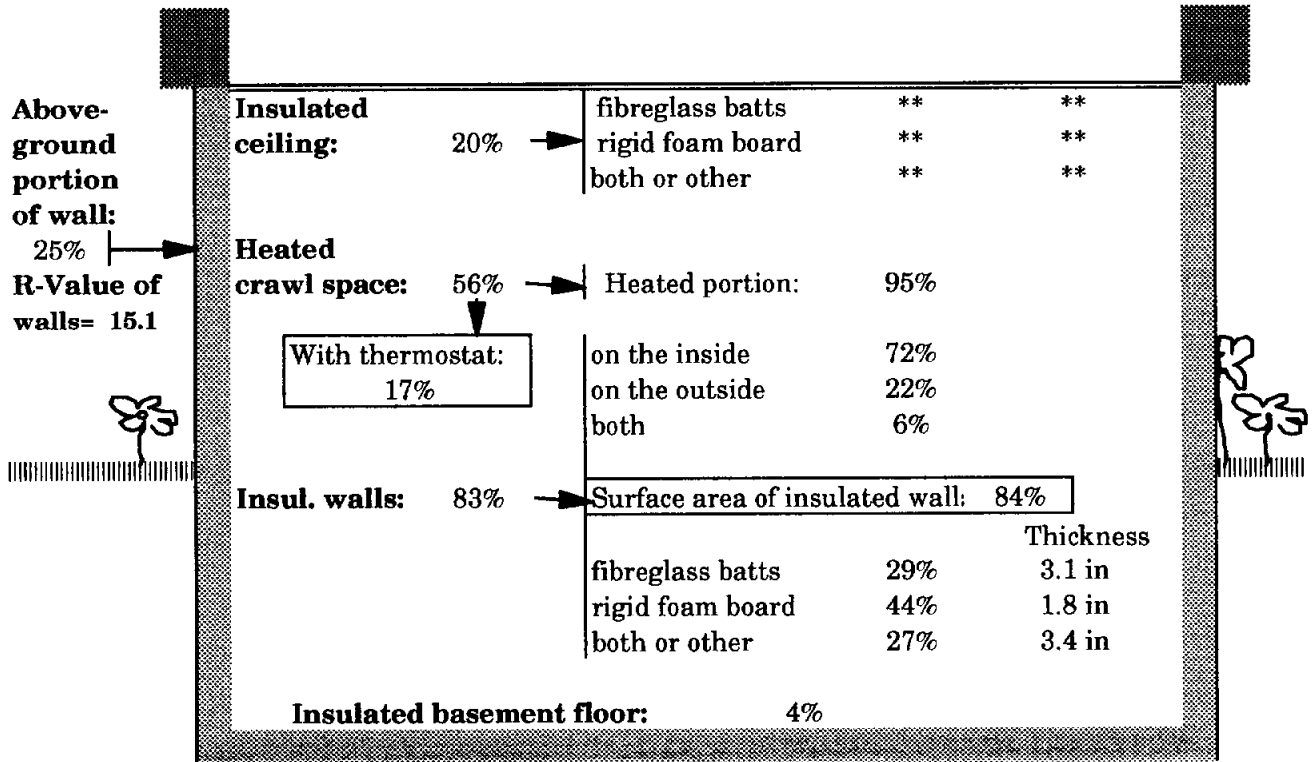
British Columbia has the largest concentration of crawl spaces. These spaces are often heated (56%), and when they are insulated, rigid foam board is the preferred insulation, used either alone (44% of cases) or in combination with fibreglass batts (25%).

Diagram 6.2.2.1
Crawl spaces of houses built in 1994
- Canada -



**Insufficient sample size

Diagram 6.2.2.2
Crawl spaces of houses built in 1994
- British Columbia -



**Insufficient sample size

6.3 WINDOWS

If patio doors are counted along with ordinary windows as window area, an average of 19 windows is obtained for houses built in Canada in 1994. These windows are broken down as follows: 16.6 regular windows (including 13 on the main floors and the rest in the basement) and 2.4 windows of other types (including 1.2 patio doors).

Most of these windows are located at the back (7.5 windows) or at the front (6.0 windows) of the house. One-third of basement windows are located at the back, and it is also here that the patio door is usually located.

The majority of basement windows are small (2 out of 3.7); the main floors have on average 13 windows, half (6.5) of which are of medium size (5 to 12 sq. ft.) while four of them are even larger.

Seen from another angle, approximately four out of five houses (78.8%) built in 1994 have at least one large, regular window with a surface area of more than 12 sq. ft. In addition, 84.1% of new houses have a patio door; more specifically, 78.3% of all these new houses have a patio door located at the back of the house. Certain types of windows (see graph of the different types of windows at the end of this section) considered fairly rare in the housing stock are becoming more common in the new housing sector: for instance, 33.4% of new houses have bay windows and 21.7% have skylights.

The overwhelming majority of windows installed in new houses are double paned: 17.5 out of 19 windows. On average, there are only 0.9 single-pane windows per new home, nearly half of which (0.4) are in the basement. There is a wide variety of window types on the main floors, but the most common are casement windows (5.7 out of 15.4), sliding windows (2.8) and picture windows (2.3). In basements, sliding windows remain the most popular (2.1 out of 3.7).

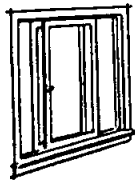
New houses in Ontario (20.1 windows) and British Columbia (24.6) have the most windows, while those in Quebec (14.3), New Brunswick (15.2) and Manitoba (15.4) have fewer windows.

The proportion of new houses with a patio door is high in Ontario (91.2%) and Quebec (96.0%). In the Prairies, this type of door is less common, ranging from 56.4% in Alberta to 67.9% in Manitoba. However, bay windows are the most common in western Canada: 43.6% in Manitoba and approximately 50% in the other provinces. Finally, British Columbia far exceeds the other provinces in terms of the number of skylights, at 57%.

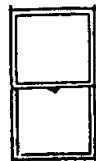
Although the production of triple-pane windows is still relatively rare in Canada, this type of window has made considerable inroads in Saskatchewan and Manitoba; the percentage of houses built in 1994 with triple-pane windows is 42.9% in Saskatchewan and 82.6% in Manitoba. Single-pane windows are still used in new houses, particularly in Quebec (29.2%); these are mainly sliding windows in the basement.

British Columbia, the province where new houses have the most windows, far exceeds the national average for the percentage of houses having, on the main floors, sliding windows (80.4%), double-hung windows (51.7%) and picture windows (71.3%); however, these houses have fewer casement windows (37.3%). The type of window most frequently encountered in the Prairies is the casement window (approximately 90% of new houses in each province) and the picture window (approximately 70%). Newly built Ontario houses stick fairly close to the national profile in terms of the type of windows, given the larger number of windows found on average in these houses. Nearly all new Quebec houses (95.2%) have casement windows on the main floor; however, all other types of windows are less common in this province than elsewhere in Canada. Double-hung windows are still fairly common in New Brunswick (31.0%); however, sliding windows on the main floor tend to be rare (7.4%).

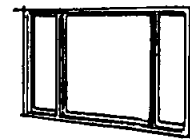
Types of windows



Sliding



Double-hung



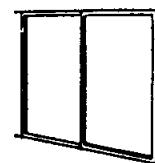
**Picture
(fixed or non-opening)**



Casement



Awning



**Sliding doors
(with glass)**

Diagram 6.3.1a
Breakdown of windows around the house
by size
All houses built in 1994
- Canada -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	16.6	5.4	6.1	2.7	2.6
In the basement	3.7	0.6	1.3	0.9	0.9
small (up to 5 ft ²)	2.0	0.2	0.6	0.6	0.6
medium (5 to 12 ft ²)	1.3	0.4	0.5	0.3	0.3
large (over 12 ft ²)	0.3	0.1	0.2	0.0	0.0
On the main floors	13.0	4.7	4.8	1.8	1.7
small (up to 5 ft ²)	2.5	0.8	0.8	0.4	0.5
medium (5 to 12 ft ²)	6.5	2.2	2.5	1.0	0.9
large (over 12 ft ²)	4.0	1.7	1.6	0.4	0.3
Other windows	2.4	0.7	1.4	0.2	0.2
patio doors	1.2	0.2	1.0	0.1	0.1
skylights	0.4	0.2	0.1	0.1	0.1
bay windows	0.7	0.4	0.3	0.1	0.1
Total windows	19.0	6.0	7.5	2.8	2.7
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	89.3%	29.6%	66.8%	57.4%	55.2%
small (up to 5 ft ²)	69.4%	10.7%	40.3%	40.9%	38.1%
medium (5 to 12 ft ²)	46.3%	17.7%	25.5%	17.5%	17.4%
large (over 12 ft ²)	14.0%	5.6%	8.3%	1.8%	2.1%
On the main floors	99.9%	97.6%	98.0%	77.3%	71.5%
small (up to 5 ft ²)	68.0%	34.4%	34.8%	27.1%	29.3%
medium (5 to 12 ft ²)	95.3%	64.8%	74.8%	52.2%	48.3%
large (over 12 ft ²)	78.8%	66.2%	52.8%	20.5%	18.4%
Other windows	92.3%	37.3%	83.7%	12.9%	12.5%
patio doors	84.1%	10.4%	78.3%	5.8%	5.2%
skylights	21.7%	11.6%	8.7%	4.4%	5.2%
bay windows	33.4%	21.9%	13.6%	3.6%	4.4%
Total windows	100.0%	99.7%	98.9%	84.9%	81.1%

Diagram 6.3.1b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Canada -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.7	0.1	3.2	0.4
sliding	2.1	0.0	1.8	0.4
casement	0.7	0.0	0.6	0.0
awning	0.1	0.0	0.1	0.0
double-hung	0.2	0.0	0.2	0.0
sliding door	0.2	0.0	0.1	0.0
picture	0.2	0.0	0.2	0.0
other	0.3	0.0	0.3	0.0
On the main floors	15.4	0.5	14.4	0.5
sliding	2.8	0.0	2.7	0.1
casement	5.7	0.2	5.2	0.2
awning	0.2	0.0	0.2	0.0
double-hung	1.2	0.0	1.1	0.0
sliding door	0.3	0.0	0.2	0.0
picture	2.3	0.1	2.1	0.1
bay, patio, skylight	2.4	0.1	2.2	0.1
other	0.6	0.0	0.6	0.0
Total windows	19.0	0.6	17.5	0.9
Proportion of houses with at least one window of a given type				
In the basement	89.3%	2.6%	75.8%	14.1%
sliding	64.8%	1.0%	51.9%	12.3%
casement	20.5%	1.0%	19.2%	0.5%
awning	3.0%	0.3%	2.5%	0.2%
double-hung	3.9%	0.1%	3.9%	0.0%
sliding door	8.6%	0.2%	7.8%	0.6%
picture	9.6%	0.4%	8.8%	0.4%
other	7.5%	0.1%	7.2%	0.1%
On the main floors	100.0%	6.8%	95.5%	10.8%
sliding	47.7%	0.6%	44.7%	3.1%
casement	79.3%	4.2%	72.5%	4.3%
awning	6.7%	0.8%	5.5%	0.4%
double-hung	17.3%	0.2%	16.9%	0.3%
sliding door	14.8%	0.6%	13.6%	0.6%
picture	49.1%	2.1%	45.1%	2.2%
bay, patio, skylight	92.3%	4.2%	85.0%	5.6%
other	15.5%	0.9%	14.3%	1.1%
Total windows	100.0%	7.2%	96.9%	20.5%

Diagram 6.3.2a
Breakdown of windows around the house
by size
All houses built in 1994
- New Brunswick -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	13.6	4.8	5.2	1.8	1.7
In the basement	3.5	0.8	1.5	0.7	0.5
small (up to 5 ft ²)	1.7	0.2	0.8	0.4	0.3
medium (5 to 12 ft ²)	1.5	0.4	0.7	0.2	0.2
large (over 12 ft ²)	0.3	0.2	0.1	0.0	0.0
On the main floors	10.1	4.1	3.7	1.1	1.2
small (up to 5 ft ²)	1.6	0.4	0.7	0.2	0.2
medium (5 to 12 ft ²)	5.5	1.9	2.2	0.6	0.7
large (over 12 ft ²)	3.1	1.7	0.8	0.3	0.3
Other windows	1.6	0.4	1.0	0.1	0.1
patio doors	1.0	0.2	0.7	0.1	0.1
skylights	0.3	0.1	0.2	0.0	0.0
bay windows	0.3	0.2	0.1	0.0	0.0
Total windows	15.2	5.3	6.2	1.9	1.8
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	85.9%	33.8%	69.1%	46.2%	32.5%
small (up to 5 ft ²)	59.0%	8.4%	40.4%	31.0%	21.0%
medium (5 to 12 ft ²)	45.7%	20.1%	30.8%	14.8%	11.8%
large (over 12 ft ²)	15.5%	12.2%	4.8%	1.2%	1.7%
On the main floors	100.0%	100.0%	97.2%	54.4%	62.0%
small (up to 5 ft ²)	58.3%	24.3%	36.6%	16.4%	18.3%
medium (5 to 12 ft ²)	94.6%	65.2%	82.4%	33.7%	40.8%
large (over 12 ft ²)	85.3%	79.3%	36.4%	15.9%	18.0%
Other windows	84.7%	24.6%	70.5%	7.6%	8.9%
patio doors	80.8%	11.0%	67.5%	5.8%	6.5%
skylights	14.9%	5.3%	9.4%	1.7%	1.6%
bay windows	17.3%	10.6%	5.9%	0.5%	1.6%
Total windows	100.0%	100.0%	99.6%	74.6%	74.2%

Diagram 6.3.2b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- New Brunswick -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.5	0.1	3.1	0.3
sliding	1.5	0.0	1.2	0.3
casement	1.2	0.1	1.1	0.0
awning	0.1	0.0	0.1	0.0
double-hung	0.5	0.0	0.5	0.0
sliding door	0.1	0.0	0.1	0.0
picture	0.1	0.0	0.1	0.0
other	0.1	0.0	0.1	0.0
On the main floors	11.7	0.3	11.3	0.1
sliding	0.4	0.0	0.4	0.0
casement	5.8	0.1	5.6	0.1
awning	0.0	0.0	0.0	0.0
double-hung	2.6	0.0	2.6	0.0
sliding door	0.1	0.0	0.1	0.0
picture	0.6	0.1	0.6	0.0
bay, patio, skylight	1.6	0.1	1.5	0.0
other	0.6	0.0	0.6	0.0
Total windows	15.2	0.3	14.4	0.4
Proportion of houses with at least one window of a given type				
In the basement	85.9%	1.6%	77.1%	9.2%
sliding	46.4%	0.0%	38.1%	8.7%
casement	26.3%	0.8%	25.9%	0.0%
awning	2.5%	0.0%	2.5%	0.0%
double-hung	10.6%	0.4%	10.2%	0.0%
sliding door	3.7%	0.0%	3.7%	0.0%
picture	4.5%	0.4%	3.7%	0.4%
other	5.6%	0.0%	5.6%	0.0%
On the main floors	100.0%	4.8%	99.2%	4.6%
sliding	7.4%	0.0%	6.6%	1.2%
casement	72.1%	2.4%	70.8%	1.7%
awning	2.4%	0.0%	2.0%	0.4%
double-hung	31.0%	0.4%	30.6%	0.0%
sliding door	4.9%	0.8%	4.0%	0.0%
picture	31.1%	1.2%	29.9%	0.0%
bay, patio, skylight	84.7%	2.0%	81.5%	1.2%
other	16.5%	0.0%	16.1%	1.2%
Total windows	100.0%	4.8%	99.6%	12.5%

Diagram 6.3.3a
Breakdown of windows around the house
by size
All houses built in 1994
- Atlantic Provinces -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	15.6	6.0	5.4	2.1	2.0
In the basement	4.3	1.2	1.3	0.8	0.9
small (up to 5 ft ²)	2.2	0.3	0.7	0.6	0.7
medium (5 to 12 ft ²)	1.7	0.8	0.5	0.3	0.2
large (over 12 ft ²)	0.4	0.2	0.1	0.0	0.0
On the main floors	11.2	4.8	4.1	1.3	1.1
small (up to 5 ft ²)	2.0	0.8	0.6	0.3	0.4
medium (5 to 12 ft ²)	5.7	2.0	2.3	0.8	0.6
large (over 12 ft ²)	3.5	2.0	1.2	0.1	0.1
Other windows	2.1	0.8	1.1	0.2	0.1
patio doors	0.9	0.2	0.5	0.1	0.0
skylights	0.2	0.1	0.2	0.0	0.0
bay windows	1.0	0.5	0.4	0.1	0.0
Total windows	17.7	6.8	6.5	2.4	2.1
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	90.8%	54.3%	74.1%	52.3%	61.1%
small (up to 5 ft ²)	71.7%	13.1%	39.3%	41.9%	46.8%
medium (5 to 12 ft ²)	66.7%	41.0%	30.0%	16.6%	14.6%
large (over 12 ft ²)	27.8%	18.5%	9.8%	1.1%	1.5%
On the main floors	100.0%	98.5%	97.8%	74.8%	54.2%
small (up to 5 ft ²)	75.0%	38.3%	37.2%	29.5%	24.8%
medium (5 to 12 ft ²)	90.8%	68.7%	76.8%	44.6%	40.2%
large (over 12 ft ²)	82.1%	77.8%	39.1%	7.1%	9.3%
Other windows	70.0%	28.3%	62.4%	16.9%	4.9%
patio doors	55.4%	10.2%	51.1%	8.9%	2.6%
skylights	14.1%	3.6%	10.9%	0.7%	1.0%
bay windows	36.6%	16.4%	19.3%	7.6%	1.6%
Total windows	100.0%	100.0%	98.6%	85.1%	81.2%

Diagram 6.3.3b
**Breakdown of windows around the house
 by number of panes
 All houses built in 1994
 - Atlantic Provinces -**

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	4.3	0.0	4.1	0.1
sliding	0.9	0.0	0.8	0.1
casement	2.0	0.0	2.0	0.0
awning	0.0	0.0	0.0	0.0
double-hung	0.8	0.0	0.7	0.0
sliding door	0.0	0.0	0.0	0.0
picture	0.1	0.0	0.1	0.0
other	0.5	0.0	0.5	0.0
On the main floors	13.3	0.1	13.1	0.2
sliding	0.3	0.0	0.3	0.0
casement	7.5	0.1	7.4	0.1
awning	0.0	0.0	0.0	0.0
double-hung	2.1	0.0	2.1	0.0
sliding door	0.0	0.0	0.0	0.0
picture	0.8	0.0	0.8	0.0
bay, patio, skylight	2.1	0.0	2.1	0.0
other	0.5	0.0	0.5	0.1
Total windows	17.7	0.1	17.2	0.3
Proportion of houses with at least one window of a given type				
In the basement	90.8%	0.7%	87.2%	3.8%
sliding	26.4%	0.0%	23.6%	3.2%
casement	46.8%	0.5%	46.0%	0.5%
awning	0.8%	0.0%	0.8%	0.0%
double-hung	12.0%	0.1%	11.8%	0.0%
sliding door	1.1%	0.0%	1.1%	0.0%
picture	8.3%	0.1%	8.0%	0.1%
other	9.0%	0.0%	9.0%	0.0%
On the main floors	100.0%	1.9%	99.3%	8.6%
sliding	6.0%	0.0%	5.5%	0.6%
casement	80.4%	0.9%	79.3%	1.0%
awning	0.7%	0.0%	0.6%	0.1%
double-hung	19.5%	0.1%	19.3%	0.0%
sliding door	1.5%	0.2%	1.2%	0.0%
picture	21.5%	0.4%	21.1%	0.0%
bay, patio, skylight	70.0%	1.1%	68.6%	0.6%
other	20.9%	0.0%	20.7%	6.8%
Total windows	100.0%	1.9%	99.4%	11.2%

Diagram 6.3.4a
Breakdown of windows around the house
by size
All houses built in 1994
- Quebec -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	12.5	4.5	4.3	2.0	1.8
In the basement	3.6	0.8	1.2	0.8	0.8
small (up to 5 ft ²)	1.7	0.2	0.7	0.4	0.4
medium (5 to 12 ft ²)	1.7	0.4	0.5	0.4	0.4
large (over 12 ft ²)	0.2	0.1	0.0	0.0	0.0
On the main floors	8.9	3.7	3.0	1.1	1.0
small (up to 5 ft ²)	1.7	0.5	0.7	0.3	0.2
medium (5 to 12 ft ²)	4.4	1.6	1.6	0.7	0.6
large (over 12 ft ²)	2.7	1.6	0.7	0.2	0.2
Other windows	1.7	0.4	1.1	0.1	0.1
patio doors	1.2	0.1	1.0	0.0	0.0
skylights	0.1	0.1	0.0	0.0	0.0
bay windows	0.4	0.2	0.1	0.1	0.1
Total windows	14.3	4.9	5.4	2.1	1.9
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	98.8%	44.2%	84.1%	59.4%	53.9%
small (up to 5 ft ²)	65.6%	14.8%	48.1%	33.0%	26.7%
medium (5 to 12 ft ²)	62.3%	26.0%	37.1%	26.9%	27.4%
large (over 12 ft ²)	10.1%	6.4%	2.7%	0.9%	1.7%
On the main floors	99.8%	99.3%	98.9%	62.6%	58.6%
small (up to 5 ft ²)	59.6%	27.3%	37.0%	19.6%	19.3%
medium (5 to 12 ft ²)	93.7%	62.1%	69.8%	40.3%	36.2%
large (over 12 ft ²)	75.5%	71.2%	33.3%	12.7%	12.5%
Other windows	96.9%	23.6%	93.3%	8.6%	6.0%
patio doors	96.0%	8.7%	92.4%	3.2%	1.8%
skylights	9.0%	5.1%	2.2%	1.4%	1.4%
bay windows	17.6%	10.9%	3.6%	4.2%	3.4%
Total windows	100.0%	99.8%	99.6%	76.2%	70.5%

Diagram 6.3.4b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Quebec -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.6	0.1	2.9	0.7
sliding	2.4	0.0	1.8	0.6
casement	0.8	0.0	0.8	0.0
awning	0.0	0.0	0.0	0.0
double-hung	0.0	0.0	0.0	0.0
sliding door	0.2	0.0	0.1	0.0
picture	0.1	0.0	0.1	0.0
other	0.1	0.0	0.1	0.0
On the main floors	10.6	0.4	9.8	0.5
sliding	0.8	0.0	0.7	0.1
casement	6.9	0.2	6.4	0.3
awning	0.1	0.0	0.1	0.0
double-hung	0.1	0.0	0.1	0.0
sliding door	0.1	0.0	0.1	0.0
picture	0.6	0.0	0.6	0.0
bay, patio, skylight	1.7	0.1	1.6	0.1
other	0.3	0.0	0.3	0.0
Total windows	14.3	0.5	12.6	1.1
Proportion of houses with at least one window of a given type				
In the basement	98.8%	2.5%	79.6%	24.8%
sliding	79.2%	1.1%	56.3%	23.0%
casement	32.3%	1.2%	30.4%	0.9%
awning	0.7%	0.0%	0.7%	0.0%
double-hung	0.2%	0.0%	0.2%	0.0%
sliding door	7.2%	0.2%	5.9%	1.1%
picture	4.3%	0.0%	4.3%	0.0%
other	3.6%	0.2%	3.3%	0.0%
On the main floors	100.0%	8.9%	95.1%	9.4%
sliding	26.4%	0.4%	22.5%	3.7%
casement	95.2%	4.6%	88.8%	4.6%
awning	1.4%	0.2%	1.2%	0.2%
double-hung	2.1%	0.0%	2.1%	0.0%
sliding door	10.5%	1.1%	8.5%	0.9%
picture	28.0%	0.2%	26.2%	1.5%
bay, patio, skylight	96.9%	6.1%	88.5%	3.5%
other	9.9%	0.2%	9.4%	0.2%
Total windows	100.0%	9.6%	97.5%	29.2%

Diagram 6.3.5a
Breakdown of windows around the house
by size
All houses built in 1994
- Ontario -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	18.1	6.0	6.8	2.8	2.6
In the basement	3.7	0.5	1.4	0.9	0.9
small (up to 5 ft ²)	2.7	0.2	0.9	0.8	0.8
medium (5 to 12 ft ²)	0.9	0.3	0.4	0.1	0.1
large (over 12 ft ²)	0.2	0.0	0.2	0.0	0.0
On the main floors	14.4	5.5	5.4	1.8	1.7
small (up to 5 ft ²)	2.5	1.0	0.7	0.4	0.4
medium (5 to 12 ft ²)	7.9	2.9	3.0	1.1	0.9
large (over 12 ft ²)	4.0	1.6	1.7	0.4	0.3
Other windows	2.0	0.5	1.3	0.1	0.1
patio doors	1.3	0.1	1.1	0.1	0.1
skylights	0.2	0.1	0.1	0.0	0.1
bay windows	0.5	0.3	0.2	0.0	0.0
Total windows	20.1	6.4	8.1	2.9	2.7
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	98.9%	20.5%	71.2%	63.2%	58.6%
small (up to 5 ft ²)	88.6%	10.6%	53.4%	54.1%	50.7%
medium (5 to 12 ft ²)	32.6%	10.4%	17.0%	9.3%	6.8%
large (over 12 ft ²)	7.5%	0.9%	6.2%	0.7%	1.7%
On the main floors	100.0%	98.2%	96.9%	77.7%	70.4%
small (up to 5 ft ²)	66.5%	36.1%	29.2%	23.4%	27.8%
medium (5 to 12 ft ²)	97.4%	66.4%	77.8%	56.3%	47.8%
large (over 12 ft ²)	75.5%	56.4%	60.6%	22.9%	20.4%
Other windows	95.5%	31.9%	89.1%	9.1%	9.3%
patio doors	91.2%	9.0%	87.4%	6.1%	5.5%
skylights	14.4%	6.2%	5.2%	2.3%	3.4%
bay windows	28.9%	20.9%	10.4%	1.1%	1.8%
Total windows	100.0%	99.8%	98.2%	83.0%	78.0%

Diagram 6.3.5b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Ontario -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.7	0.0	3.2	0.5
sliding	2.7	0.0	2.2	0.4
casement	0.4	0.0	0.3	0.0
awning	0.0	0.0	0.0	0.0
double-hung	0.1	0.0	0.1	0.0
sliding door	0.2	0.0	0.2	0.0
picture	0.2	0.0	0.2	0.0
other	0.2	0.0	0.2	0.0
On the main floors	16.4	0.2	15.4	0.8
sliding	3.5	0.0	3.3	0.2
casement	6.1	0.1	5.7	0.3
awning	0.0	0.0	0.0	0.0
double-hung	1.1	0.0	1.1	0.0
sliding door	0.3	0.0	0.3	0.0
picture	2.8	0.0	2.6	0.1
bay, patio, skylight	2.0	0.0	1.8	0.2
other	0.6	0.0	0.6	0.0
Total windows	20.1	0.2	18.6	1.3
Proportion of houses with at least one window of a given type				
In the basement	98.9%	1.5%	83.3%	15.6%
sliding	81.2%	0.9%	67.4%	13.1%
casement	11.9%	0.2%	11.6%	0.4%
awning	1.6%	0.0%	1.5%	0.2%
double-hung	2.0%	0.0%	2.0%	0.0%
sliding door	9.9%	0.0%	9.2%	0.7%
picture	9.3%	0.4%	8.0%	1.1%
other	6.4%	0.0%	6.0%	0.4%
On the main floors	100.0%	4.6%	96.5%	15.3%
sliding	60.3%	0.7%	55.5%	4.8%
casement	87.3%	2.0%	80.1%	7.2%
awning	1.5%	0.0%	1.3%	0.2%
double-hung	12.5%	0.2%	11.9%	0.5%
sliding door	18.1%	0.7%	16.6%	0.7%
picture	50.4%	0.9%	45.8%	4.0%
bay, patio, skylight	95.5%	2.2%	87.6%	8.6%
other	13.9%	0.5%	12.6%	0.7%
Total windows	100.0%	5.3%	97.2%	23.9%

Diagram 6.3.6a
Breakdown of windows around the house
by size
All houses built in 1994
- Manitoba -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	13.7	3.9	5.0	2.6	2.3
In the basement	3.4	0.5	1.0	1.0	0.9
small (up to 5 ft ²)	2.0	0.1	0.5	0.7	0.6
medium (5 to 12 ft ²)	1.2	0.3	0.4	0.3	0.2
large (over 12 ft ²)	0.2	0.1	0.1	0.0	0.0
On the main floors	10.3	3.4	4.0	1.6	1.4
small (up to 5 ft ²)	2.1	0.5	0.8	0.4	0.3
medium (5 to 12 ft ²)	5.1	1.3	2.0	0.9	0.9
large (over 12 ft ²)	3.2	1.6	1.2	0.2	0.2
Other windows	1.7	0.6	0.9	0.1	0.1
patio doors	0.9	0.1	0.7	0.0	0.1
skylights	0.1	0.1	0.1	0.0	0.0
bay windows	0.7	0.4	0.2	0.0	0.0
Total windows	15.4	4.5	5.9	2.7	2.4
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	93.2%	25.1%	58.8%	68.2%	63.2%
small (up to 5 ft ²)	69.0%	6.0%	35.8%	47.2%	45.4%
medium (5 to 12 ft ²)	41.8%	15.8%	22.1%	20.7%	16.8%
large (over 12 ft ²)	12.2%	7.4%	5.0%	2.0%	2.5%
On the main floors	100.0%	91.1%	97.7%	76.8%	70.3%
small (up to 5 ft ²)	62.0%	29.9%	36.8%	28.0%	20.4%
medium (5 to 12 ft ²)	95.9%	52.6%	78.1%	53.4%	51.7%
large (over 12 ft ²)	75.7%	67.1%	46.5%	12.2%	11.0%
Other windows	82.7%	37.7%	67.1%	7.9%	8.8%
patio doors	67.9%	6.0%	58.4%	3.8%	5.2%
skylights	7.5%	2.7%	3.7%	1.9%	0.7%
bay windows	43.6%	32.9%	15.8%	2.6%	3.5%
Total windows	100.0%	99.8%	98.7%	88.8%	82.6%

Diagram 6.3.6b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Manitoba -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.4	2.0	1.4	0.1
sliding	1.1	0.6	0.5	0.0
casement	0.9	0.6	0.3	0.0
awning	0.8	0.5	0.3	0.0
double-hung	0.0	0.0	0.0	0.0
sliding door	0.1	0.1	0.1	0.0
picture	0.1	0.1	0.0	0.0
other	0.3	0.1	0.2	0.0
On the main floors	12.0	9.5	2.3	0.1
sliding	0.3	0.1	0.2	0.0
casement	5.8	4.9	0.8	0.1
awning	0.6	0.5	0.1	0.0
double-hung	0.1	0.0	0.1	0.0
sliding door	0.1	0.0	0.0	0.0
picture	2.6	2.2	0.4	0.0
bay, patio, skylight	1.7	1.2	0.4	0.0
other	0.8	0.5	0.3	0.0
Total windows	15.4	11.5	3.7	0.2
Proportion of houses with at least one window of a given type				
In the basement	93.2%	52.1%	38.8%	3.2%
sliding	31.5%	16.4%	14.1%	1.0%
casement	28.3%	19.6%	7.9%	0.7%
awning	26.7%	17.3%	8.7%	1.1%
double-hung	0.5%	0.0%	0.5%	0.0%
sliding door	3.3%	1.6%	1.4%	0.4%
picture	6.0%	4.8%	1.3%	0.0%
other	11.0%	3.9%	7.1%	0.0%
On the main floors	100.0%	82.4%	31.6%	1.9%
sliding	11.7%	5.1%	6.7%	0.2%
casement	92.1%	78.2%	13.7%	0.7%
awning	30.5%	27.7%	2.8%	0.0%
double-hung	1.9%	0.7%	1.0%	0.5%
sliding door	3.0%	1.5%	1.6%	0.0%
picture	68.6%	56.3%	14.0%	0.1%
bay, patio, skylight	82.7%	64.6%	22.1%	1.2%
other	22.6%	15.8%	7.0%	0.0%
Total windows	100.0%	82.6%	51.9%	4.7%

Diagram 6.3.7a
Breakdown of windows around the house
by size
All houses built in 1994
- Saskatchewan -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	15.5	3.9	6.7	2.5	2.5
In the basement	3.6	0.4	1.1	1.1	1.0
small (up to 5 ft ²)	2.2	0.1	0.7	0.8	0.7
medium (5 to 12 ft ²)	1.1	0.3	0.3	0.3	0.3
large (over 12 ft ²)	0.2	0.1	0.1	0.0	0.0
On the main floors	11.9	3.4	5.6	1.4	1.5
small (up to 5 ft ²)	1.9	0.7	0.6	0.2	0.3
medium (5 to 12 ft ²)	7.0	1.5	3.6	0.9	1.0
large (over 12 ft ²)	3.1	1.2	1.5	0.2	0.2
Other windows	2.0	0.6	1.2	0.1	0.1
patio doors	0.8	0.0	0.7	0.0	0.0
skylights	0.2	0.1	0.1	0.0	0.0
bay windows	1.0	0.5	0.4	0.0	0.0
Total windows	17.4	4.5	7.9	2.5	2.5
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	100.0%	19.0%	61.9%	76.2%	66.0%
small (up to 5 ft ²)	81.6%	6.1%	41.5%	54.4%	46.9%
medium (5 to 12 ft ²)	42.2%	9.5%	19.7%	20.4%	17.7%
large (over 12 ft ²)	10.2%	4.8%	6.1%	2.0%	1.4%
On the main floors	100.0%	95.9%	100.0%	74.1%	78.9%
small (up to 5 ft ²)	59.2%	44.9%	26.5%	14.3%	19.7%
medium (5 to 12 ft ²)	95.9%	62.6%	85.0%	53.1%	61.9%
large (over 12 ft ²)	76.9%	63.3%	49.0%	17.0%	10.9%
Other windows	87.1%	42.2%	75.5%	6.1%	5.4%
patio doors	63.3%	2.0%	61.2%	0.7%	1.4%
skylights	15.0%	8.2%	6.1%	2.0%	2.0%
bay windows	51.7%	35.4%	25.2%	3.4%	2.7%
Total windows	100.0%	100.0%	100.0%	96.6%	93.2%

Diagram 6.3.7b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Saskatchewan -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.6	0.5	2.7	0.4
sliding	1.3	0.2	0.9	0.2
casement	1.2	0.2	0.9	0.1
awning	0.5	0.0	0.5	0.1
double-hung	0.1	0.0	0.1	0.0
sliding door	0.1	0.0	0.1	0.0
picture	0.1	0.0	0.1	0.0
other	0.2	0.0	0.2	0.0
On the main floors	13.9	5.5	8.4	0.0
sliding	0.4	0.1	0.3	0.0
casement	7.0	2.8	4.3	0.0
awning	0.9	0.3	0.6	0.0
double-hung	0.0	0.0	0.0	0.0
sliding door	0.0	0.0	0.0	0.0
picture	2.4	1.1	1.2	0.0
bay, patio, skylight	2.0	0.5	1.4	0.0
other	1.1	0.6	0.5	0.0
Total windows	17.4	6.0	11.0	0.4
Proportion of houses with at least one window of a given type				
In the basement	100.0%	16.3%	74.1%	15.0%
sliding	43.5%	6.1%	29.3%	10.2%
casement	34.0%	8.2%	24.5%	2.0%
awning	17.0%	1.4%	13.6%	2.0%
double-hung	0.7%	0.0%	0.7%	0.0%
sliding door	5.4%	1.4%	3.4%	0.7%
picture	4.8%	2.7%	2.0%	0.0%
other	8.2%	1.4%	6.8%	0.0%
On the main floors	100.0%	42.2%	71.4%	1.4%
sliding	8.2%	2.7%	6.1%	0.0%
casement	93.2%	38.8%	57.1%	0.0%
awning	29.9%	13.6%	15.6%	0.7%
double-hung	2.0%	2.0%	0.0%	0.0%
sliding door	2.0%	0.7%	1.4%	0.0%
picture	68.7%	31.3%	38.1%	0.0%
bay, patio, skylight	87.1%	25.2%	65.3%	0.7%
other	22.4%	11.6%	10.9%	0.0%
Total windows	100.0%	42.9%	88.4%	15.0%

Diagram 6.3.8.a
Breakdown of windows around the house
by size
All houses built in 1994
- Alberta -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	16.0	4.0	5.8	3.1	3.1
In the basement	3.9	0.4	1.2	1.1	1.2
small (up to 5 ft ²)	1.9	0.1	0.4	0.7	0.7
medium (5 to 12 ft ²)	1.5	0.2	0.5	0.4	0.4
large (over 12 ft ²)	0.5	0.1	0.3	0.1	0.0
On the main floors	12.1	3.6	4.6	2.0	1.9
small (up to 5 ft ²)	2.1	0.6	0.5	0.6	0.5
medium (5 to 12 ft ²)	5.9	1.5	2.2	1.1	1.1
large (over 12 ft ²)	4.1	1.5	2.0	0.4	0.3
Other windows	2.3	0.7	1.2	0.2	0.2
patio doors	0.8	0.0	0.7	0.0	0.0
skylights	0.4	0.1	0.1	0.1	0.1
bay windows	1.1	0.5	0.4	0.1	0.1
Total windows	18.2	4.6	7.0	3.3	3.3
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	99.6%	18.4%	57.4%	75.9%	74.8%
small (up to 5 ft ²)	69.9%	6.0%	24.1%	49.6%	49.3%
medium (5 to 12 ft ²)	48.6%	11.0%	25.9%	25.9%	26.2%
large (over 12 ft ²)	19.1%	3.5%	15.6%	2.8%	2.1%
On the main floors	100.0%	93.3%	98.9%	87.6%	83.0%
small (up to 5 ft ²)	65.2%	32.3%	27.0%	30.9%	30.9%
medium (5 to 12 ft ²)	96.1%	61.7%	75.9%	57.4%	61.3%
large (over 12 ft ²)	84.4%	67.4%	66.0%	22.0%	14.5%
Other windows	83.7%	46.1%	65.6%	14.2%	16.3%
patio doors	56.4%	3.5%	53.5%	2.8%	2.5%
skylights	22.7%	8.9%	6.7%	6.0%	6.7%
bay windows	52.5%	37.9%	23.0%	6.4%	8.2%
Total windows	100.0%	99.6%	99.6%	94.3%	93.3%

Diagram 6.3.8b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- Alberta -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.9	0.0	3.4	0.5
sliding	2.3	0.0	1.9	0.4
casement	0.7	0.0	0.6	0.0
awning	0.2	0.0	0.2	0.0
double-hung	0.0	0.0	0.0	0.0
sliding door	0.2	0.0	0.1	0.0
picture	0.4	0.0	0.3	0.0
other	0.2	0.0	0.2	0.0
On the main floors	14.4	0.2	13.5	0.7
sliding	2.0	0.0	1.9	0.0
casement	5.2	0.1	4.7	0.3
awning	0.5	0.0	0.5	0.0
double-hung	0.4	0.0	0.4	0.0
sliding door	0.1	0.0	0.1	0.0
picture	3.3	0.0	3.2	0.1
bay, patio, skylight	2.3	0.0	2.1	0.2
other	0.7	0.0	0.6	0.0
Total windows	18.2	0.2	16.9	1.2
Proportion of houses with at least one window of a given type				
In the basement	99.8%	1.1%	82.6%	19.1%
sliding	73.8%	0.0%	56.4%	17.4%
casement	22.7%	0.7%	21.3%	0.7%
awning	5.3%	0.0%	5.3%	0.0%
double-hung	0.7%	0.0%	0.7%	0.0%
sliding door	6.4%	0.0%	5.3%	1.1%
picture	15.6%	0.4%	14.9%	0.4%
other	6.4%	0.0%	6.4%	0.0%
On the main floors	100.0%	3.2%	97.2%	10.6%
sliding	39.0%	0.0%	38.3%	2.1%
casement	86.9%	2.1%	81.6%	4.6%
awning	17.4%	0.0%	16.0%	1.4%
double-hung	8.2%	0.0%	7.8%	0.4%
sliding door	5.7%	0.0%	5.7%	0.0%
picture	74.5%	1.4%	71.6%	2.1%
bay, patio, skylight	83.7%	1.4%	78.7%	5.7%
other	18.4%	0.4%	17.7%	0.4%
Total windows	100.0%	3.2%	97.5%	24.5%

Diagram 6.3.9a
Breakdown of windows around the house
by size
All houses built in 1994
- British Columbia -

Window type	Side of house				
	All	Front	Back	Left	Right
Average number of windows					
Regular windows	20.3	5.8	7.5	3.4	3.6
In the basement	3.2	0.6	1.3	0.6	0.7
small (up to 5 ft ²)	1.0	0.1	0.2	0.3	0.3
medium (5 to 12 ft ²)	1.6	0.3	0.7	0.3	0.3
large (over 12 ft ²)	0.7	0.2	0.4	0.1	0.0
On the main floors	17.1	5.2	6.2	2.8	2.9
small (up to 5 ft ²)	3.9	1.0	1.2	0.8	1.0
medium (5 to 12 ft ²)	7.3	2.0	2.7	1.4	1.3
large (over 12 ft ²)	5.8	2.2	2.3	0.6	0.6
Other windows	4.3	1.4	2.1	0.3	0.5
patio doors	1.7	0.3	1.1	0.1	0.2
skylights	1.3	0.5	0.4	0.2	0.2
bay windows	1.3	0.6	0.6	0.1	0.1
Total windows	24.6	7.2	9.6	3.7	4.1
Proportion of houses with at least one window of a given type					
Regular windows					
In the basement	52.2%	23.5%	38.4%	34.7%	36.9%
small (up to 5 ft ²)	34.7%	7.7%	12.9%	18.8%	17.2%
medium (5 to 12 ft ²)	42.9%	14.5%	25.8%	17.3%	22.8%
large (over 12 ft ²)	23.4%	8.7%	15.8%	4.9%	3.5%
On the main floors	100.0%	96.8%	98.7%	91.6%	92.6%
small (up to 5 ft ²)	80.7%	39.0%	46.0%	41.7%	48.0%
medium (5 to 12 ft ²)	94.7%	65.7%	72.8%	60.4%	61.0%
large (over 12 ft ²)	85.7%	73.2%	63.3%	32.5%	29.3%
Other windows	96.1%	64.9%	81.3%	23.9%	29.6%
patio doors	84.1%	19.8%	69.9%	8.9%	11.8%
skylights	57.0%	36.5%	24.5%	13.5%	15.2%
bay windows	49.6%	30.9%	24.2%	4.4%	10.4%
Total windows	100.0%	99.3%	99.3%	94.2%	94.2%

Diagram 6.3.9b
Breakdown of windows around the house
by number of panes
All houses built in 1994
- British Columbia -

Window type	Number of panes			
	All	Triple	Double	Single
Average number of windows				
In the basement	3.2	0.0	3.1	0.0
sliding	1.4	0.0	1.4	0.0
casement	0.3	0.0	0.3	0.0
awning	0.1	0.0	0.1	0.0
double-hung	0.2	0.0	0.2	0.0
sliding door	0.2	0.0	0.2	0.0
picture	0.4	0.0	0.4	0.0
other	0.7	0.0	0.7	0.0
On the main floors	21.4	0.2	20.9	0.3
sliding	6.0	0.0	6.0	0.0
casement	2.5	0.0	2.5	0.0
awning	0.7	0.0	0.7	0.0
double-hung	2.7	0.0	2.7	0.0
sliding door	0.6	0.0	0.6	0.0
picture	3.5	0.0	3.5	0.0
bay, patio, skylight	4.3	0.0	4.1	0.2
other	1.0	0.0	1.0	0.0
Total windows	24.6	0.2	24.0	0.4
Proportion of houses with at least one window of a given type				
In the basement	52.2%	0.6%	51.5%	0.9%
sliding	33.4%	0.3%	32.8%	0.3%
casement	7.5%	0.3%	7.1%	0.0%
awning	5.4%	0.0%	4.8%	0.6%
double-hung	10.7%	0.3%	10.4%	0.0%
sliding door	13.1%	0.3%	12.8%	0.0%
picture	15.4%	0.3%	15.1%	0.0%
other	14.0%	0.0%	14.0%	0.0%
On the main floors	100.0%	2.2%	99.3%	6.8%
sliding	80.4%	0.6%	79.4%	1.0%
casement	37.3%	0.6%	36.4%	0.7%
awning	17.8%	0.3%	16.5%	1.0%
double-hung	51.7%	0.3%	51.0%	0.4%
sliding door	26.6%	0.3%	25.6%	0.7%
picture	71.3%	0.6%	70.3%	0.7%
bay, patio, skylight	96.1%	0.9%	93.8%	5.2%
other	20.9%	0.7%	20.0%	0.9%
Total windows	100.0%	2.2%	99.3%	7.1%

APPENDIX 1: METHODOLOGY NOTES

METHODOLOGY NOTES

The sample

The survey population comprised all owners of houses whose construction was completed in 1994. Eligible residences included single-family houses, duplexes and triplexes. As an initial approximation of this population, the Canada Mortgage and Housing Corporation (CMHC) list was used, which covers new housing in urban areas with a population of more than 10,000. In Manitoba and New Brunswick, the hydro companies of these respective provinces also provided lists of new houses to enrich the starting basis provided by the CMHC.

When reading the results presented in this report, the reader must therefore bear in mind the fairly urban character of the houses selected. For Manitoba and New Brunswick, there may be a certain bias toward electricity as the energy source.

The breakdown of the final sample of 2,300 participants on which the results are based is provided in the following table. The last two columns indicate the sampling error for percentage estimates in the neighbourhood of 20% and 50%, respectively, with a confidence level of 95% (taking into account the effect of weighting).

Province	Number of participants	Error around	
		p = 50%	p = 20%
Newfoundland	82		
Nova Scotia	7		
New Brunswick	257	6.2%	4.9%
Quebec	435	4.8%	3.8%
Ontario	447	5.9%	4.7%
Manitoba	334	5.5%	4.4%
Saskatchewan	147	8.1%	6.5%
Alberta	282	5.8%	4.7%
British Columbia	309	5.6%	4.5%
Total	2,300	3.1%	2.5%

This table shows that the results based on the entire sample can be presented (taking into account the estimated margins of error) separately for each province, except Newfoundland and Nova Scotia. Estimates were also presented for all the Atlantic Provinces; in this case, keep in mind that with only seven participants in the survey, Nova Scotia has a significant weight since this province accounts for approximately 45% of new houses built in the Atlantic Provinces in 1994. This imbalance in the samples creates a certain instability in the estimates pertaining to the Atlantic Provinces as a whole; the reader must be aware of this when interpreting the results. It was nevertheless decided to include these data since, after verification, it was deemed that the results proved to be consistent with those of the 1994 Household Facilities and Equipment Survey.

Quality of the results obtained

In its methodological report, Criterion evaluates how the participants answered the questionnaire, outlines the corrections made and occasionally suggests alternatives for subsequent repetitions of the survey. This report should be read to place the resulting data into perspective. During this analysis, we felt that two aspects in particular should also be highlighted: the translation of and non-response to certain questions.

First of all, for a certain number of questions, the English and French versions of the questionnaire do not correspond; in most cases, these discrepancies involved response categories overlooked in the French version. For instance, there are translation inconsistencies in questions 26 (insulation of exterior walls), 30 (insulation of exterior walls of the basement), 32 (type of insulation in the basement walls), 56 (type of insulation over the ceiling) and 75d (operating speed of heat exchanger). When an "other" response category was available, it is assumed that it was possible to recover the information at the time of coding. The percentage of homeowners who did not answer a given question is a useful piece of information for estimating the value of means and percentages constructed solely from respondents; hence, the more problematic questions in this regard are as follows: efficiency of the heating system (20% in unweighted percentages), number of cords of wood (17%), type of insulation in exterior walls (19%), square footage of the house (17%), presence of a heat exchanger (18%) and its operating speed (11%), R-2000 certification (21%) and income (12%).

Calculation of mean values

The following were the methods used to calculate mean values for 1) the number of cords of wood, 2) the thickness of the insulation and 3) the insulation's R-value.

1) For "normal" cords of wood:	less than 1 cord	=	0.5 cord
	1 to 3 cords	=	2 cords
	4 to 6 cords	=	5 cords
	more than 6 cords	=	8 cords

For face or stove cords, it was assumed that the cords in question were "short cords," whose volume corresponds to one-third of a normal cord. The values mentioned above were therefore divided by three. For the "other" types of cords, the value was reported as missing.

2) For the thickness of the insulation of exterior walls, we used the thickness of the wood framing (4", 6" and 5" for the "other" category) in question 25c; for the thickness of the insulation in the basement or crawl space, the mid-point of the class was used for questions 33, 46 and 48 by assigning the values of 0.5 and 9, respectively, as minimum and maximum values. For the thickness of the insulation in the attic/ceiling crawl space, the mid-point of the class of the categories in question 57 was also used by assigning a value of 13" as the maximum.

3) To calculate the R-value, the unit R-value of each type of insulation (i.e., corresponding to one inch of thickness) was multiplied by the thickness as calculated above. The unit R-values are as follows:

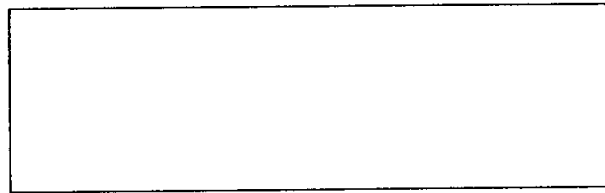
- Fibreglass batts: 3.3
- Rigid foam board: 5.0
- Blown cellulose: 3.4
- Blown fibreglass: 2.7

Certain homeowners stated that they had insulated the walls with fibreglass batts and rigid foam board. In this case, it was assumed that one inch of foam board had been added to the thickness of the fibreglass batts, and the R-value was calculated accordingly.

APPENDIX 2: QUESTIONNAIRE

NATURAL RESOURCES CANADA
NEW HOUSING SURVEY

Main Fuel Type S1



Earlier, we spoke with you on the phone and asked for your help in completing the New Housing Survey. We appreciate your agreeing to do the survey.

This survey is being done for Natural Resources Canada in order to understand how energy is used in new homes. There are about 150,000 new homes built in Canada each year and yours has been selected as part of a sample of 3,000 units to represent all new homes built in 1994.

Natural Resources Canada manages an Energy Efficiency Program which includes a number of initiatives aimed at improving energy efficiency in new homes. You might be familiar with some of these initiatives like the R-2000 Home Program and the EnerGuide (appliance labelling) Program.

With the information from the survey, Natural Resources Canada will be able to design more effective programs, leading to greater improvements in energy efficiency. Improving energy efficiency also alleviates some environmental problems like climate change. In short, the time you are devoting to answer this survey will have benefits for us all.

Your answers will be kept confidential. We thank you for your assistance.

Throughout the survey, you will be asked to either fill in blanks or check off the answer that applies to you. When you are answering questions where you are asked to check off the most appropriate answer, please place a "✓" or "x" over the correct circle. For example, if most of your exterior walls are brick-covered, your Question 21 would look like the following:

21. What are <u>most</u> of the exterior walls of your house made of? (MARK ONE ONLY. IF YOU HAVE MORE THAN ONE SURFACE TYPE ANSWER FOR THE TYPE WHICH COVERS MORE AREA THAN ANY OTHER TYPE?)	
Aluminum/steel siding	01 <input type="radio"/>
Brick	02 <input checked="" type="radio"/>
Stucco	03 <input type="radio"/>
Vinyl siding	04 <input type="radio"/>
Stone/concrete	05 <input type="radio"/>
Wood	06 <input type="radio"/>
Log	07 <input type="radio"/>
Asbestos shingle	08 <input type="radio"/>
Other	09 <input type="radio"/>
Don't know	10 <input type="radio"/>

When you are filling in the blanks, please print clearly within the spaces or boxes provided. For example, if 75% of your exterior walls are covered with brick, your Question 22 would look like the following:

22. What percentage of your exterior walls are covered with the surface you mentioned in Question 21? If all, indicate 100%.	<input type="text" value="75"/> %
--	-----------------------------------

This is a very comprehensive questionnaire that is broken into several sections:

- Section 1 Heating System
- Section 2 Supplementary Heating Systems
- Section 3 House Construction
- Section 4 Basement
- Section 5 Crawl Spaces
- Section 6 Garages
- Section 7 Attic and Ceiling Crawl Space
- Section 8 Windows
- Section 9 Air System
- Section 10 Water
- Section 11 Utilities, Specifications, and Homeowner Information

When you were purchasing your home, you may have received a sheet of specifications from the builder. This sheet would have described features such as wall construction, insulation characteristics, and other features. If you still have that sheet, it may be useful when you are filling out the survey.

SECTION 1 - HEATING SYSTEM

First, please help us understand a bit about the heating system in your house.

1. What is the heating equipment that heats most of the house? Is it ? (MARK ONE ONLY)

- And how many of those
units do you have?
- | | | | | |
|---|---|--------------------------|--------------------|----|
| Furnace with hot air vents | 1 | <input type="checkbox"/> | V1 | V2 |
| Boiler (furnace) with hot water radiators | 2 | <input type="checkbox"/> | V3 | V3 |
| Wood stove | 3 | <input type="checkbox"/> | V4 | V4 |
| Electric baseboards | 4 | <input type="radio"/> | } PLEASE GO TO Q.3 | |
| Electric radiant heating | 5 | <input type="radio"/> | | |
| Heat pump | 6 | <input type="radio"/> | | |
| Gas fireplace | 7 | <input type="radio"/> | | |
| Other | 8 | <input type="radio"/> | | |
| Don't know | 9 | <input type="radio"/> | | |

2. What is the efficiency rating of the heating equipment?

- | | | | |
|----------------------------|---|-----------------------|----|
| Standard (50-65%) | 1 | <input type="radio"/> | |
| Medium (75-85%) | 2 | <input type="radio"/> | V5 |
| High (90% or higher) | 3 | <input type="radio"/> | |
| Don't know | 4 | <input type="radio"/> | |

3. Do you have a heat pump?

- | | | | |
|------------------|---|-----------------------|--------------------|
| Yes | 1 | <input type="radio"/> | |
| No | 2 | <input type="radio"/> | } PLEASE GO TO Q.7 |
| Don't know | 3 | <input type="radio"/> | |

4. Is your heat pump air source or ground source?

- | | | | |
|--|---|-----------------------|----|
| Air source | 1 | <input type="radio"/> | |
| Ground (water) source (earth energy system) | 2 | <input type="radio"/> | V7 |
| Don't know | 3 | <input type="radio"/> | |

5. Does your house use a back-up furnace with your heat pump?
- Yes 1
- No 2 } PLEASE GO TO Q.7 V8
- Don't know 3

6. What fuel does the back-up furnace use? Does it use ?
- Natural gas 1
- Oil 2
- Electricity 3
- Wood 4 V9
- Propane 5
- Other (please describe)
- _____
- Don't know 9

7. Some heating systems have additional features. Does your system also have a ?
- | | Yes | No | Don't Know | |
|--|-------------------------|-------------------------|-------------------------|-----|
| a) central electronic air filter | 1 <input type="radio"/> | 2 <input type="radio"/> | 3 <input type="radio"/> | V10 |
| b) central humidifier | 1 <input type="radio"/> | 2 <input type="radio"/> | 3 <input type="radio"/> | V11 |
| c) central dehumidifier | 1 <input type="radio"/> | 2 <input type="radio"/> | 3 <input type="radio"/> | V12 |

8. Do you have a wood burning fireplace in your home?
- V13
- Yes 1 ▷ How many fireplaces? V14
- No 2 ▷ PLEASE GO TO Q.12

PLEASE ANSWER QUESTIONS 9 TO 11 ABOUT THE WOOD BURNING FIREPLACE YOU USE MOST OFTEN IF YOU HAVE MORE THAN ONE

9. Does it have glass doors?
- Yes 1
- No 2 V15
- Don't know 3
10. Does it have a fireplace insert?
- Yes 1
- No 2 V16
- Don't know 3
11. About how often do you use the wood burning fireplace during the heating season? Is it ?
- Never 1
- Not every week 2
- 1 - 3 times per week 3 V17
- More than 3 times per week 4
- Don't know 5

12. Do you have a fireplace(s) in your home other than a wood burning fireplace?

- Yes 1
No 2 } PLEASE GO TO Q.13 V18
Don't know 3

i) What area(s) is it (are they) heating? (MARK ALL THAT APPLY)

- Part of main living space 1
Basement 2
Garage 3 V19 to V21
Attic 4
Solarium/sunroom 5
Other 6

ii) What fuel is used?

- Natural gas 1
Oil 2 V22 to V24
Propane 3
Other 4

13. Do you use a wood stove(s)?

- Yes 1
No 2 } PLEASE GO TO Q.14 V24a
Don't know 3

i) What area is it heating?

- Part of main living space 1
Basement 2
Garage 3 V25 to V27
Attic 4
Solarium/sunroom 5
Other 6

Wood Burning

IF ANY OF YOUR HEATING SYSTEMS USE WOOD AS FUEL, PLEASE ANSWER THIS SECTION, OTHERWISE GO TO SECTION 2 - SUPPLEMENTARY HEATING SYSTEMS

14. How many cords of wood do you use in an average year?

- Less than 1 1
1 - 3 2 V28
4 - 6 3
More than 6 4
Don't know 5 ▷ PLEASE GO TO SECTION 2

15. What type of cord is it?

- Face or stove cords (less than 4 ft x 4 ft x 8 ft) 1
Full (bush) cord (4 ft x 4 ft x 8 ft) 2 V29
Other 3
Don't know 4

SECTION 2 - SUPPLEMENTARY HEATING SYSTEMS

16. Aside from your main heating system, do you use any of the following types of supplementary heating (MARK ALL THAT APPLY). If yes, please indicate on the table below which areas of the house they heat and what fuel or fuels are used for each of the supplementary heating systems. If you have no supplementary heating systems, please to go "Thermostats" below.

	V30 to V32	V33 to V35	V36 to V38	V39 to V41	V42 to V44
	Electric Baseboard Heaters	Portable Heaters	Wood Stove	Fireplace (not wood-burning)	Other Supplementary Heating
No	7 ○	7 ○	7 ○	7 ○	7 ○
Yes, and it/they heat(s)					
Part of main living area	1 ○	1 ○	1 ○	1 ○	1 ○
Basement	2 ○	2 ○	2 ○	2 ○	2 ○
Garage	3 ○	3 ○	3 ○	3 ○	3 ○
Attic	4 ○	4 ○	4 ○	4 ○	4 ○
Solarium/sunroom	5 ○	5 ○	5 ○	5 ○	5 ○
Other	6 ○	6 ○	6 ○	6 ○	6 ○
Fuel used:					
Electricity		1 ○		1 ○	1 ○
Natural gas		2 ○		2 ○	2 ○
Oil		3 ○		3 ○	3 ○
Propane		4 ○		4 ○	4 ○
Other		5 ○		5 ○	5 ○

V45 to V47 V48 to V50 V51 to V53

17. During the last heating season, would you say you used your supplementary heating system

	Electric Baseboard Heaters	Portable Heaters	Wood Stove	Fireplace (not wood-burning)	Other Supplementary Heating
Less than 25% of the time	1 ○	1 ○	1 ○	1 ○	1 ○
25% to 75% of the time	2 ○	2 ○	2 ○	2 ○	2 ○
More than 75% of the time	3 ○	3 ○	3 ○	3 ○	3 ○
Don't know	4 ○	4 ○	4 ○	4 ○	4 ○

V54 V55 V56 V57 V58

Thermostats

18. Do you use a programmable thermostat with a timer to change the temperature in your house automatically?

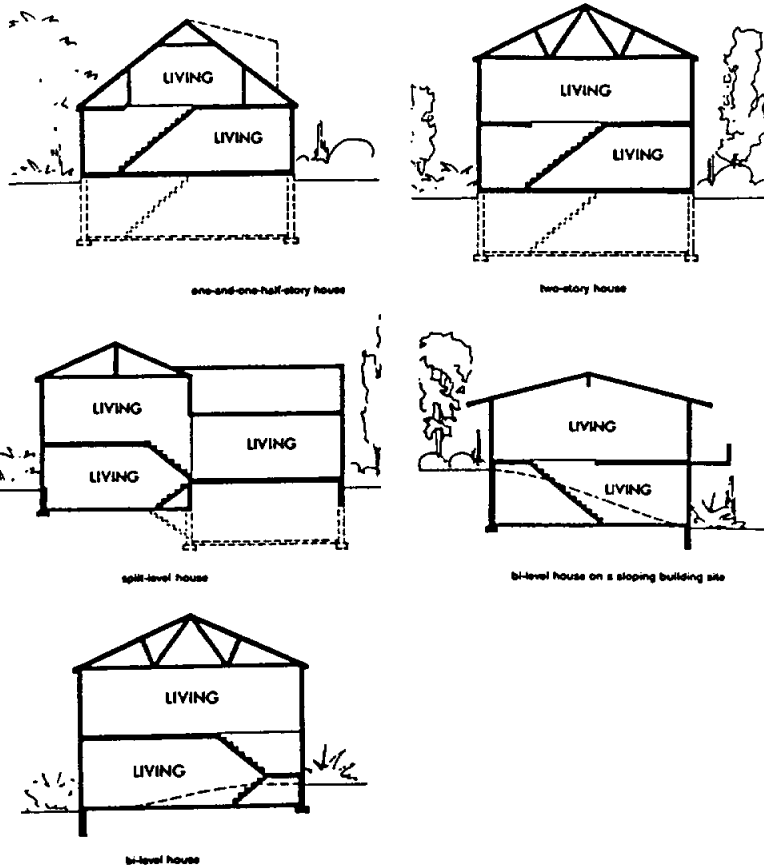
Yes 1 ○
 No 2 ○ V59
 Don't know 3 ○

19. During the heating season, at what temperature do you usually maintain most of your home in the daytime, evening, and over night?

	V60	V61	V62
	Daytime (6 a.m. - 6 p.m.)	Evening (6 p.m. - 10 p.m.)	Over Night (10 p.m. - 6 a.m.)
16° C (61° F) or less	01 ○	01 ○	01 ○
17° C (62-63° F)	02 ○	02 ○	02 ○
18° C (64-65° F)	03 ○	03 ○	03 ○
19° C (66-67° F)	04 ○	04 ○	04 ○
20° C (68-69° F)	05 ○	05 ○	05 ○
21° C (70-71° F)	06 ○	06 ○	06 ○
22° C (72° F)	07 ○	07 ○	07 ○
23° C (73-74° F)	08 ○	08 ○	08 ○
24° C (75° F) or more	09 ○	09 ○	09 ○

SECTION 3 - HOUSE CONSTRUCTION

Thank you for telling us about your heating system. Please now tell us about the construction of your house itself.



20. How many storeys, excluding the basement, does your house have? The diagrams above may assist you in classifying your house construction.

- One storey 1
- One and one-half storeys 2
- Two storeys 3
- Two and one-half storeys 4
- Three storeys 5
- Split level 6
- Bi-level (split entry) 7
- Bi-level (on a sloping building site) 8
- Other 9

21. What are most of the exterior walls of your house made of? (MARK ONE ONLY. IF YOU HAVE MORE THAN ONE SURFACE TYPE ANSWER FOR THE TYPE WHICH COVERS MORE AREA THAN ANY OTHER TYPE.)

- Aluminum/steel siding 01
- Brick 02
- Stucco 03
- Vinyl siding 04
- Stone/concrete 05
- Wood 06
- Log 07
- Asbestos shingle 08
- Other 09
- Don't know 10

22. What percentage of your exterior walls are covered with the surface you mentioned in Question 21? If all, indicate 100%.

% V65

23. What other material, if any, is used on the exterior walls but on less area than that covered in Question 21? (MARK ONE ONLY)

- None (no other material) 01
- Aluminum/steel siding 02
- Brick 03
- Stucco 04
- Vinyl siding 05 V66
- Stone/concrete 06
- Wood 07
- Log 08
- Asbestos shingle 09
- Other 10
- Don't know 11

24. Looking at the main structure of your home, is it mainly ?

- Wood frame 1
- Solid masonry or brick (including hollow concrete blocks) 2 V67
- Steel frame 3
- Log 4
- Other (please describe)
- _____
- Don't know 9

25a. What is the R value of the insulation in your outside walls (not basement walls)? ____ V68 ____

Don't know 99

IF YOU DON'T KNOW THE R VALUE, THEN PLEASE TRY TO ANSWER EITHER OF THE FOLLOWING QUESTIONS.

b. What is the overall thickness of a typical outside wall in your house (including gyproc and exterior finish)? (The ruler attached to this page may be useful and the easiest way to measure the thickness in inches at a window frame.)

___ inches V69

c. If your house is primarily a wood or steel frame house, what is the size of framing in the outside walls?

- 2" x 4" 1
- 2" x 6" 2
- Various framing sizes 3
- Other (please specify) V70
- _____
- Don't know 9

26. What type of insulation do you have in your outside walls? Is it ?

- Fibreglass 1
- A combination of fibreglass and rigid foam board ... 2
- Blown in/loose fill 3 V71
- Foam board 4
- Other 5
- Don't know 9

27. Approximately what is the total HEATED living area of your house, excluding basement and garage?

- Less than 600 sq. ft. 01
- 601 - 1,000 sq. ft. 02
- 1,001 - 1,500 sq. ft. 03 V72
- 1,501 - 2,000 sq. ft. 04
- 2,001 - 2,500 sq. ft. 05
- 2,501 sq. ft. or more 06

OR Inside measurements:

length width

07 ft. V73 ft. V74

OR If you prefer to use meters

Square meters 08 ▷ V75

OR length width

09 m. V76 m. V77

OR

Total heated rooms 10 ▷ V78
 (total number of heated rooms
 excluding basement and
 bathrooms)

Don't know 11

28. What is the combined square footage of your basement and/or crawl space?

1 sq. ft. V79

OR

length width

2 ft. V80 ft. V81

OR If you prefer to use meters

Square meters 3 ▷ V82

OR length width

4 m. V83 m. V84

Don't know..... 5 V85

29a. Looking at the layout of your house, about what percentage of the ground floor living area is over ?

A basement _____ V86 ___ % ▷ PLEASE ANSWER SECTION 4

Crawl space (not enough room to stand) _____ V87 ___ % ▷ PLEASE ANSWER SECTION 5

An overhang or floor exposed to the outside _____ V88 ___ %

A slab on grade (the house is directly on top of a concrete slab and there is no basement or crawl space) _____ V89 ___ % ▷ PLEASE ANSWER Q.29B

~~Over garage 02 V90~~

Other (unspecified) 97 _____ V91 ___ %

PLEASE MAKE SURE THE TOTAL ADDS TO 100% TOTAL 100%

29b. If any of your living area is on a slab on grade, does it have ?

- Fixed floor covering (carpet, wood floor, etc.) 1
- No fixed floor covering (bare concrete, throw rugs on concrete, etc.) 2 V92 & V93
- Other (please describe) _____

- No slab on grade 8
- Don't know 9

Thank you for telling us about your house construction. Among other items, the next sections will deal with your house insulation. The type, amount, and condition of insulation has a great influence on overall energy use.

When you are answering questions about insulation thickness, please make sure to exclude the thickness of any masonry (brick, stonework, etc.) or other outside cladding.

Please also note that:

- blue rigid foam board is usually 2" (5 cm) thick
- pink insulation batts are usually 3.5" (9 cm) thick

IF ALL OF YOUR MAIN FLOOR LIVING SPACE IS ON A SLAB ON GRADE (THAT IS, YOUR HOME HAS NO BASEMENT OR CRAWL SPACES), PLEASE GO AHEAD TO SECTION 6 - GARAGES ON PAGE 12

SECTION 4 - BASEMENT

Please now tell us about your basement or foundation.

IF YOU HAVE A BASEMENT (FULL OR PARTIAL), PLEASE ANSWER THIS SECTION, OTHERWISE GO TO QUESTION 40 ON PAGE 11

30. How are the basement and exterior basement walls insulated? That is, the walls exposed to the outside climate?
- Ceiling is insulated 1
 - Framed exterior walls with insulation 2 V94 & V95
 - Framed exterior walls without insulation 3
 - Exterior wall insulated, no framing 4
 - Exterior wall with insulation on outside of wall 5 V94a, V94b, V94c
 - No wall insulation 6 ▷ PLEASE GO TO Q.35
 - Floor is insulated (not including carpeting or flooring) 7
 - Don't know 8 ▷ PLEASE GO TO Q.35
31. What percentage of the basement wall area is insulated? _____ % V96
32. What type of insulation, if any, is in the basement walls? Is it mainly ? (PLEASE MARK ONE ONLY)
- Fibreglass batts 1
 - Rigid foam board 2
 - A combination of fibreglass batts and rigid foam board ... 3
 - Tar 4 V97
 - Blown in/loose fill 5
 - Other (please describe) _____
 - Don't know 9
33. And, on average, how thick is the insulation in your basement walls? Is it ?
- Less than 1" (2.5 cm) 1
 - 1" (2.5 cm) to 2" (5 cm) 2
 - Over 2" (5 cm) and up to 4" (10 cm) 3 V98
 - Over 4" (10 cm) and up to 6" (15 cm) ... 4
 - Over 6" (15 cm) and up to 8" (20 cm) ... 5
 - Over 8" (20 cm) 6
 - Don't know 7
34. About what percentage of the basement wall area is above grade (above ground)? ___ V99 ___ %
35. Is the basement usually heated?
- Yes 1
 - No 2] PLEASE GO TO Q.40 V100
 - Don't know 3]
36. About what percentage of the basement area is heated? (PLEASE MARK ONE ONLY)
- _____ % V101
37. And about what percentage of your basement, if any, is finished living space (rec rooms, bedrooms, home office space, etc.)?
- _____ % V102

38. Do you have a separate thermostat in your basement?

- Yes 1 V103
 No 2
 Don't know 3

39. During the heating season, what would you say is the average temperature of the heated portion of your basement and of the unheated portion?

	V104	V105
	Heated Portion	Unheated Portion
10° C (50° F) or less	01 <input type="radio"/>	01 <input type="radio"/>
11° C (51-52° F)	02 <input type="radio"/>	02 <input type="radio"/>
12° C (53-54° F)	03 <input type="radio"/>	03 <input type="radio"/>
13° C (55-56° F)	04 <input type="radio"/>	04 <input type="radio"/>
14° C (57-58° F)	05 <input type="radio"/>	05 <input type="radio"/>
15° C (59-60° F)	06 <input type="radio"/>	06 <input type="radio"/>
16° C (61° F)	07 <input type="radio"/>	07 <input type="radio"/>
17° C (62-63° F)	08 <input type="radio"/>	08 <input type="radio"/>
18° C (64-65° F)	09 <input type="radio"/>	09 <input type="radio"/>
19° C (66-67° F)	10 <input type="radio"/>	10 <input type="radio"/>
20° C (68° F)	11 <input type="radio"/>	11 <input type="radio"/>
21° C (69-70° F)	12 <input type="radio"/>	12 <input type="radio"/>
22° C (71-72° F)	13 <input type="radio"/>	13 <input type="radio"/>
23° C (73-74° F)	14 <input type="radio"/>	14 <input type="radio"/>
24° C (75° F)	15 <input type="radio"/>	15 <input type="radio"/>
25° C (77° F) or over	16 <input type="radio"/>	16 <input type="radio"/>

SECTION 5 - CRAWL SPACES

40. Is the crawl space ?

- Open to the outdoors (during heating season) 1 ▷ PLEASE GO TO Q.49 ON PAGE 12
 Closed in but unheated 2
 Don't know 3 V106
 Heated 4

41. About what percentage of the crawl space area is heated? _____ % V107

42. Do you have a separate thermostat in your crawl space?

- Yes 1
 No 2 V108
 Don't know 3

43. How is the crawl space insulated? (MARK ALL THAT APPLY)

- Ceiling above crawl space is insulated 1
 Walls are insulated on the interior 2
 Walls are insulated on the exterior 3 V109 to V112
 Floor is insulated 4
 No insulation 5 } PLEASE GO TO Q.49
 Don't know 6 }

44. What percentage of the wall area of the crawl space is insulated? _____ % V113

45. What type of insulation, if any, is in the crawl space walls? Is it mainly ? (PLEASE MARK ONE ONLY)

- Fibreglass batts 1
- Rigid foam board 2
- A combination of fibreglass batts and rigid foam board 3 V114
- Other 4
- Don't know 9

46. On average, how thick is the insulation, if any, in the crawl space walls?

- Less than 1" (2.5 cm) 1
- 1" (2.5 cm) to 2" (5 cm) 2
- Over 2" (5 cm) and up to 4" (10 cm) 3
- Over 4" (10 cm) and up to 6" (15 cm) ... 4 V115
- Over 6" (15 cm) and up to 8" (20 cm) ... 5
- Over 8" (20 cm) 6
- Don't know 7

47. What type of insulation, if any, is in the crawl space ceiling? Is it mainly ? (PLEASE MARK ONE ONLY)

- Fibreglass batts 1
- Rigid foam board 2
- A combination of fibreglass batts and rigid foam board 3 V116
- Other 4
- Don't know 9

48. On average, how thick is the insulation, if any, in the crawl space ceiling?

- Less than 1" (2.5 cm) 1
- 1" (2.5 cm) to 2" (5 cm) 2
- Over 2" (5 cm) and up to 4" (10 cm) 3
- Over 4" (10 cm) and up to 6" (15 cm) ... 4 V117
- Over 6" (15 cm) and up to 8" (20 cm) ... 5
- Over 8" (20 cm) 6
- Don't know 7

49. About what percentage of the crawl space wall area is above grade (above ground)? _V118_ %

SECTION 6 - GARAGES

Thank you for telling us about your basement and foundation. Now please tell us about any garages you may have.

50. Does your house have a garage?

- Yes 1
- No 2 ▷ PLEASE GO TO Q.55 V119

51. Is the garage heated?

- Yes, heated 1
- No, unheated 2 V120
- Don't know 3

52. Is the garage attached to your home?

Yes, attached 1 V121
 No, unattached 2

53. Is the garage under a heated room or part of your basement?

Yes 1 V122
 No 2

54. In some garages the vehicle entry door is insulated with fibreglass batts or foam board attached to the inside of the door. Does your garage have an insulated vehicle entry door?

Yes 1
 No 2 V123
 Don't know 3

SECTION 7 - ATTIC AND CEILING CRAWL SPACE

Thank you for telling us about your garage. Now please tell us about your attic or ceiling crawl space.

55. Does your house have ? (PLEASE MARK ONE ONLY)

A finished attic (habitable room) 1
 An unfinished attic (high enough to stand and move around in) 2
 A crawl space (not enough room to stand) 3 V124
 No attic or crawl space 4
 Don't know 5

56. What type of insulation do you have over the ceilings in your home?

Blown cellulose 1
 Blown fibreglass 2
 Fibreglass batts 3 V125 & V126
 Other blown in material 4
 Foam board 7
 Other (please describe) _____
 Don't know 9

57. And, on average, how thick is the insulation above your ceilings? Is it ?

Over 6" (15 cm) and up to 8" (20 cm) 01
 Over 8" (20 cm) and up to 10" (25 cm) 02
 Over 10" (25 cm) and up to 12" (30 cm) 03 V127
 Over 12" (30 cm) 04
 Don't know 05

SECTION 8 - WINDOWS

Thank you for telling us about the structure of your home. The next section deals with the windows of your home. The type of windows, the condition, and direction your windows face greatly influences the heating and cooling requirements of your home.

While houses come in many different shapes, we will ask you to think of your house in terms of front, back left side and right side. We rely on your best estimate when curves and angles are involved.

You will also be asked to distinguish between single pane, double pane, and triple pane windows.

Single pane windows use only a single sheet of glass between the living area and the outside climate. They are most often found in sliding windows in the basement.

Most new home construction guidelines call for double pane windows which use two sheets of glass separated by a single air space. They are sometimes also called “thermal pane” windows.

Triple pane windows, usually available at extra cost, use three sheets of glass separated by two air spaces.

Front of the House

58. To start, please tell us what direction the front of your house faces. Does your house face ?

- North 1
- South 2
- East 3
- West 4 V128
- Northeast 5
- Southeast 6
- Southwest 7
- Northwest 8

59. Thinking first of the front of your house, please tell us how many windows (excluding patio doors, skylights, and bay windows) you have. How many are there ?

- In the basement V129 or none 0
- In the main floors V130 or none 0
(including upper floors)

60. How many patio doors, skylights, or bay windows do you have at the front of your house?

- Patio doors V131 or none 0
- Skylights V132 or none 0
- Bay windows V133 or none 0
(extends outside of the house)

61. Not including any patio doors, skylights, or bay windows, how many windows of each of the following size categories are on the front of your house ?

in your basement

- Small (up to 0.5 sq. m. or 5 sq. ft.) V134
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V135
- Large (over 1.1 sq. m. or 12 sq. ft.) V136

in the main floors including upper floors

- Small (up to 0.5 sq. m. or 5 sq. ft.) V137
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V138
- Large (over 1.1 sq. m. or 12 sq. ft.) V139

Back of House

62. Thinking of the back of your house, how many windows (excluding patio doors, skylights, and bay windows) are there? How many are there ?

In the basement	V140	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
In the main floors (including upper floors)	V141	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>

63. How many patio doors, skylights, or bay windows do you have at the back of your house?

Patio doors	V142	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
Skylights	V143	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
Bay windows (extends outside of the house)	V144	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>

64. Not including any patio doors, skylights, or bay windows, how many windows of each of the following size categories are on the back of your house ?

in your basement

Small (up to 0.5 sq. m. or 5 sq. ft.)	<input type="text"/> <input type="text"/>	V145
Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.)	<input type="text"/> <input type="text"/>	V146
Large (over 1.1 sq. m. or 12 sq. ft.)	<input type="text"/> <input type="text"/>	V147

in the main floors including upper floors

Small (up to 0.5 sq. m. or 5 sq. t.)	<input type="text"/> <input type="text"/>	V148
Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.)	<input type="text"/> <input type="text"/>	V149
Large (over 1.1 sq. m. or 12 sq. ft.)	<input type="text"/> <input type="text"/>	V150

Left Side of House

65. Please now think of the left side of your house. If you are approaching the front of your house from the outside, we are talking about the side on your left hand as you stand outside the front of your house. How many windows (excluding patio doors, skylights, and bay windows) are facing or in the left side of your house? How many are ?

In the basement	V151	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
In the main floors (including upper floors)	V152	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>

66. How many patio doors, skylights, or bay windows do you have on the left side of your house?

Patio doors	V153	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
Skylights	V154	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>
Bay windows (extends outside of the house)	V155	<input type="text"/> <input type="text"/>	or none 0 <input type="radio"/>

67. Not including any patio doors, skylights, or bay windows, how many windows of each of the following size categories are on the left side of your house ?

in your basement

- Small (up to 0.5 sq. m. or 5 sq. ft.) V156
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V157
- Large (over 1.1 sq. m. or 12 sq. ft.) V158

in the main floors including upper floors

- Small (up to 0.5 sq. m. or 5 sq. ft.) V159
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V160
- Large (over 1.1 sq. m. or 12 sq. ft.) V161

Right Side of House

68. Please now think of the right side of your house. If you are approaching the front of your house from the outside, we are talking about the side on your right hand as you stand outside the front of your house. How many windows (excluding patio doors, skylights, and bay windows) are facing or in the right side of your house? How many are ?

- In the basement V162 or none 0 ○
- In the main floors V163 or none 0 ○
(including upper floors)

69. How many patio doors, skylights, or bay windows do you have on the right side of your house?

- Patio doors V164 or none 0 ○
- Skylights V165 or none 0 ○
- Bay windows V166 or none 0 ○
(extends outside of the house)

70. Not including any patio doors, skylights, or bay windows, how many windows of each of the following size categories are on the right side of your house ?

in your basement

- Small (up to 0.5 sq. m. or 5 sq. ft.) V167
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V168
- Large (over 1.1 sq. m. or 12 sq. ft.) V169

in the main floors including upper floors

- Small (up to 0.5 sq. m. or 5 sq. ft.) V170
- Medium (0.5 sq. m. to 1.1 sq. m. or 5 to 12 sq. ft.) V171
- Large (over 1.1 sq. m. or 12 sq. ft.) V172

71. We just have a few more questions about the windows in your house. We would like to know about the types of windows in your home. In the main floors of your house (including upper floors), how many windows of each of the following types do you have? Please also indicate if they are triple pane, double pane, or single pane.

Window Type	Total Number in Your Home	And how many are ?		
		Triple Pane	Double Pane	Single Pane
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sliding Windows	V173	V174	V175	V176

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Casement Windows (hinged)	V177	V178	V179	V180

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Awning Windows	V181	V182	V183	V184

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Double Hung Windows	V185	V186	V187	V188

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sliding Doors (with glass)	V189	V190	V191	V192

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Picture Windows (fixed or non-opening)	V193	V194	V195	V196

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bay, Patio, Skylights	V197	V198	V199	V200

	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other	V201	V202	V203	V204

72. And in the basement area how many windows of each of the following types do you have? Please also indicate if they are triple pane, double pane, or single pane.

Window Type	Total Number in Your Home	And how many are ?		
		Triple Pane	Double Pane	Single Pane
Sliding Windows	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V205	V206	V207	V208

Casement Windows (hinged)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V209	V210	V211	V212

Awning Windows	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V213	V214	V215	V216

Double Hung Windows	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V217	V218	V219	V220

Sliding Doors (with glass)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V221	V222	V223	V224

Picture Windows (fixed or non-opening)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V225	V226	V227	V228

Other	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
	V229	V230	V231	V232

73. Do you feel there are any air leaks or drafts around your windows?

- No, no air leaks. 1
- Yes, around some windows 2
- Yes, around most windows 3 V233
- Yes, around all windows 4
- Don't know 5

74. Do you have a heated solarium or sunroom?

- Yes 1 V234
- No 2

SECTION 9 - AIR SYSTEM

Thank you for telling us about the windows in your home. Now please tell us about your air system.

75. Do you have a central ventilation system, also known as an air exchanger, which provides fresh air for the entire house?

V235

Yes 1

a) Does it have heat recovery?

- yes 1
 - no 2
 - don't know 3
- V236

b) When is it used?

- all year 1
 - winter only 2
 - summer only 3
 - never 5
 - don't know 6
- V237
- ▷ PLEASE GO TO Q.76

c) Is it on ?

- continually 1
 - frequently (50% of the time or more) 2
 - sometimes (15% to 50% of the time) 3
 - rarely (less than 15% of the time) 4
 - don't know 5
 - not applicable 6
- V238

d) If it has more than one operating speed, how often does it run at the highest speed?

- not applicable (single-speed system) 1
 - all the time 2
 - 50% to 99% of the time 3
 - 15% to 49% of the time 4
 - less than 15% of the time 5
 - never 6
 - don't know (because it's controlled automatically) 7
 - don't know 8
- V239

No 2

Don't know 3

76. Do you have central air conditioning in your house?

Yes 1

No 2

▷ PLEASE GO TO Q.78

V240

77. How often did you use your central air conditioning last summer? Was it ?

- Never 1
- Only a few days 2
- Less than half of the summer 3 V241
- About half of the summer 4
- More than half of the summer 5
- Don't know 6

78. Do you use window or room air conditioners?

V242

Yes 1 ▷ How many? V243

No 2 ▷ PLEASE GO TO Q.80

79. Last summer, how often did you use your first window or room air conditioner (the one used most often or "first")? Was it ?

- Never 1
- Only a few days 2
- Less than half of the summer 3 V244
- About half of the summer 4
- More than half of the summer 5
- Don't know 6

SECTION 10 - WATER

80. What fuel is used to heat the running water in your home?

- Electricity 1
- Oil 2
- Natural gas 3 V245
- Propane 4
- Other 5
- Don't know 6

81a. Is your space heating shared with other dwellings?

- Yes, shared space heating 1
- No, separate space heating 2 V246
- Don't know 3

81b. Is your water heating system shared with other dwellings?

- Yes, shared water heating 1 ▷ PLEASE GO TO Q.85
- No, separate water heating 2 ▷ PLEASE CONTINUE WITH Q.82 V247
- Don't know 3 ▷ PLEASE GO TO Q.85

82. Do you use a hot water tank (separate from the furnace)?

V248

Yes 1 ▷ How many? V249

No 2 } PLEASE GO TO Q.85
Don't know 3 }

83. What size is the hot water tank? (PLEASE PROVIDE TOTAL VOLUME IF MORE THAN ONE HOT WATER TANK IN QUESTION 82)

- Small (30 gal. (140L) or less) 1
- Medium (40 gal. (180L))..... 2
- Large (50 gal. (230L)) 3 V250
- Very Large (60 gal. (270L) or more). 4
- Don't know 5

84. Does your hot water system have ?

- | | Yes | No | Don't Know | |
|--|-------------------------|-------------------------|-------------------------|------|
| add-on insulation around the outside of the hot water tank | 1 <input type="radio"/> | 2 <input type="radio"/> | 3 <input type="radio"/> | V251 |
| insulation around pipes | 1 <input type="radio"/> | 2 <input type="radio"/> | 3 <input type="radio"/> | V252 |

85. Are any of the following energy saving devices used in your house?

a) Low-flow Shower Head

- V253
- Yes 1 ▷ How many? V254
- No 2
- Don't know 3

b) An Attachment on Hot Water Faucet to Reduce Water Flow (aerator)

- V255
- Yes 1 ▷ How many? V256
- No 2
- Don't know 3

86. If your house lot has a pool, do you use a pool heater?

- Yes 1
- No heater 2 V257
- No pool 3

87. Do you have a hot tub/jacuzzi/whirlpool?

- V258
- Yes. 1

a) How many?	<input type="text"/>	V259
b) How many are ?		
indoor	<input type="text"/>	V260
outdoor	<input type="text"/>	V261

- No 2

88. Do you have a sauna?

- Yes 1 V262
- No 2

SECTION 11 - UTILITIES, SPECIFICATIONS, AND HOMEOWNER INFORMATION

89. Is your home classified as an R2000 home?

- Yes, certified R2000 1
- Yes, built to R2000 standards but not certified 2 V263
- No 3
- Don't know 4

Now for these questions you will need your utility bills.

90. To help calculate energy use in Canadian homes, we need to collect some of your energy use information over the last year. If you have this information available from past bills please provide the units of measure (e.g. kilowatt hours, cubic feet, etc.) and the amounts used per month over the last year.

Sometimes bills are only sent out every 2 or 3 months. If your bills are sent that way, please mark the interval at the bottom of the column of the fuel you use. If you don't receive bills every month, fill in the total consumption for the billing interval beside the last month of the interval.

	Gas	Oil	Electricity
	_____ units	_____ units	_____ units
October 1994	__ V264 __	__ V276 __	__ V288 __
November 1994	__ V265 __	__ V277 __	__ V289 __
December 1994	__ V266 __	__ V278 __	__ V290 __
January 1995	__ V267 __	__ V279 __	__ V291 __
February 1995	__ V268 __	__ V280 __	__ V292 __
March 1995	__ V269 __	__ V281 __	__ V293 __
April 1995	__ V270 __	__ V282 __	__ V294 __
May 1995	__ V271 __	__ V283 __	__ V295 __
June 1995	__ V272 __	__ V284 __	__ V296 __
July 1995	__ V273 __	__ V285 __	__ V297 __
August 1995	__ V274 __	__ V286 __	__ V298 __
September 1995	__ V275 __	__ V287 __	__ V299 __

We receive bills

- Monthly01 01 01
- Every 2 months02 02 02
- Every 3 months03 03 03
- Budget plan 04 04 04

V300

V301

V302

IF YOU ARE NOT SURE OR DON'T KNOW THE INFORMATION IN QUESTION 90, MAY WE CONTACT YOUR ENERGY SUPPLIER(S) ON YOUR BEHALF? WE WOULD ASK ONLY QUESTION 90 WHEN WE CONTACT THE SUPPLIER. THIS INFORMATION WILL BE USED FOR STATISTICAL PURPOSES ONLY AND WILL BE KEPT CONFIDENTIAL.

Yes, you may contact the utility 1 ▷ PLEASE PROVIDE THE FOLLOWING INFORMATION

No, please do not contact the utility 2 ▷ PLEASE GO TO Q.91

	Hydro Company	Natural Gas Supplier	Fuel Oil Supplier
Name of Company			
Account Number			
Name of Account Holder			

Builder Information

91. As we mentioned at the beginning of the survey, there may have been some questions you were unsure of or may be best answered by the builder of your home. We will be pleased to ask the builder on your behalf. If you agree, please provide the name of the company that built your home and, if possible, their telephone number and address. We will not ask the builder any questions that are not already on the survey.

Builder's Name (company) _____

Street Address _____

City or Town _____

Province _____

Telephone No. (____) _____ - _____

To help us classify the answers to this survey, we would appreciate learning a bit about the members of your household.

92. Which of the following categories best describes your total household income? Is it ?

- Less than \$30,000 1
- \$30,001 to \$40,000 2
- \$40,001 to \$50,000 3
- \$50,001 to \$60,000 4
- \$60,001 to \$70,000 5 V308
- \$70,001 to \$80,000 6
- \$80,001 to \$100,000 7
- \$100,001 or over 8
- Don't know 9

93. And for classification purposes, what is the highest level of formal education attained by any of the adults in your household?

- Elementary school 1
- Some high school 2
- Completed high school 3
- Some college (post-secondary) 4 V309
- Some university 5
- Completed college 6
- Completed university 7

94. How many people live in your house who are ?

- Over 65 years of age _V310_
- 30 to 65 years of age _V311_
- 18 to 29 years of age _V312_
- 14 to 17 years of age _V313_
- 10 to 13 years of age _V314_
- 5 to 9 years of age _V315_
- 2 to 4 years of age _V316_
- Under 2 years of age _V317_

95. In what month and year did you move into your house?

- Month: January 01 Year: 19 _V319_
 February 02
 March 03
 April 04
 May 05
 June 06 V318
 July 07
 August 08
 September 09
 October 10
 November 11
 December 12

96. Is this your only home or do you also have another residence?

- Only home 1 V320
- Have other residence 2

YOUR HOME'S ENERGY CONSUMPTION WILL LIKELY BE DIFFERENT WHEN THE HOME IS UNOCCUPIED. PLEASE ANSWER THESE QUESTIONS TO HELP US ANALYZE YOUR MONTHLY ENERGY EXPENSES.

97. How many weeks during each season is the house usually vacant (e.g. when everyone is away on vacation or business trips)?

- in winter _V321_
- in spring _V322_
- in summer _V323_
- in fall _V324_

98. And during weekdays throughout the year, is someone usually home during the daytime?

- Yes 1 V325
- No 2

Thank you for your assistance in completing the New Housing Survey. Please place this completed survey in the self-addressed envelope which came with this package and put it in the mail at your next convenience.

APPENDIX 3: BIBLIOGRAPHY

New Housing Data: Interim Year Feasibility Study, by Market Facts of Canada Ltd., for Natural Resources Canada (December 1994).

1994 New Housing Survey - Final Report, by Criterion Research Corp., for Natural Resources Canada (March 1996).

1994 New Housing Survey : Post-mortem Review Report, by Criterion Research Corp., for Natural Resources Canada (March 1996).