

APPENDIX 1 TO MAIN REPORT

STUDY OF APPLE HILL
ENERGY EFFICIENT HOMES

TASK A + B - NEGOTIATIONS AND INSPECTIONS

Prepared for:

The Policy Development and Research Sector

of

CANADA MORTGAGE AND HOUSING CORPORATION

BY

COGENERATION ASSOCIATES LIMITED

PAR SHELTER ENGINEERING LIMITED

RETROSPECTORS INCORPORATED

FEBRUARY 1984

PRINCIPAL CONSULTANT - Mr. A. Juchymenko, P.Eng.

PROJECT ENGINEER - Mr. P. A. Rowles, P.Eng.

PRINCIPAL SUB-CONTRACTOR - MR. D.S. Moffatt, B.Sc.

CMHC PROJECT MANAGER - Mr. P. Deacon

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

1.0 INTRODUCTION	1-1
2.0 OBJECTIVES	1-3
3.0 METHODOLOGY	1-4
4.0 FINDINGS	1-7
5.0 CONCLUSIONS	1-16
6.0 RECOMMENDATIONS	1-17
APPENDIX 1-A	INFORMATION PACKAGE
APPENDIX 1-B	HOUSE MODELS
APPENDIX 1-C	APPLIANCE SURVEY

LIST OF FIGURES

FIGURE 3.1	APPLIANCE SURVEY	1-6
FIGURE 4.1	SITE MAP	1-11

LIST OF TABLES

TABLE 4.1	LIST OF TEST HOUSES	1-10
TABLE 4.2	SPECIFICATIONS	1-12
TABLE 4.3	ENERGY APPLIANCE SURVEY	1-14
TABLE 4.4	FURNACE EFFICIENCY SUMMARY	1-15

.ep0

1.0 INTRODUCTION

As the cost of energy in Canada has been increasing, the demand for energy efficient houses has also been rising. In order to develop such houses, various levels of government have provided researchers with funds to;

- a) research factors which determine energy use in houses,
- b) design energy efficient homes using readily available materials,
- c) demonstrate the technology involved and skills required in constructing such homes
- d) develop standards and techniques to evaluate these energy efficient houses

This phase of the activity is on going, and several houses in Saskatchewan, P.E.I., and elsewhere in Canada have been built under the close scrutiny of researchers and energy experts. The next phase is to introduce the new techniques used in an energy saving package to contractors of homes. After such houses are built, it is important to record the actual amount of energy used and to compare it to the values of the demonstration homes in Saskatchewan.

The opportunity to make such a comparison with a commercial builder existed in homes built by Douglas MacDonald Homes Limited in the Ottawa area, in a subdivision known as Apple Hill. The designs of the houses include the following special features;

- double wall system with an insulation value of RSI 7.04;
- ceiling insulation value of RSI 10.56;

- basement insulation value of RSI 3.52;
- continuous air vapour barrier (0.15mm polyethelyne);
- insulated furnace room with outside air intake;
- insulated metal doors with weather stripping and aluminum threshold;
- double glazed wood slider or casement windows.

If installed properly, the above features could save a good deal of energy for the homeowners. Further, the recording of the actual performance of these homes would give the designers and contractors, as well as the owners, the needed correlation between the additional cost of the energy saving package when buying a home, and the saving on fuel to heat the house.

This task deals with the preliminary work required prior to monitoring and testing. This includes:

- contact and sign agreements with homeowners;
- review building design, location, and specifications;
- inspect houses for workmanship;
- determine home owner lifestyle;
- identify energy consuming appliances;
- test the furnace efficiency.

2.0 OBJECTIVES

- To obtain approval from homeowners to conduct the proposed testing in their homes.

- To inspect the houses to determine compliance of construction with specifications.

- To survey the household and provide some background data concerning lifestyle, and energy consuming appliances.

- To test the operating efficiency of the heating system.

3.0 METHODOLOGY:

An introductory letter was sent to the homeowners of the Apple Hill subdivision, followed by visits to the homeowner's houses to discuss the project in more detail. If the homeowners were interested in taking part in the study they received an information package and an agreement form which was to be signed and returned. Copies of the introductory letter, information package, and agreement form are shown in Appendix A.

Approval to test unoccupied houses was obtained through discussions with the builder.

The inspection, appliance survey and furnace efficiency tests were conducted at the same time as the air tightness test and the thermographic scans. The appliance survey, shown in Figure 3.1, was used to record data on electrical appliances and heating systems.

A Rab Dedesco digital furnace efficiency meter was used to measure the draft, CO₂, and stack Temperature for gas furnaces in the test houses. The testing probe was inserted under the bonnet, directly into the heat exchanger ports. Separate readings were taken for each of the three ports. The initial test results show that significant discrepancies are common.

A review of pertinent design details was undertaken. These include:

- Air/Vapour barriers;

- Insulation;
- Construction materials;
- Orientation;
- Heating Systems;

All this information was required in order to compare actual energy use to theoretical energy use using the CMHC2 computer program.

FIGURE 3.1

APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

- 33 **number in use**
- A automatic electric dishwasher
- B home food "deep" freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|----------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms.)

92 number of persons living your household?

4.0 Findings

Negotiations with the homeowners and the builder resulted in a sample of 33 houses from the Apple Hill subdivision. At the start of testing in January 1982, twenty-four of these homes were occupied; six were model homes; and three were completed, but unoccupied. A list of the homes in the sample are shown in Table 4.1. Figure 4.1 indicates the location of the houses in the study.

The response to the study by homeowner's was very encouraging. Approximately 95 percent of the homes contacted agreed to participate. This good response is attributed to the high level of awareness of the homeowners in Apple Hill, and their desire for more information on their homes. In addition, it is felt that the introductory letter, followed up by the homeowner interviews, added to this high success rate.

Three additional houses, not in Apple Hill were included in the study. These houses were constructed by Urbandale Homes Ltd. Two houses have electric furnaces, and an air-to-air heat exchanger; one has a conventional gas furnace and hot water tank. All three houses have excellent air/vapour barriers resulting in homes that equal, or exceed, the Apple Hill models in airtightness.

There are eight different models in the Apple Hill subdivision. The distribution of these models in the study sample is:

MODEL	NUMBER
Baldwin	1
Willow	4
Cortland	6
Russet	9
Fireside	2
Regent	8
Westfield	1
York	2
Urbandale *	3
Total	36

*NOTE: Urbandale models are not located in the Apple Hill subdivision.

The promotional drawings and floor layouts for these models are shown in Appendix 1-B. The houses in the Apple Hill subdivision were built to the specifications shown in Table 4.2.

The inspection of the houses confirmed the homes were built to the specifications. However, the integrity of the air/vapour barrier is suspect in many houses due to the amount of air leakage detected. The appliance survey was conducted on all houses. And a summary is shown in Table 4.3, while data sheets are presented in Appendix 1-C.

Spot checks of houses under construction raised some questions about the viability of using conventional practices in the construction of energy efficient housing. These items are discussed in detail in the findings of the air tightness, and thermographic scans reports.

Inspection of houses, and discussions with the homeowners, revealed some major areas of concern. These included the safety, comfort, and efficiency in the design and operation of the enclosed furnace rooms. Homeowners have reported unusually low temperatures in these rooms, resulting in the formation of frost, frozen water tanks, and cold air from the hot air ducts. These low temperatures introduce concerns about the possibility of condensation and freezing of exhaust vapour in the flue. As a result of these concerns, a study was initiated to evaluate the design and operation of these enclosed furnace rooms; and make recommendations for their improvements, if required. The results of this study can be found in "The Study of Furnace Room Design and Operation in Apple Hill Homes" report.

A summary of the furnace efficiency data appears in Table 4.4. Of the 36 houses in the sample, 30 are heated with natural gas, and the remaining 6 are electrically heated. The average furnace efficiency was calculated as 73.5 percent; while the highest and lowest efficiencies were 78.9 and 68.8 percent, respectively.

TABLE 4.1

APPLE HILL PROJECT - KANATA ONTARIO
LIST OF TEST HOUSES

* TEST HOUSE # *	* MODEL *	* VOLUME M3 *	* ENVELOPE AREA M2 *	* HEATING SYSTEM *	* OCCUPANCY DATA *	* NO. OF OCCUPANTS *
* 1 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 4 *
* 2 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 4 *
* 3 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 4 *
* 4 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 4 *
* 5 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 5 *
* 6 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 5 *
* 7 *	* REGENT *	* 730 *	* 360 *	* GAS *	* PRIOR MARCH 31/82 *	* 5 *
* 8 *	* REGENT *	* 730 *	* 360 *	* GAS *	* MAY 06/82 *	* 4 *
* 10 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* JULY 82 *	* 4 *
* 11 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 12 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 13 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 14 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 3 *
* 15 *	* RUSSET *	* 625 *	* 315 *	* ELECTRIC *	* PRIOR MARCH 31/82 *	* 2 *
* 16 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 17 *	* RUSSET *	* 625 *	* 315 *	* ELECTRIC *	* PRIOR MARCH 31/82 *	* 2 *
* 18 *	* RUSSET *	* 625 *	* 315 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 20 *	* CORTLAND *	* 660 *	* 305 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 21 *	* CORTLAND *	* 660 *	* 305 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 22 *	* CORTLAND *	* 660 *	* 305 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 23 *	* CORTLAND *	* 660 *	* 305 *	* ELECTRIC *	* PRIOR MARCH 31/82 *	* 2 *
* 24 *	* CORTLAND *	* 660 *	* 305 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 25 *	* CORTLAND *	* 660 *	* 305 *	* GAS *	* AUGUST 24/82 *	* 3 *
* 27 *	* WILLOW *	* 790 *	* 375 *	* GAS *	* PRIOR MARCH 31/82 *	* 4 *
* 28 *	* WILLOW *	* 790 *	* 375 *	* GAS *	* JULY 82 *	* 4 *
* 29 *	* WILLOW *	* 790 *	* 375 *	* GAS *	* OCTOBER '82 *	* 4 *
* 30 *	* WILLOW *	* 790 *	* 375 *	* GAS *	* MAY '82 *	* 3 *
* 31 *	* YORK *	* 455 *	* 266 *	* ELECTRIC *	* PRIOR MARCH 31/82 *	* 2 *
* 32 *	* YORK *	* 455 *	* 266 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 34 *	* FIRESIDE *	* 930 *	* 410 *	* GAS *	* PRIOR MARCH 31/82 *	* 5 *
* 35 *	* FIRESIDE *	* 930 *	* 410 *	* GAS *	* MAY '82 *	* 4 *
* 37 *	* WESTFIELD *	* 635 *	* 330 *	* GAS *	* PRIOR MARCH 31/82 *	* 2 *
* 39 *	* BALDWIN *	* 730 *	* 375 *	* GAS *	* OCTOBER '82 *	* *
* 50 *	* URBANDALE *	* 923 *	* 500 *	* ELECTRIC *	* JULY '82 *	* 5 *
* 51 *	* URBANDALE *	* 921 *	* 520 *	* GAS *	* SEPTEMBER '82 *	* 2 *
* 52 *	* URBANDALE *	* 864 *	* 242 *	* ELECTRIC *	* SEPTEMBER '82 *	* 3 *

FIGURE 4.1

APPLE HILL TEST HOUSES

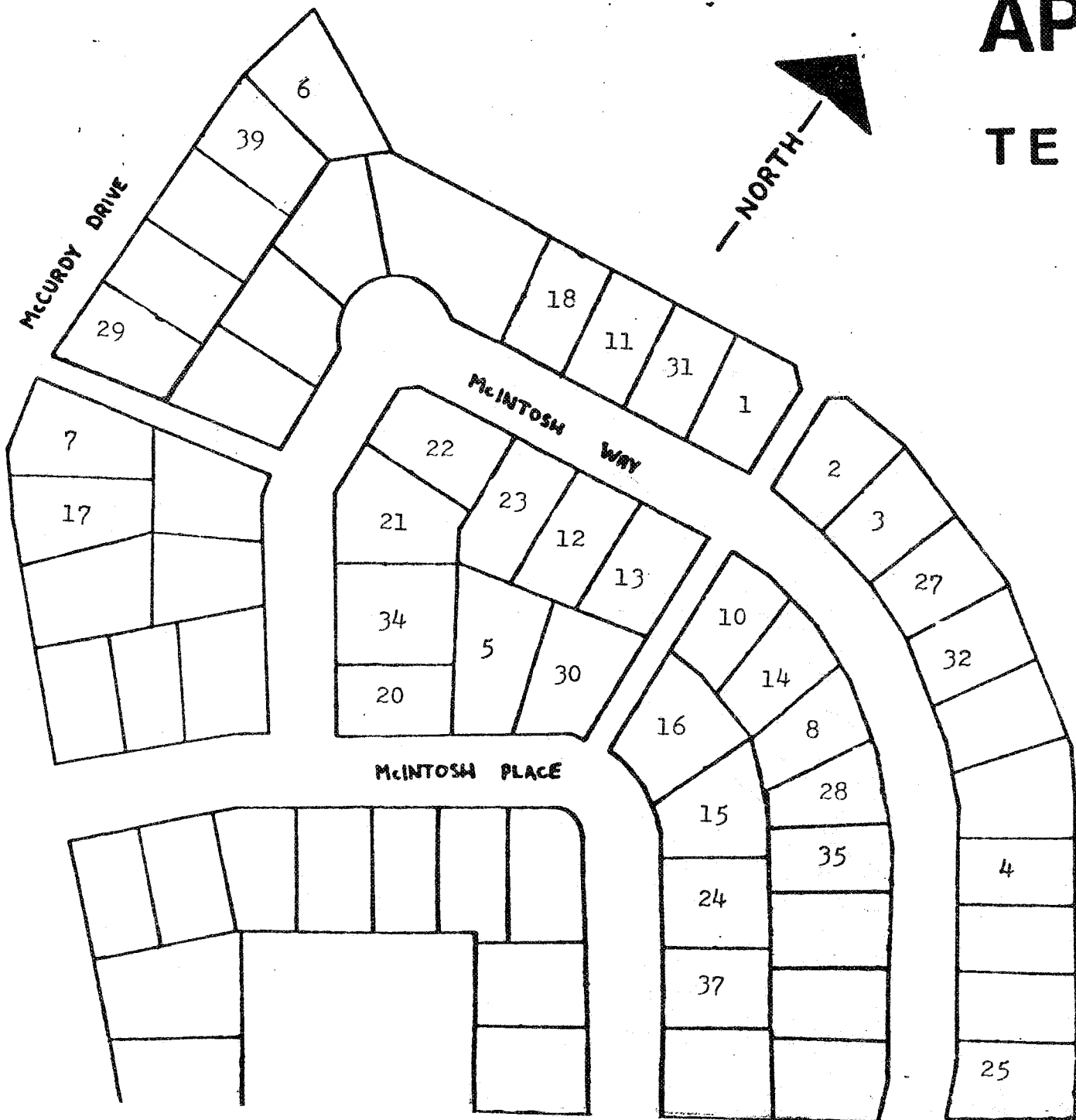


TABLE 4.2
 APPLE HILL STUDY
 SPECIFICATIONS

INSULATION & BASEMENT DRYWALL		RSI 3.52 FIBERGLASS INSULATION TO BASEMENT FLOOR
	WALLS:	RSI 7.4 INSULATION AND 1.3 GYPSUM DRYWALL.
	CEILING	RSI 10.56 FIBERGLASS INSULATION ROOF; 1.6 CM GYPSUM DRYWALL. STRIPPLE FINISH ON ALL CEILINGS EXCEPT KITCHEN & BATHROOMS.
	GARAGE	1.3 GYPSUM DRYWALL TO GARAGE CEILING AND WALL NEXT HOUSE.
	VAPOUR BARRIER	0.15MM POLYETHYLENE
EXTERIOR FINISHES		BRICK ALUMINUM SIDING AND ALUMINUM EAVES AS INDICATED ON DRAWINGS. COLORS TO BE SELECTED BY ARCHITECT.
BASEMENTS	FOOTINGS:	175 KG/CM2 CONCRETE
	FOUNDATION	REINFORCED 175 KG/CM2 CONCRETE
	WALL:	20.3 THICK
	PARGING:	CEMENT PARGING TO EXPOSED PORTIONS OF FOUNDATION WALL EXTERNALLY.
	BASEMENT	REINFORCED 10.2CM THICK 175
	FLOOR:	KG/CM2 CONCRETE WITH TROWELLED FINISH.
	GARAGE	10.2CM THICK 280 KG/CM2 6% AIR
	FOOR:	ENTRAINED CONCRETE ON 15.2CM CRUSHED STONE.
	WATERPROOFING:	ASPHALT EMULSION.
	DRAINAGE:	10.2 DRAINAGED PERIMETER DRAINAGE SYSTEM.
	BASEMENT	STEEL BEAM SUPPORT ON STEEL
	BEAMS	TELEPOSTS (ARCHETECTURAL DRAWINGS)

TABLE 4.2 CON'T

FRAMING	MATERIAL:	NO.1 SPRUCE
	JOISTS:	5.1CM SPRUCE - DEPTH AND SPACINGS AS SHOWN ON PLANS
	SUB FLOOR	1.6 T&G PLYWOOD + 6.4 PLYWOOD UNDERLAY FOR CUSHION FLOOR.
	EXTERNAL WALLS:	5CM X 15CM STUDS AT 60.0CM CENTRES.
	INTERNAL WALLS:	5CM X 7.6CM STUDS AT 41CM CENTRES OR 9.2 STEEL STUDS.
	WALL SHEATHING:	3.8CM GLASCLAD INSULATING SHEATHING.
	ROOF CONSTRUCTION:	PREFABRICATED ROOF TRUSES AT 60CM CENTRES.
	ROOF SHEATHING:	1.0CM PLYWOOD SHEATHING WITH "H" CLIPS.
FIREPLACES		OPTIONAL CUSTOM DESIGN.

TABLE 4.3
APPLE HILL STUDY
ENERGY APPLIANCE SURVEY SUMMARY

HOUSE*	K I T C H E N						* LAUNDRY		* WATER HEATER		* F U R N A C E		* OTHER APPLIANCES			* OCCUPANCY		
NO. *	* RANGE *	* SELF CLEAN *	* FRIDGE *	* DISH WASHER *	* FREEZER *	* MICRO WAVE *	* WASHER *	* DRYER *	* ELEC *	* GAS *	* ELEC *	* GAS *	* FIRE PLACE *	* AIR CLEAN *	* B&W TV *	* COLOR TV *	* ROOMS *	* PEOPLE *
1	X	X	X		X		X	X		X		X			1	2	9	5
2	X	X	X				X	X		X		X			1	2	9	4
3	X	X	X	X			X	X		X		X			1	1	9	4
4	X		X	X	X		X	X		X		X	X			2	9	4
5	X	X	X	X			X	X		X		X	X			2	9	5
6	X	X	X	X			X	X		X		X	X		1	1	9	4
7	X	X	X	X			X	X		X		X	X		1	2	9	5
8	X	X	X	X	X		X	X		X		X	X		1		9	4
10	X	X	X	X	X		X	X		X		X				1	8	4
11	X	X	X	X			X	X		X		X			1	1	8	2
12	X	X	X	X			X	X		X		X	X			1	8	2
13	X	X	X	X			X	X		X		X			1	1	8	2
14	X	X	X	X			X	X		X		X				2	8	3
15	X	X	X	X		X	X	X	X		X		X	X		1	8	2
16	X	X	X	X	X		X	X		X		X			1	1	8	4
17	X	X	X	X			X	X	X		X				1	1	8	2
18	X		X	X	X		X	X		X		X				2	8	3
20	X	X	X	X			X	X		X		X	X		1	1	7	4
21	X	X	X	X			X	X		X		X	X	X	1	1	7	2
22	X	X	X	X			X	X		X		X	X	X	1	1	7	2
23	X	X	X	X		X	X	X	X		X					1	7	2
24	X	X	X	X			X	X		X		X	X		1	1	7	2
25	X	X	X	X			X	X		X		X				1	7	3
27	X	X	X	X			X	X		X		X	X		1	1	9	5
28	X	X	X	X	X		X	X		X		X	X			1	9	4
29	X	X	X	X			X	X		X		X	X			1	9	3
30	X		X	X	X		X	X		X		X	X			1	9	4
31	X	X	X	X	X		X	X	X		X		X	X	1	2	7	2
32	X	X	X	X		X	X	X		X		X	X		1	1	7	2
34	X	X	X	X	X		X	X		X		X	X		1	2	10	5
35	X	X	X	X	X		X	X		X		X	X		2	1	10	4
37	X	X	X	X		X	X	X		X		X				1	9	3
39	X		X	X			X	X		X		X	X			1	9	4
50	X	X	X	X	X		X	X	X		X		X			1	9	5
51	X		X	X	X		X	X		X		X	X	X			7	2
52	X	X	X	X		X	X	X	X		X				1		7	3
TOTAL	36	30	36	23	15	11	35	34	6	30	6	30	24	5	21	42		

FURNACE EFFICIENCY SUMMARY

TABLE 4.4

HOUSE NO.	DATE	FURNACE CAPACITY BTUH*	DRAFT (PA)	CO % ²	TEMP** C	COMBUSTION EFFICIENCY %
1	FEB.23/82*	120,000	12.5	6.7	306	71.3
2		120,000	-	6.7	348	68.8
3	MAR. 2/82*	120,000	10.0	7.6	338	72.0
4		120,000	-	9.9	332	75.9
5	MAR.11/82*	120,000	12.5	7.7	349	71.7
6	MAR. 2/82*	120,000	15.0	9.4	296	77.0
7	MAR. 4/82*	120,000	5.0	6.4	342	69.2
11	FEB.25/82*	120,000	17.4	6.8	338	70.5
12		120,000	-	8.8	324	74.5
13	MAR. 4/82*	120,000	12.5	9.6	348	75.1
14	MAR.11/82*	120,000	15.0	9.2	288	77.0
16	MAR. 3/82*	120,000	7.5	8.5	343	73.6
20	MAR.15/82*	82,000	12.5	7.6	324	72.6
21	FEB.24/82*	82,000	10.0	7.2	295	73.3
22	FEB.24/82*	82,000	12.5	6.8	308	71.5
24		82,000	-	6.3	304	70.5
27	MAR.15/82*	120,000	15.0	8.9	316	75.3
29	MAR.23/82*	120,000	15.0	8.6	318	74.7
32	FEB.23/82*	82,000	11.2	7.3	319	73.0
34		120,000	-	9.2	314	76.0
35	MAR. 4/82*	120,000	10.0	8.6	327	74.5
37	MAR.23/82*	120,000	15.0	8.6	238	78.9

5.0 CONCLUSIONS

The following general observations can be made:

The houses are not as airtight as expected. The upper structures appear to be reasonably airtight, while the basements are fairly leaky. This observation was supported by the preliminary inspections, and air leakage checklist.

General construction quality is good. Some construction practices may require improvement in order to protect the integrity of the air/vapour barrier.

Some design details require evaluation, especially fireplaces, furnace rooms, sill plates, partition walls and windows.

Furnace efficiency was as expected, but this does not give a proper indication of the seasonal furnace operation. A more detailed study of the furnace room, and its design, is included in the Furnace Room Report.

6.0 RECOMMENDATIONS

There is a definite need to develop an air tightness training program for construction trades people. There is also a need to re-think some of the traditional construction practices.

A systematic tightening program of the Appple Hill homes would provide additional area, information concerning the contribution of each major leakage and the benefits achieved through sealing.

APPENDIX 1-A

INFORMATION PACKAGE



January 14, 1982

Dear Sir or Madame:

Apple Hill is one of several new subdivisions in Canada to offer a wide range of energy efficient homes. The increasing demand for these types of homes is a direct result of the incessant rise in the cost of energy.

To date, all activity has focused on the research and design of energy conserving houses. Consequently, very little information is available on the behaviour of these new designs when built commercially for the general public. It is for this reason that our company, Cogeneration Associates Ltd., is conducting a research study funded by the Federal government. We have selected the Apple Hill homes, built by Douglas MacDonald Homes Limited, to conduct such a study -- not only because of the climate and their location, but principally because of the energy consciousness of the builder and of yourselves, the occupants.

By developing new tests and measuring the characteristics of the Apple Hill subdivision from the energy point of view, we hope to provide researchers, designers, builders and most importantly, you, the homeowner, with valuable insight into the energy saving properties of your home.

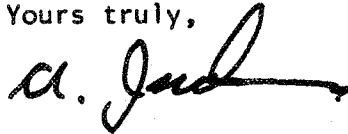
As part of our study, we are relying on your co-operation to permit us to conduct a limited number of simple energy-related tests on your home. The results from certain conventional and acceptable tests will be made available to you and, as a further service, professional engineers will provide you with advice and answer any questions you may have to enable you to optimize the benefits of the energy saving features in your home.

This letter serves only as an introduction to our study. We are looking forward to meeting with you personally in the near future to discuss the details of the project and to answer any questions or concerns that you may have. One of our representatives will be contacting you shortly to arrange

a meeting at your convenience. Please note that this service is being provided at no cost to you. Also, no testing will be performed without your written authorization.

Since this subdivision is among the first of its kind in Canada, the residents of Apple Hill can be considered the pioneers of the new breed of energy-wise homeowners. It is only through your co-operation and involvement in this research project that a significant contribution to the development and improvement of energy efficient homes in Canada will be made.

Yours truly,

A handwritten signature in black ink, appearing to read "A. Juch", with a long horizontal flourish extending to the right.

Alex Juchymenko, P.Eng.
President



COGENERATION Associates Limited

February 5, 1982

Dear Homeowner:

Thank you for taking the time to meet with us and discuss the details of testing the energy efficient homes in Apple Hill.

As a follow up to our discussions, I have enclosed a description of the tests that we will be conducting as well as two copies of the agreement which requires your signature prior to starting the tests. Please sign both copies of the agreement, and our representative will contact you to collect them.

As indicated in the agreement, once your approval is received, the schedule of events will be as follows:

- 1) A walk-through inspection and appliance survey. This will require approximately 45 minutes to complete and will be scheduled as soon as possible after the signing of the agreement.
- 2) The installation of energy monitoring equipment for Test Set I. An additional meter will be installed by Ottawa Gas Co. to measure the energy consumption of the hot water tank in houses with gas heating. For electrically heated houses, additional Kilowatt-hour meters will be installed to monitor both the furnaces and hot water tanks. Furnace timers and humidity indicators will be installed in both types of houses.
- 3) Test Set II as described in the attached outline will be conducted during the last two weeks of February and the month of March, 1982. This set of tests will require access to your house for a period of about 4 hours. The study also requires that this set of tests be repeated during June 1982, October 1982, and February 1983.
- 4) Test Set III as described will also be conducted during the last two weeks in February and the month of March, 1982 and is to be repeated in June 1982, October 1982, and February 1983. These tests will require about 2 hours to complete.

All testing will be arranged in advance by our representative in Ottawa, Mr. Warren Seton. He will also be responsible for taking meter readings, and will be contacting you once a month, by telephone, to obtain readings of meters within your house. If you have any questions, comments or problems concerning the study, he can be contacted at: 234-3280. Most of the field testing will be done by Retrospectors Inc. of 176 Bronson Ave., Ottawa.

We greatly appreciate your interest and co-operation, and look forward to working with you on this important energy project.

Yours truly,

Peter Rowles, P.Eng.
Project Engineer


STUDY OF APPLE HILL ENERGY EFFICIENT HOUSES
AGREEMENT
FOR ELECTRICALLY HEATED HOMES

Our company, Cogeneration Associates Limited, is conducting a Federally funded project to study 'energy efficient' houses. The main objectives of the study are to monitor the energy consumption of houses which are designed to be energy efficient, and to evaluate new test procedures which are being developed to rate energy efficient homes. The agreement outlined below formally recognizes the understanding between Cogeneration Associates Limited and you, the homeowner, regarding your participation in this study.

We: _____ and _____

agree to allow Cogeneration Associates Limited to conduct tests in our residence located at: _____

subject to the following terms and conditions:

1. From the period commencing January 1982 to January 1984, Cogeneration Associates Limited will conduct various tests in your home as part of this study. The test dates for your home will be arranged by appointment.
2. Cogeneration Associates Limited will conduct one walk-through inspection of construction details and an appliance survey of your home. This will be arranged by appointment after the signing of this agreement.
3. At some time during the period of January 1982 to March 1982, a reputable Contractor, selected by Cogeneration Associates Limited, will install energy monitoring equipment in your house at no cost to you. This equipment will include an additional meter to monitor the energy consumption of your furnace, hot water tank, and a timer to record the operation of your furnace.
4. On four separate occasions during the course of the study period, Cogeneration Associates Limited will conduct a series of tests in your house. These tests can be conducted while you are at home. They will include the following:
 - . Air Tightness Test
 - . Air Quality Test
 - . Neutral Pressure Plane Test
 - . Thermographic Scan
 - . Air Change Measurements
 - . Other tests, similar in nature, to be specified at a later date.

5. During the course of the study, monthly readings of your house, furnace and hot water tank Kilowatt-hour meter, and furnace timer are required, as well as a check of indoor humidity levels. A representative of Cogeneration Associates Limited will visit your home or telephone once a month to collect this data.
- 5.1 You agree to allow visits which will be scheduled on a regular monthly basis between the hours of 8:30 a.m. and 5:00 p.m., Monday to Friday.
- 5.2 You agree to notify Cogeneration Associates Limited and provide an alternative means of access in the event that you are unable to be present during the above periods.
- 5.3 You agree to notify Cogeneration Associates Limited as soon as possible should there be a change in ownership.
6. In recognition of your willingness to participate in this important energy study, you will receive the following information:
- 6.1 A copy and explanation of the results of the following tests on your home:
- a) Monthly record of electricity use
 - b) Air Tightness Readings
 - c) Neutral Pressure Plane Test
 - d) Air Change Rate
- The first set of results are expected in April 1982, and the second set in April 1983.
- 6.2 Advice from professional energy consultants to help you to obtain the maximum benefits from the energy saving features of your home.
7. This is a Research and Development project with emphasis on the evolution of new testing procedures for energy efficient houses. The results of any of the tests performed as part of this study cannot be viewed as conclusive and shall not be used to hold recourse against Douglas MacDonald Homes Limited, its officers, employees or agents.
8. The terms of this agreement are for the period January 1982 to January 1984. If at any time you or Cogeneration Associates Limited wishes to terminate this agreement, sixty days' notice will be required.
9. Any equipment left on your property for the purpose of this study shall be returned to Cogeneration Associates Limited in good condition.

President
Cogeneration Associates Limited

Homeowner
Date: _____

STUDY OF ENERGY EFFICIENT HOMES

TEST DESCRIPTIONSTEST SET IEnergy Monitoring

Energy use is to be monitored for the duration of the study. This will require the installation of additional meters to track the use of electricity and natural gas. The major areas of interest are the use of energy by the furnace, the hot water tank and the general household appliances.

In homes heated with natural gas, an additional meter will be installed on the hot water tank. By subtracting this reading from that of the outside meter, we can determine the amount of energy used by the furnace.

In electrically heated homes, additional Kilowatt-hour meters will be installed on both the hot water tank and the furnace.

In all houses the furnaces will be equipped with timers to record their operation. Meter readings will be taken once a month. Outdoor meters will be read directly by our representative who will also contact homeowners by phone to record readings of indoor meters. This information will be tabulated and presented to homeowners periodically throughout the study.

TEST SET IIAir Tightness

The test is designed to determine the effectiveness of the air/vapour barrier and the general tightness of construction associated with the design and installation of windows, doors, vapour barriers, exhaust ducts, chimneys, etc. The study team will use a portable door fan to test for air leakage rates and to assist in the locating of specific air leakage sites. The door fans are designed to induce negative pressures within the house and to measure the corresponding air flow. The operating principles of this test are illustrated in Figure 1.

Four air tightness tests will be conducted over the course of the study. The presentation of test results will be expressed in terms of Equivalent Leakage Area (ELA), i.e., the size of the hole that would be created by gathering all leaks in the house into one place.

Thermographic Scan

This test will be performed to establish the heat loss distribution for the house. Thermography involves the use of a very sensitive infra-red camera to identify areas of heat loss.

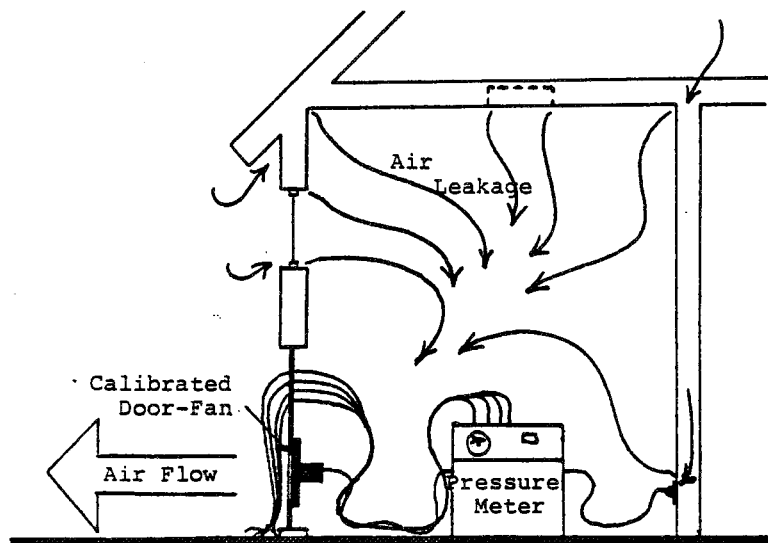
TEST SET 111Air Change Rate

A standard scientific technique will be used to measure the rate of air change within the house. The air change rate is defined as the number of times within an hour that the volume of air contained within the house is replaced by outside air.

Air Quality

This test is designed to measure the quality of air in the house during normal occupancy. Periodic measurements will be taken to determine the levels of some carbon and nitrogen compounds as well as suspended particles.

The results of these tests will be presented to the homeowners periodically throughout the study. These reports will include the data which was collected along with an explanation of the test results.

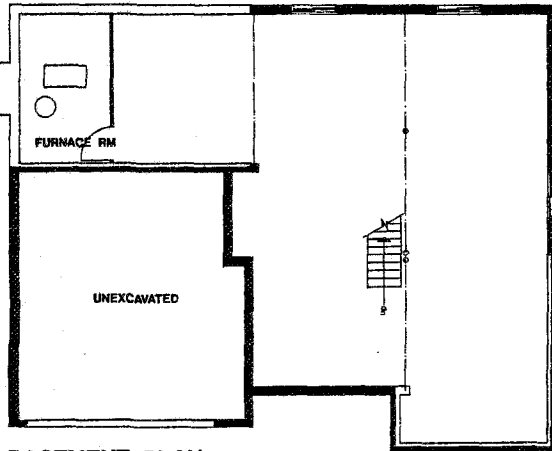
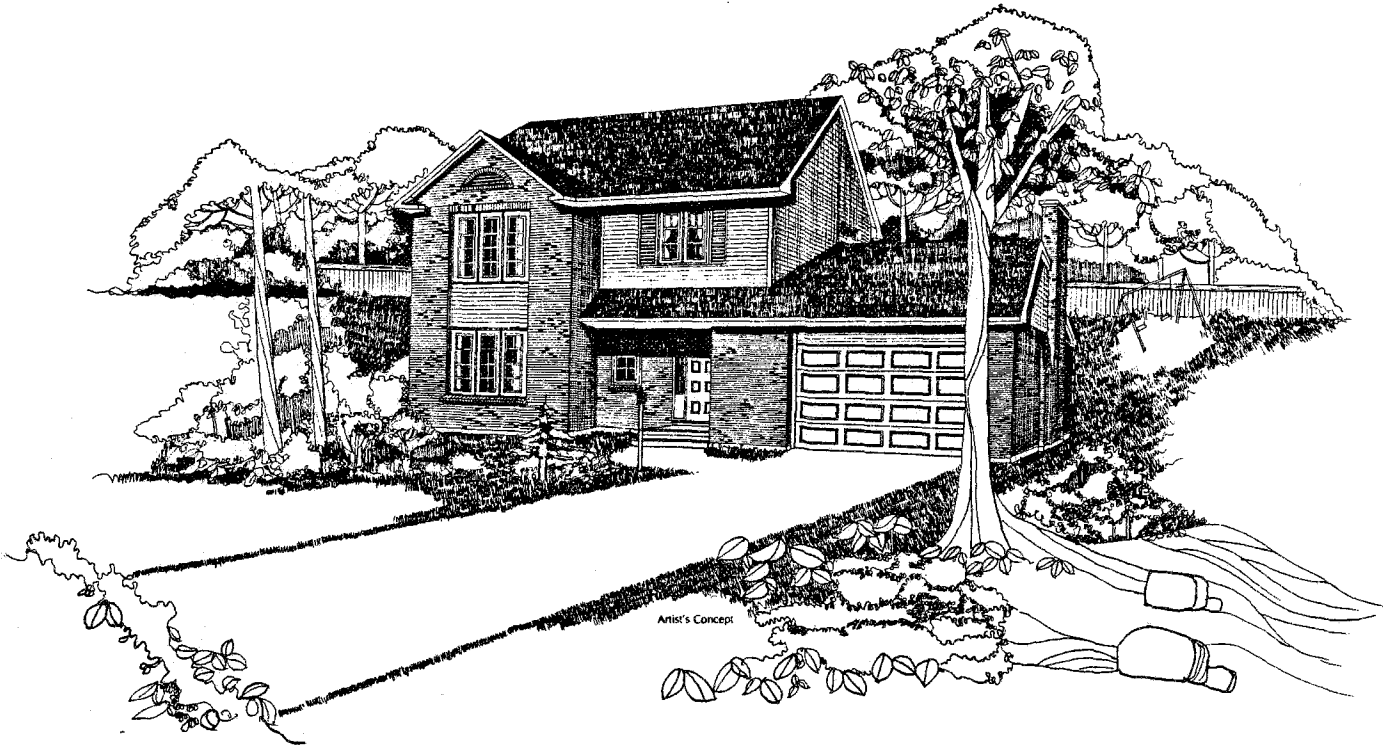


Airtightness Test Apparatus

Figure 1

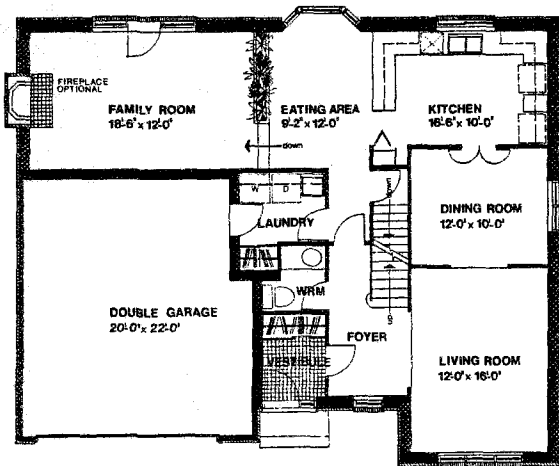
APPENDIX 1-B

HOUSE MODELS

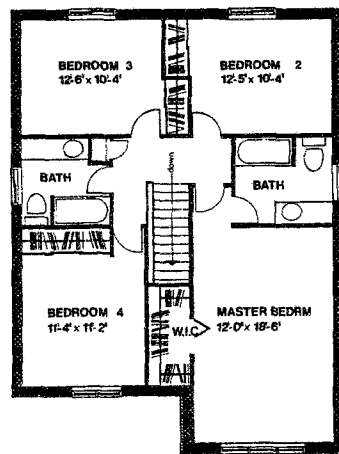


BASEMENT PLAN

THE REGENT



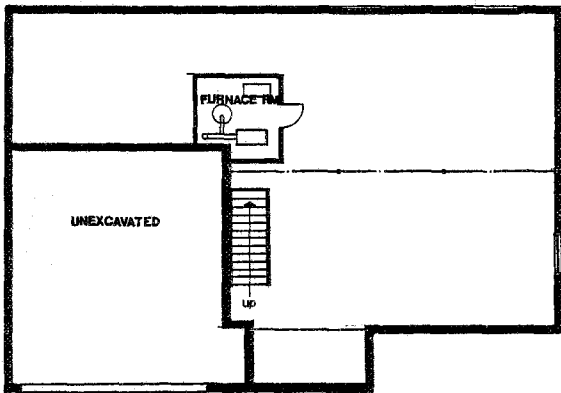
GROUND FLOOR PLAN



SECOND FLOOR PLAN

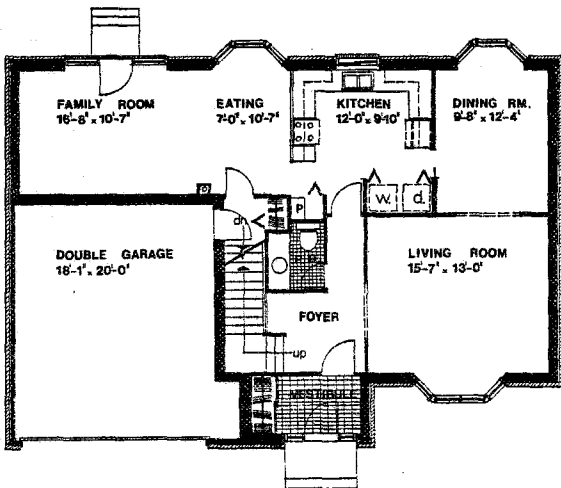
(Subject to change without notice)

THESE PLANS ARE FOR DISPLAY ONLY, ACTUAL DIMENSIONS MAY VARY SLIGHTLY.

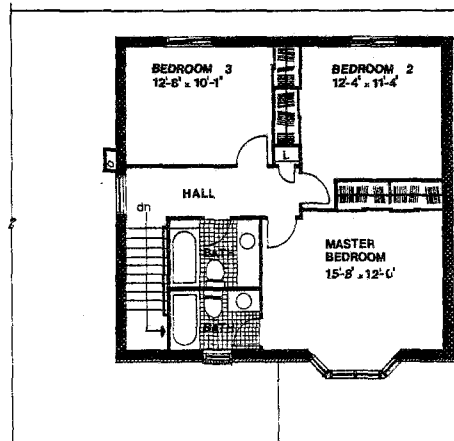


BASEMENT PLAN

RUSSET



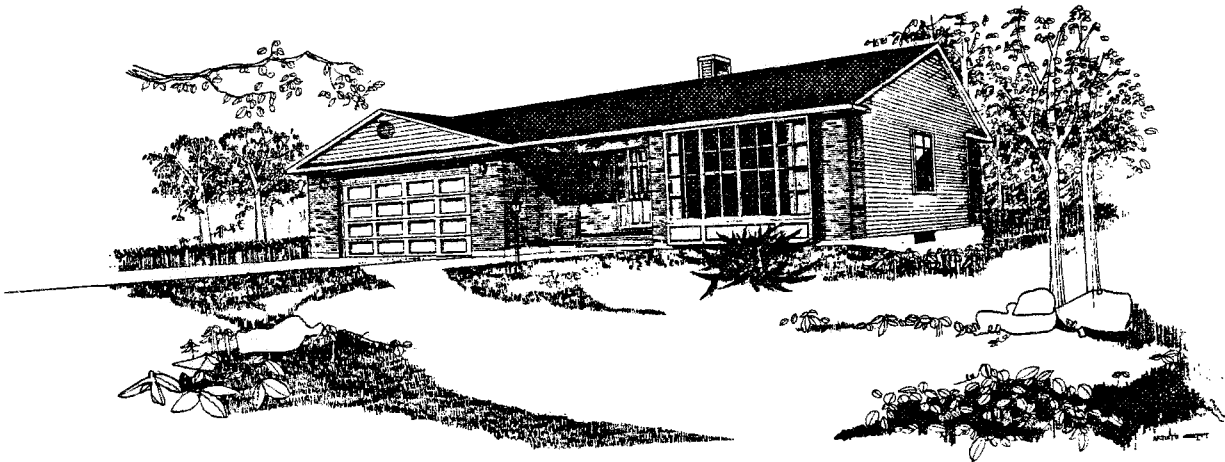
GROUND FLOOR PLAN



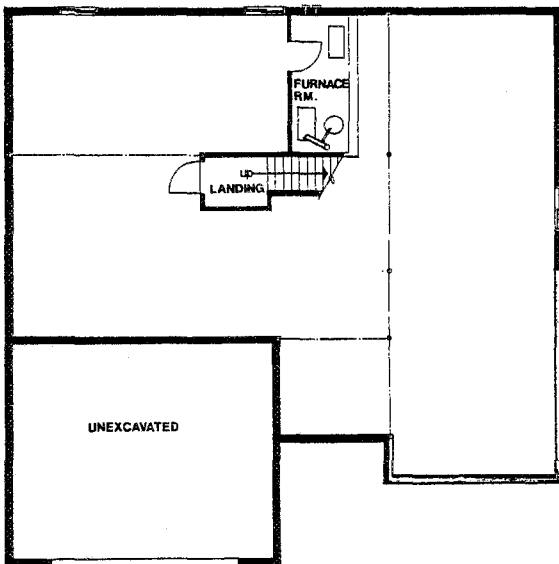
SECOND FLOOR PLAN

THESE PLANS ARE FOR DISPLAY ONLY, ACTUAL DIMENSIONS MAY VARY SLIGHTLY.

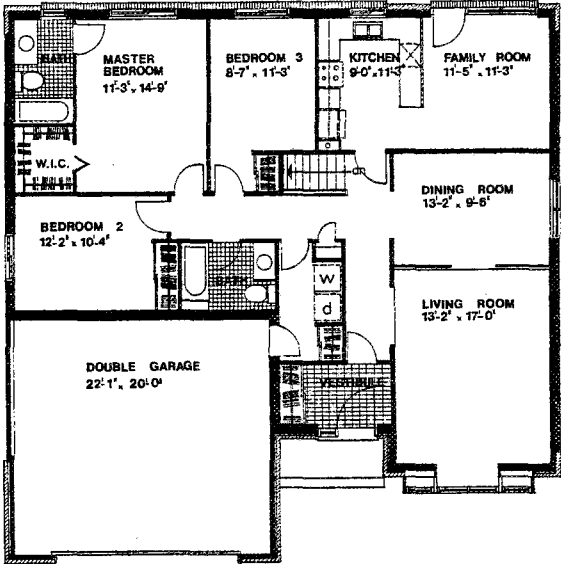
(Subject to change without notice)



CORTLAND



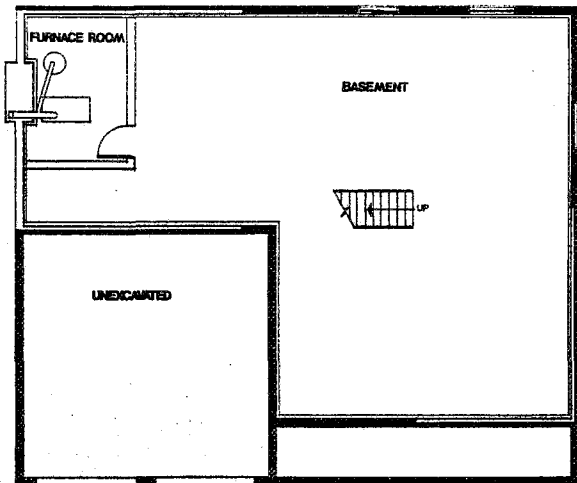
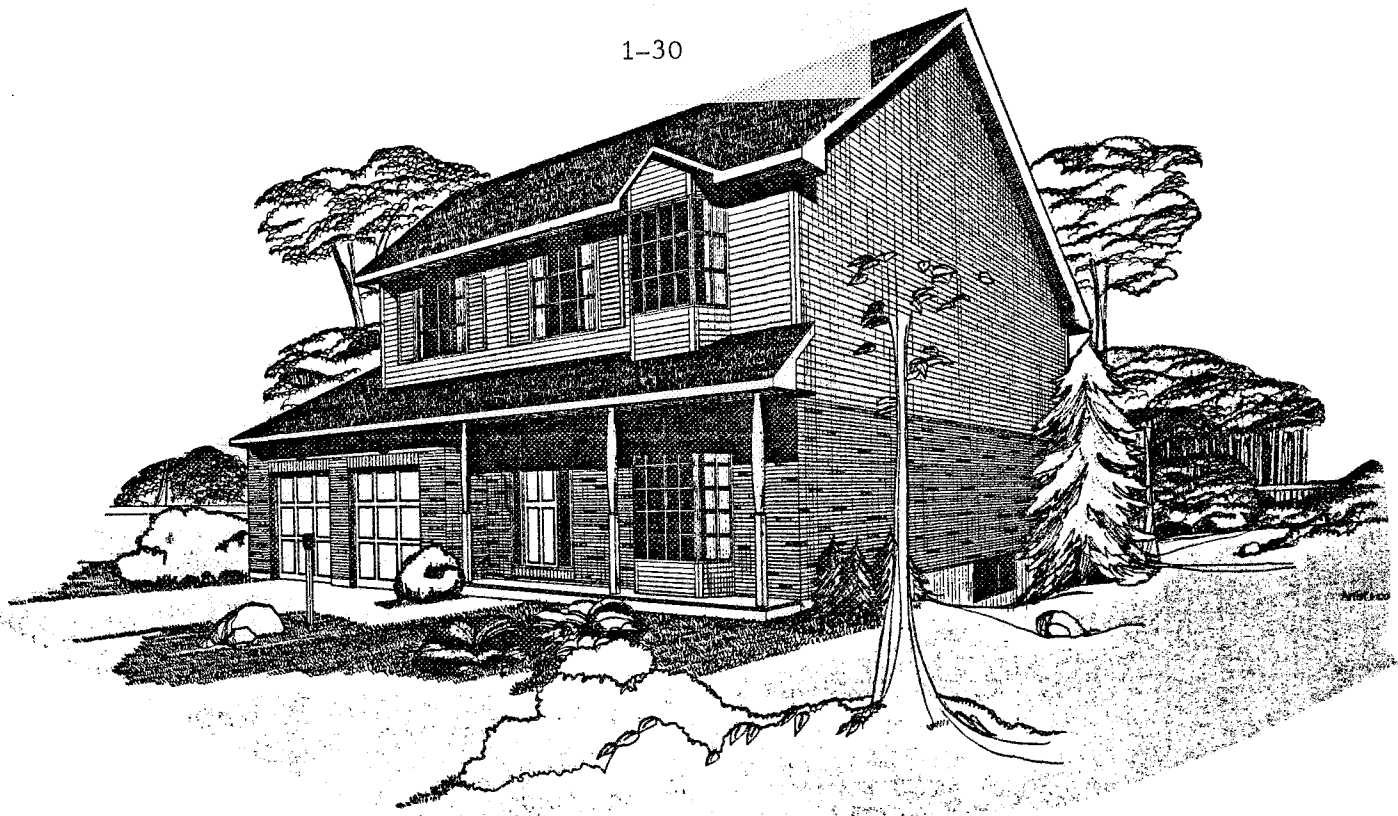
BASEMENT PLAN



GROUND FLOOR PLAN

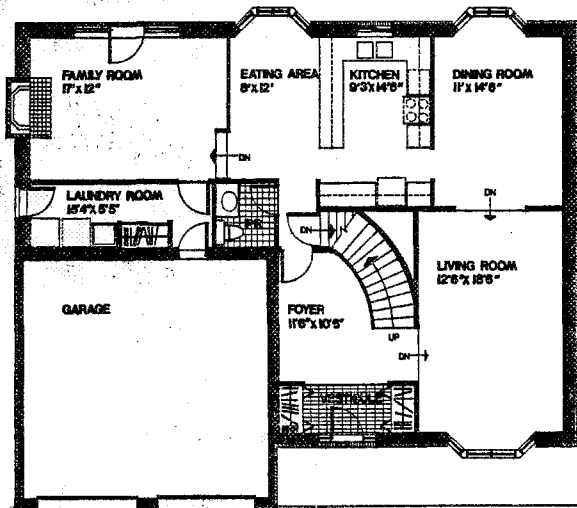
THESE PLANS ARE FOR DISPLAY ONLY, ACTUAL DIMENSIONS MAY VARY SLIGHTLY.

(Subject to change without notice)

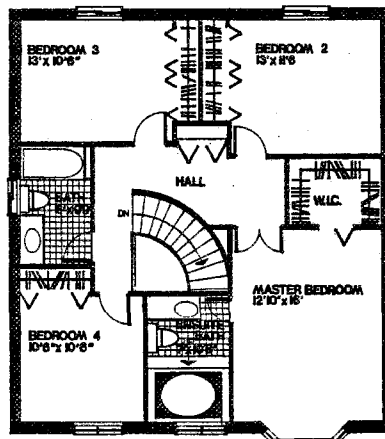


BASEMENT FLOOR PLAN

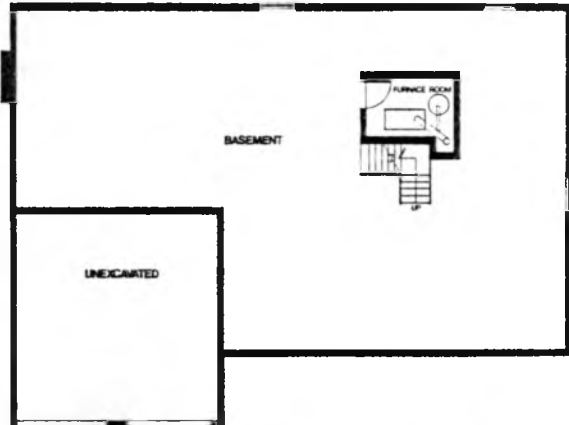
WILLOW



GROUND FLOOR PLAN

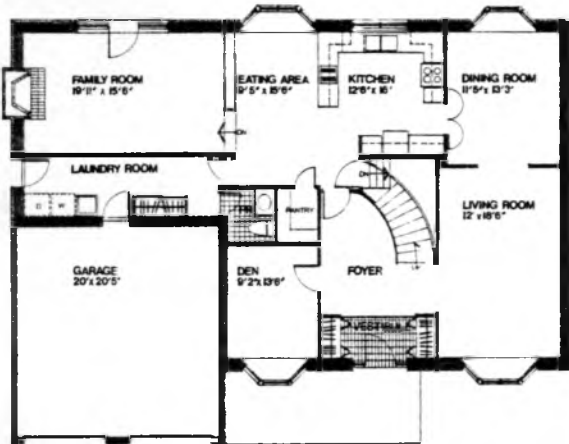


SECOND FLOOR PLAN

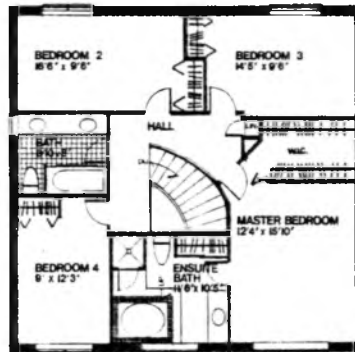


BASEMENT FLOOR PLAN

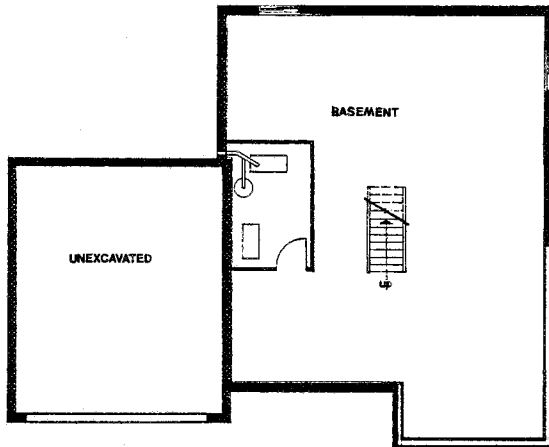
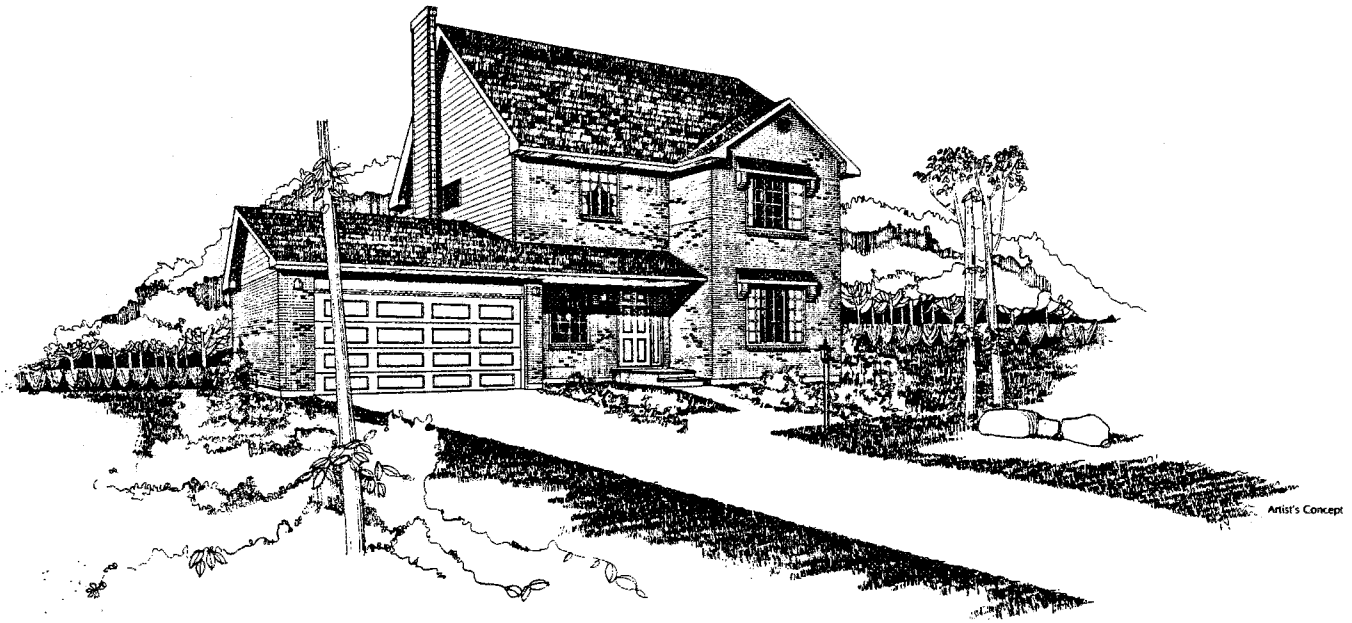
FIRESIDE



GROUND FLOOR PLAN

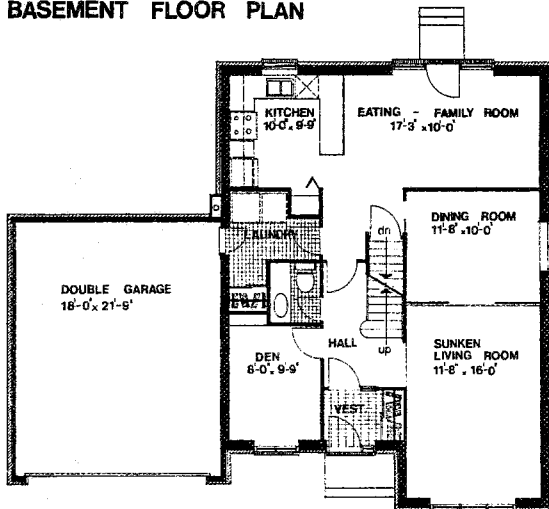


SECOND FLOOR PLAN

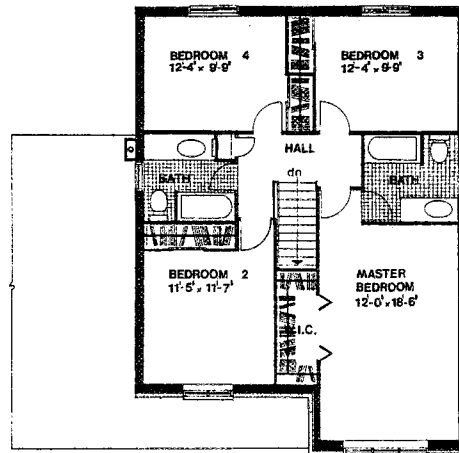


BASEMENT FLOOR PLAN

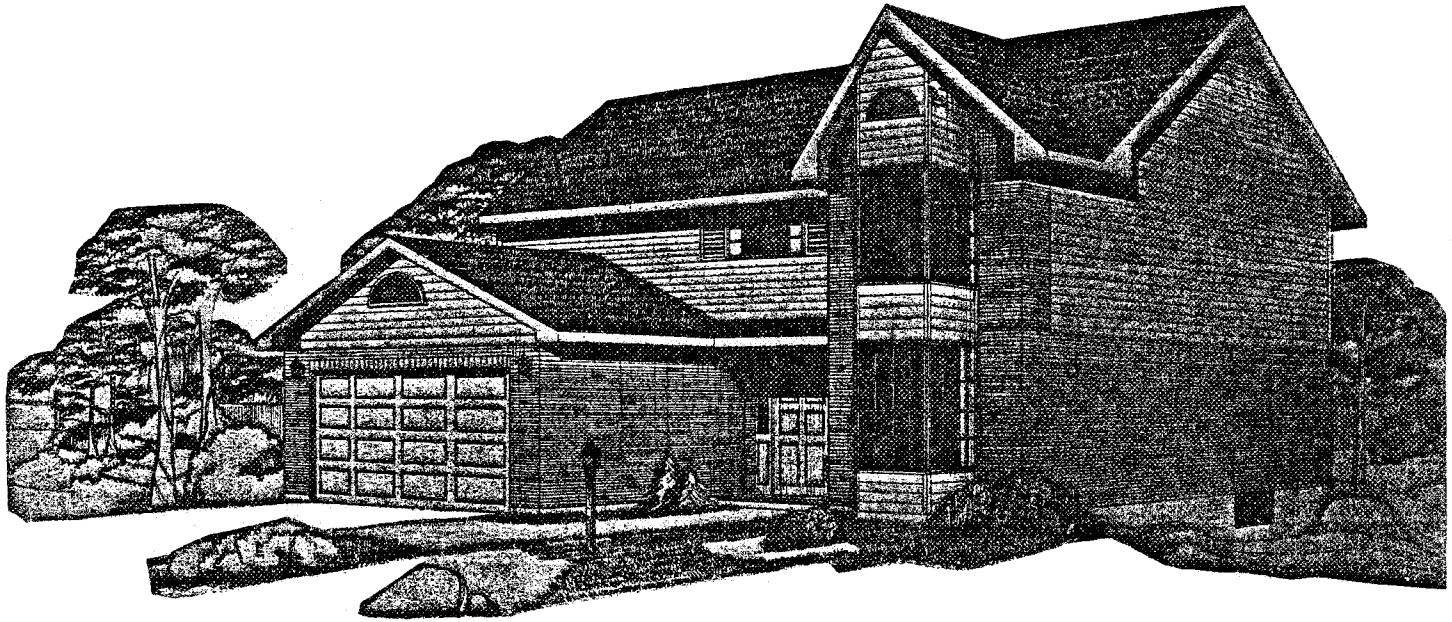
WESTFIELD



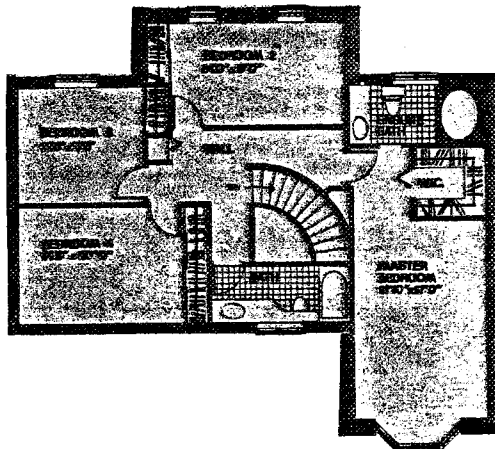
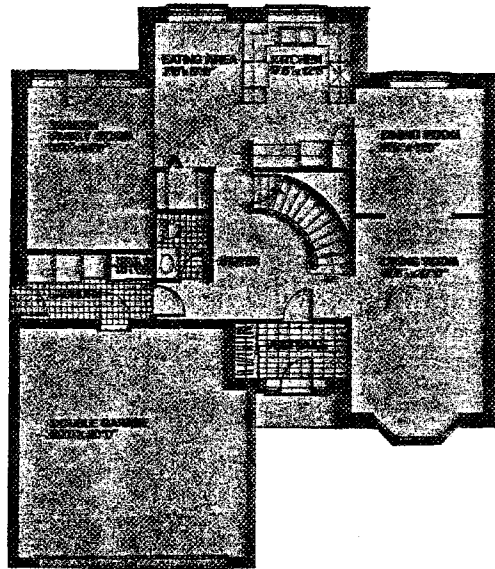
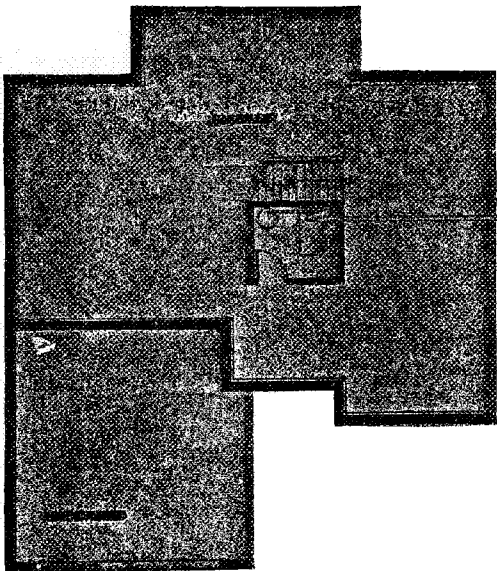
GROUND FLOOR PLAN



SECOND FLOOR PLAN



BALDWIN



APPENDIX 1-C

APPLIANCE SURVEY

- 22 your kitchen**
- 1 electric range with
 - 2 continuous clean
 - 3 self-cleaning
 - no built-in cleaning features
 - 4 gas stove or range, any type
 - 5 other cooking stove or range (describe) _____
 - 6 without cooking stove or range
- 27 Number of refrigerators in use** is it frost free?
- A 2 or 3-door combination refrigerator-freezer C yes no
 - B other electric refrigerator D yes no
- 33** number in use
- A automatic electric dishwasher
 - B home food 'deep' freezer
 - C microwave oven
 - D counter-top broiler oven
- 40 your own laundry equipment**
(Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer, spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

Test house ①

- 44 fuel used in your water heater**
- 1 electricity 2 gas 3 oil
 - 4 other or none 5 don't know
- 45 if you have a swimming pool heater, is it**
- 1 electric 2 oil or gas
 - 3 total solar 4 solar and electric
- 46 fuel used in your central furnace**
- 1 oil 2 gas 3 electricity
 - 4 wood 5 coal 6 solar 7 don't know
- 47 if you have space heater/stove, check below** number in use
- A oil
 - B gas
 - C wood
 - if electric check type
 - D plug-in baseboard(s)
 - E built-in baseboard(s)
 - F ceiling cable
 - G heat pump
- 59 other heating equipment**
- 1 wood or gas fireplace
 - 2 other (describe) _____
- 60** Have you participated in the Canadian Home Insulation Program (CHIP)?
- 1 yes no
- 61 Since January 1, 1979, have you**
- 1 added insulation to the attic?
 - 2 added solar heating equipment?
 - changed your method of space heating? from 3 oil 4 gas 5 electric
 - 6 other
 - changed your method of water heating? from 7 oil 8 gas 9 electric
 - A other

Test house ②

- 22 your kitchen**
- 1 electric range with
 - 2 continuous clean
 - 3 self-cleaning
 - no built-in cleaning features
 - 4 gas stove or range, any type
 - 5 other cooking stove or range (describe) _____
 - 6 without cooking stove or range
- 27 Number of refrigerators in use** is it frost free?
- A 2 or 3-door combination refrigerator-freezer C yes no
 - B other electric refrigerator D yes no
- 33** number in use
- A automatic electric dishwasher
 - B home food 'deep' freezer
 - C microwave oven
 - D counter-top broiler oven
- 40 your own laundry equipment**
(Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer, spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

- 44 fuel used in your water heater**
- 1 electricity 2 gas 3 oil
 - 4 other or none 5 don't know
- 45 if you have a swimming pool heater, is it**
- 1 electric 2 oil or gas
 - 3 total solar 4 solar and electric
- 46 fuel used in your central furnace**
- 1 oil 2 gas 3 electricity
 - 4 wood 5 coal 6 solar 7 don't know
- 47 if you have space heater/stove, check below** number in use
- A oil
 - B gas
 - C wood
 - if electric check type
 - D plug-in baseboard(s)
 - E built-in baseboard(s)
 - F ceiling cable
 - G heat pump
- 59 other heating equipment**
- 1 wood or gas fireplace
 - 2 other (describe) _____
- 60** Have you participated in the Canadian Home Insulation Program (CHIP)?
- 1 yes no
- 61 Since January 1, 1979, have you**
- 1 added insulation to the attic?
 - 2 added solar heating equipment?
 - changed your method of space heating? from 3 oil 4 gas 5 electric
 - 6 other
 - changed your method of water heating? from 7 oil 8 gas 9 electric
 - A other

- 67 supplementary equipment**
in addition do you use number in use
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances**
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna
- 88 do you live in a**
- 1 single-family house (detached or attached)
 - 2 apartment or flat (including duplex or triplex, etc.)
 - 3 mobile home
 - 4 other (describe) _____
- 89** do you 1 own? 2 rent?
- 90 when was your dwelling unit built?**
- | Before 1956 | 1956-60 | 1961-65 |
|----------------------------|----------------------------|----------------------------|
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input type="checkbox"/> |
- 91 total number of rooms in your dwelling?**
(Do not include bathrooms, halls and unfinished rooms) 9
- 92 number of persons living your household?**
5 + housekeeper

- 67 supplementary equipment**
in addition do you use number in use
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances**
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna
- 88 do you live in a**
- 1 single-family house (detached or attached)
 - 2 apartment or flat (including duplex or triplex, etc.)
 - 3 mobile home
 - 4 other (describe) _____
- 89** do you 1 own? 2 rent?
- 90 when was your dwelling unit built?**
- | Before 1956 | 1956-60 | 1961-65 |
|----------------------------|----------------------------|---------------------------------------|
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |
- 91 total number of rooms in your dwelling?**
(Do not include bathrooms, halls and unfinished rooms) 9
- 92 number of persons living your household?**
4

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

33

- A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household?

4

Test house ③

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

33

- A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household?

5

Test house ⑤

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

- 33 automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment
(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house ④

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use* *number in use*
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances**
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms)

9

82 number of persons living your household?

3-5

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

- 27 Number of refrigerators in use
- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

- 33 automatic electric dishwasher number in use
- A home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 6

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below number in use

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- | | | |
|----------------------------|----------------------------|----------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input type="checkbox"/> |

91 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household? 4

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

- 27 Number of refrigerators in use
- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

- 33 automatic electric dishwasher number in use
- A home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 7

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below number in use

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household? 5

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean.
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range

(describe) _____

6 without cooking stove or range

27 Number of refrigerators in use 1 2

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no *is it frost free?*
- D yes no

- 33**
- A automatic electric dishwasher *number in use* _____
 - B home food 'deep' freezer
 - C microwave oven
 - D counter top broiler oven

40 your own laundry equipment
(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (8)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below *number in use*

- A oil _____
- B gas _____
- C wood _____
- if electric check type
- D plug-in baseboard(s) _____
- E built-in baseboard(s) _____
- F ceiling cable _____
- G heat pump _____

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use* *number in use*
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances**
- A black and white television *7*
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household?

4

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

- 33 _____ number in use
- A automatic electric dishwasher
 - B home food 'deep' freezer
 - C microwave oven
 - D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 10

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use _____ number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 76 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

68 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

80 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 8

82 number of persons living your household?

4

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range
- 27 Number of refrigerators in use is it frost free?
- A 2 or 3 door combination refrigerator-freezer C yes no
- B other electric refrigerator D yes no
- 33 automatic electric dishwasher number in use _____
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven
- 40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 11

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know
- 45 if you have a swimming pool heater, is it
- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric
- 46 fuel used in your central furnace
- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

- 47 if you have space heater/stove, check below number in use
- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____
- 60 Have you participated in the Canadian Home Insulation Program (CHIP)?
- 1 yes no
- 61 Since January 1, 1979, have you
- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use number in use
- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____
- 89 do you 1 own? 2 rent?
- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9
- 91 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms) 8
- 92 number of persons living your household? 2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range
- 27 Number of refrigerators in use is it frost free?
- A 2 or 3 door combination refrigerator-freezer C yes no
- B other electric refrigerator D yes no
- 33 automatic electric dishwasher number in use _____
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven
- 40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 13

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know
- 45 if you have a swimming pool heater, is it
- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric
- 46 fuel used in your central furnace
- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

- 47 if you have space heater/stove, check below number in use
- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____
- 60 Have you participated in the Canadian Home Insulation Program (CHIP)?
- 1 yes no
- 61 Since January 1, 1979, have you
- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use number in use
- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____
- 89 do you 1 own? 2 rent?
- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9
- 91 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms) 8
- 92 number of persons living your household? 2

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator

is it frost free?
C yes no
D yes no

- 33**
- A automatic electric dishwasher *number in use* _____
 - B home food 'deep' freezer
 - C microwave oven
 - D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin, dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (12)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil *number in use* _____
- B gas _____
- C wood _____
- if electric check type
- D plug-in baseboard(s) _____
- E built-in baseboard(s) _____
- F ceiling cable _____
- G heat pump _____

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use *number in use*

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

68 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

80 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 8

82 number of persons living your household?

2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer is it frost free?
- yes no
- B other electric refrigerator C yes no
- yes no

33 automatic electric dishwasher

- A automatic electric dishwasher number in use
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 14

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil number in use
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer is it frost free?
- yes no
- B other electric refrigerator C yes no
- yes no

33 automatic electric dishwasher

- A automatic electric dishwasher number in use
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 15

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil number in use
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you own? 2 rent?

- 1 own? 2 rent?
- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 8

92 number of persons living your household?

3

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you own? 2 rent?

- 1 own? 2 rent?
- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 8

92 number of persons living your household?

2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

33

- A automatic electric dishwasher *number in use*
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

- (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer, spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use* *number in use*
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- | Before 1956 | 1956-60 | 1961-65 |
|----------------------------|----------------------------|---------------------------------------|
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

- (Do not include bathrooms, halls and unfinished rooms)
- 92 number of persons living your household?
- 4

Test house 16

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

33

- A automatic electric dishwasher *number in use*
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

- (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer, spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

Test house 17

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) **Convection oven**
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator freezer
- B other electric refrigerator
- C is it frost free?
- D yes no

- 33 automatic electric dishwasher
- B home food deep freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home)

- 5 automatic washer
- 6 other electric washer (wringer, spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (18)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- | | | | |
|---|--|--------------------------|--------------------------|
| A | <input type="checkbox"/> oil | number in use | <input type="checkbox"/> |
| B | <input type="checkbox"/> gas | <input type="checkbox"/> | |
| C | <input type="checkbox"/> wood | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> if electric check type | <input type="checkbox"/> | |
| D | <input checked="" type="checkbox"/> plug in baseboard(s) | <input type="checkbox"/> | |
| E | <input type="checkbox"/> built in baseboard(s) | <input type="checkbox"/> | |
| F | <input type="checkbox"/> ceiling cable | <input type="checkbox"/> | |
| G | <input type="checkbox"/> heat pump | <input type="checkbox"/> | |

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe)

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use number in use
- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D ~~electric power~~ **Water bed heater**
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe)

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms)

92 number of persons living your household?

3

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

- 33 A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household?

4

Test house (20)

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

- 33 A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household?

2

Test house (21)

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator freezer
- B other electric refrigerator
- C is it frost free? yes
- D no

- 33 A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 22

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes
- D no

- 33 A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 23

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household?

2

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white televisions
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household?

2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

33

- A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (24)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric
- 6 other changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric
- 6 other changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

33

- A automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (27)

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household?

2

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- | | | |
|----------------------------|----------------------------|----------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household?

5

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator freezer
- B other electric refrigerator

is it frost free?
C yes no
D yes no

33 automatic electric dishwasher

- A automatic electric dishwasher
- B home food deep freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home)

- 5 automatic washer
- 6 other electric washer (wringer spin dry etc)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house 25

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use _____ number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in car heater
- E swimming pool filter
- F electric sauna

68 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex etc)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

80 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

82 number of persons living your household?

3

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use 2

- A 3 or 4 door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes
- D no

33

- A automatic electric dishwasher
- B home food deep freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (28)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- electric (check type)
 - D plug-in baseboard (st)
 - E built-in baseboard (st)
 - F ceiling cable
 - G heat pump

58 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
 - changed your method of space heating?
 - from 3 oil 4 gas 5 electric
 - 6 other
 - changed your method of water heating?
 - from 7 oil 8 gas 9 electric
 - A other

67 supplementary equipment

in addition do you use _____ number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 **other electric appliances**
 - A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms.) 9

92 number of persons living your household?

4

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- 33 automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

- (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer spin dry etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

Test house (29)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use
- | | |
|--|---------------|
| | number in use |
| A <input type="checkbox"/> central air conditioning | |
| B <input type="checkbox"/> electronic air cleaner | |
| C <input checked="" type="checkbox"/> electric power humidifier on furnace | |
| D <input type="checkbox"/> electric blanket | |
| E <input type="checkbox"/> window air conditioner | |
| F <input type="checkbox"/> humidifier (plug-in) | |
| G <input type="checkbox"/> dehumidifier (plug-in) | |
| 78 other electric appliances | |
| A <input type="checkbox"/> black and white television | |
| B <input checked="" type="checkbox"/> colour television | |
| C <input type="checkbox"/> car block heater | |
| D <input type="checkbox"/> in-car heater | |
| E <input type="checkbox"/> swimming pool filter | |
| F <input type="checkbox"/> electric sauna | |

68 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex etc.)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

80 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 8 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms)

92 number of persons living your household?

3

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 4 no built-in cleaning features
- 5 gas stove or range, any type
- 6 other cooking stove or range (describe) _____

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes
- D no
- 33 automatic electric dishwasher
- 34 home food 'deep' freezer
- 35 microwave oven
- 36 counter-top broiler oven

40 your own laundry equipment

- (Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
 - 6 other electric washer (wringer spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

Test house (30)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- | | | | |
|---|--|---------------|--------------------------|
| A | <input type="checkbox"/> oil | number in use | <input type="checkbox"/> |
| B | <input type="checkbox"/> gas | | <input type="checkbox"/> |
| C | <input type="checkbox"/> wood | | <input type="checkbox"/> |
| | if electric check type | | |
| D | <input type="checkbox"/> plug-in baseboard(s) | | <input type="checkbox"/> |
| E | <input type="checkbox"/> built-in baseboard(s) | | <input type="checkbox"/> |
| F | <input type="checkbox"/> ceiling cable | | <input type="checkbox"/> |
| G | <input type="checkbox"/> heat pump | | <input type="checkbox"/> |

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- 3 changed your method of space heating? from: 3 oil 4 gas 5 electric 6 other
- 4 changed your method of water heating? from: 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

- in addition do you use
- | | | | |
|---|--|---------------|--------------------------|
| A | <input type="checkbox"/> central air conditioning | number in use | <input type="checkbox"/> |
| B | <input type="checkbox"/> electronic air cleaner | | <input type="checkbox"/> |
| C | <input checked="" type="checkbox"/> electric power humidifier on furnace | | <input type="checkbox"/> |
| D | <input type="checkbox"/> electric blanket | | <input type="checkbox"/> |
| E | <input type="checkbox"/> window air conditioner | | <input type="checkbox"/> |
| F | <input checked="" type="checkbox"/> humidifier (plug-in) | | <input type="checkbox"/> |
| G | <input type="checkbox"/> dehumidifier (plug-in) | | <input type="checkbox"/> |
- 78 other electric appliances
- | | | | |
|---|---|---------------|--------------------------|
| A | <input type="checkbox"/> black and white television | number in use | <input type="checkbox"/> |
| B | <input checked="" type="checkbox"/> colour television | | <input type="checkbox"/> |
| C | <input type="checkbox"/> car block heater | | <input type="checkbox"/> |
| D | <input type="checkbox"/> in-car heater | | <input type="checkbox"/> |
| E | <input type="checkbox"/> swimming pool filter | | <input type="checkbox"/> |
| F | <input type="checkbox"/> electric sauna | | <input type="checkbox"/> |

68 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms.)

9

82 number of persons living your household?

4

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 4 no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator freezer
- B other electric refrigerator
- C yes no
- D yes no

- 33 automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (31)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D if electric check type
- E plug-in baseboard(s)
- F built-in baseboard(s)
- G ceiling cable
- H heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household? 2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 4 no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

- 33 automatic electric dishwasher
- B home food 'deep' freezer
- C microwave oven
- D counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (32)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D if electric check type
- E plug-in baseboard(s)
- F built-in baseboard(s)
- G ceiling cable
- H heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment? changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 7

92 number of persons living your household? 2

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 3 no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator freezer C is it frost free? yes
- B other electric refrigerator D no

- 33 automatic electric dishwasher number in use
- A home food 'deep' freezer
- B microwave oven
- C counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (34)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- C if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 10

92 number of persons living your household? 5

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 3 no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator freezer C is it frost free? yes
- B other electric refrigerator D no

- 33 automatic electric dishwasher number in use
- A home food 'deep' freezer
- B microwave oven
- C counter-top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (37)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- C if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

- 90 when was your dwelling unit built?
- Before 1956 1956-60 1961-65
- 4 5 6
- 1966-70 1971-75 After 1975
- 7 8 9

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 9

92 number of persons living your household? 3

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator freezer
- B other electric refrigerator
- C is it frost free?
- yes no
- D yes no

33

- A automatic electric dishwasher
- B home food deep freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (35)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating?
- from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating?
- from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use _____ number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)
- 78 other electric appliances
- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

68 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

69 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) 10

82 number of persons living your household?

4

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 4 no built-in cleaning features
- 5 gas stove or range, any type
- 6 other cooking stove or range (describe) _____

27 Number of refrigerators in use

- A or 3 door combination refrigerator/freezer
- B other electric refrigerator
- C is it frost free? yes
- D no

- 33 A automatic electric dishwasher
- B home food deep freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (39)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D if electric check type _____
- E plug-in baseboard(s)
- F built-in baseboard(s)
- G ceiling cable
- H heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- 3 changed your method of space heating? from 3 oil 4 gas 5 electric
- 6 other
- 7 changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment in addition do you use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- Before 1956
- 1956-60
- 1961-65
- 4 5 6
- 1966-70
- 1971-75
- After 1975
- 7 8 9

81 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms)

9

82 number of persons living your household?

4

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- no built-in cleaning features
- 4 gas stove or range, any type
- 5 other cooking stove or range (describe) _____
- 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
 - B other electric refrigerator
- is it frost free? C yes no D yes no

- 33 A automatic electric dishwasher number in use _____
- B home food 'deep' freezer
- C microwave oven
- D counter top broiler oven

40 your own laundry equipment

(Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
- 6 other electric washer (wringer, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

Test house (50)

44 fuel used in your water heater

- 1 electricity 2 gas 3 oil
- 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric 2 oil or gas
- 3 total solar 4 solar and electric

46 fuel used in your central furnace

- 1 oil 2 gas 3 electricity
- 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- if electric check type
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

50 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- changed your method of space heating? from 3 oil 4 gas 5 electric
- 6 other
- changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
 - B electronic air cleaner
 - C electric power humidifier on furnace
 - D electric blanket
 - E window air conditioner
 - F humidifier (plug-in)
 - G dehumidifier (plug-in) **Air changer**
- 78 other electric appliances
- A black and white television
 - B colour television
 - C car block heater
 - D in-car heater
 - E swimming pool filter
 - F electric sauna

80 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

81 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms)

82 number of persons living your household?

5

FIGURE 2.2
APPLIANCE SURVEY

22 your kitchen

- 1 electric range with
- 2 continuous clean
- 3 self-cleaning
- 4 no built-in cleaning features
- 5 gas stove or range, any type
- 6 other cooking stove or range (describe) _____
- 7 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3 door combination refrigerator-freezer
- B other electric refrigerator
- C is it frost free? yes no
- D yes no

- 33 automatic electric dishwasher
- A home food deep freezer
- B microwave oven
- C counter top broiler oven

34 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 1 automatic washer
- 2 other electric washer (wringer, spin-dry, etc.)
- 3 combination washer-dryer (one unit)
- 4 electric clothes dryer
- 5 gas clothes dryer

Testhouse (51)

44 fuel used in your water heater

- 1 electricity
- 2 gas
- 3 oil
- 4 other or none
- 5 don't know

45 if you have a swimming pool heater, is it

- 1 electric
- 2 oil or gas
- 3 total solar
- 4 solar and electric

46 fuel used in your central furnace

- 1 oil
- 2 gas
- 3 electricity
- 4 wood
- 5 coal
- 6 solar
- 7 don't know

47 if you have space heater/stove, check below

- A oil
- B gas
- C wood
- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes
- 2 no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?
- 2 added solar heating equipment?
- 3 changed your method of space heating? from 3 oil 4 gas 5 electric 6 other
- 4 changed your method of water heating? from 7 oil 8 gas 9 electric
- A other

67 supplementary equipment in addition do you use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

89 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|---------------------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input checked="" type="checkbox"/> |

91 total number of rooms in your dwelling? (Do not include bathrooms, halls and unfinished rooms)

7

92 number of persons living your household?

2

your kitchen

1 electric range with
 2 continuous clean
 3 self-cleaning
 no built in cleaning features

4 gas stove or range, any type
 5 other cooking stove or range
 (describe) _____

6 without cooking stove or range

27 Number of refrigerators in use is it frost free?

A 2 or 3-door combination refrigerator-freezer C yes no
 B other electric refrigerator D yes no

33 number in use

A automatic electric dishwasher
 B home food 'deep' freezer
 C microwave oven
 D counter top broiler oven

40 your own laundry equipment
 (Do not include coin-operated or any other laundry equipment used outside your home.)

5 automatic washer
 6 other electric washer (wringer, spin-dry, etc.)
 7 combination washer-dryer (one unit)
 8 electric clothes dryer
 9 gas clothes dryer

44 fuel used in your water heater

1 electricity 2 gas 3 oil
 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

1 electric 2 oil or gas
 3 total solar 4 solar and electric

46 fuel used in your central furnace

1 oil 2 gas 3 electricity
 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below number in use

A oil
 B gas
 C wood
 if electric check type
 D plug-in baseboard(s)
 E built-in baseboard(s)
 F ceiling cable
 G heat pump

59 other heating equipment

1 wood or gas fireplace
 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?
 1 yes no

61 Since January 1, 1979, have you

1 added insulation to the attic?
 2 added solar heating equipment?
 changed your method of space heating?
 from 3 oil 4 gas 5 electric
 6 other
 changed your method of water heating?
 from 7 oil 8 gas 9 electric
 A other

67 supplementary equipment
 in addition do you use number in use

A central air conditioning
 B electronic air cleaner
 C electric power humidifier on furnace
 D electric blanket
 E window air conditioner
 F humidifier (plug-in)
 G dehumidifier (plug-in)

78 other electric appliances

A black and white television
 B colour television
 C car block heater
 D in-car heater
 E swimming pool filter
 F electric sauna

88 do you live in a

1 single family house (detached or attached)
 2 apartment or flat (including duplex or triplex, etc.)
 3 mobile home
 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

91 total number of rooms in your dwelling?
 (Do not include bathrooms, halls and unfinished rooms.)

92 number of persons living your household?

22 your kitchen

1 electric range with
 2 continuous clean
 3 self-cleaning
 no built in cleaning features

4 gas stove or range, any type
 5 other cooking stove or range
 (describe) _____

6 without cooking stove or range

27 Number of refrigerators in use is it frost free?

A 2 or 3-door combination refrigerator-freezer C yes no
 B other electric refrigerator D yes no

33 number in use

A automatic electric dishwasher
 B home food 'deep' freezer
 C microwave oven
 D counter top broiler oven

40 your own laundry equipment
 (Do not include coin-operated or any other laundry equipment used outside your home.)

5 automatic washer
 6 other electric washer (wringer, spin-dry, etc.)
 7 combination washer-dryer (one unit)
 8 electric clothes dryer
 9 gas clothes dryer

44 fuel used in your water heater

1 electricity 2 gas 3 oil
 4 other or none 5 don't know

45 if you have a swimming pool heater, is it

1 electric 2 oil or gas
 3 total solar 4 solar and electric

46 fuel used in your central furnace

1 oil 2 gas 3 electricity
 4 wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below number in use

A oil
 B gas
 C wood
 if electric check type
 D plug-in baseboard(s)
 E built-in baseboard(s)
 F ceiling cable
 G heat pump

59 other heating equipment

1 wood or gas fireplace
 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?
 1 yes no

61 Since January 1, 1979, have you

1 added insulation to the attic?
 2 added solar heating equipment?
 changed your method of space heating?
 from 3 oil 4 gas 5 electric
 6 other
 changed your method of water heating?
 from 7 oil 8 gas 9 electric
 A other

67 supplementary equipment
 in addition do you use number in use

A central air conditioning
 B electronic air cleaner
 C electric power humidifier on furnace
 D electric blanket
 E window air conditioner
 F humidifier (plug-in)
 G dehumidifier (plug-in)

78 other electric appliances

A black and white television
 B colour television
 C car block heater
 D in-car heater
 E swimming pool filter
 F electric sauna

88 do you live in a

1 single-family house (detached or attached)
 2 apartment or flat (including duplex or triplex, etc.)
 3 mobile home
 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>

91 total number of rooms in your dwelling?
 (Do not include bathrooms, halls and unfinished rooms.) 7

92 number of persons living your household? 3

Test house (52)