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# Housing Characteristics 1984



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# **Residential Energy Consumption Survey: Housing Characteristics 1984**

**Energy Information Administration**  
Office of Energy Markets and End Use  
U.S. Department of Energy  
Washington, DC 20585

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# Contents

	Page
Executive Summary . . . . .	vii
Households Are More Likely to Stay with Their Main Heating Fuel . . . . .	1
Half of All Air-Conditioned Homes Stay Cool with Central Air Systems . . . . .	5
Budget Plans Are Seldom Used . . . . .	9
Almost Every Home in the United States Has at Least One Refrigerator, One Range, and One Television Set . . . . .	11
The Graying of Home and Water-Heating Equipment--Current Patterns . . . . .	15
Age of Furnaces . . . . .	15
Age of Water Heaters . . . . .	16
Large Homes Are Weatherized Best . . . . .	19
Housing Characteristics Affecting Conservation Features . . . . .	19
Socioeconomic Factors Affecting Conservation Features . . . . .	23
Tax Credits for Energy-Saving Home Improvements Are Seldom Claimed . . . . .	27
Detailed Statistics Tables, 1984 . . . . .	31
Appendices	
A. How the Survey Was Conducted . . . . .	131
Introduction . . . . .	131
Data Collection . . . . .	131
The Interview . . . . .	131
The Interviewers . . . . .	132
Sample Design . . . . .	133
Longitudinal Sample Design . . . . .	134
Returning Rotation Groups E and F . . . . .	135
Rotation Groups C and D . . . . .	135
Supplemental Sample . . . . .	135
Survey Estimates . . . . .	137
Minimizing Nonresponse . . . . .	139
Response Rates and Household Characteristics . . . . .	140
Adjustments for Item Nonresponse . . . . .	142
Rental-Agent Survey . . . . .	143
Editing Completed Questionnaires . . . . .	144
Fuel-Supplier Survey . . . . .	145
Data-Collection Procedures . . . . .	145
Energy-Consumption Records . . . . .	146
Comparison with 1982 RECS . . . . .	147
Data-Collection Dates . . . . .	147
Fuel-Consumption Imputations . . . . .	147

Supplemental Data Collection . . . . .	150
Followup Survey on Kerosene Consumption . . . . .	150
Followup Data Collection for the Social Security Administration . . . . .	150
B. Estimates of the Size of U.S. Housing Units in Square Feet . . . . .	155
Introduction . . . . .	155
Scaling Up Inside Measurements . . . . .	156
Treatment of Housing Units with Some Missing Data . . . . .	156
Regression Model . . . . .	157
C. Quality of the Data . . . . .	161
Introduction . . . . .	161
Nonsampling Error . . . . .	161
Completeness of Data . . . . .	161
Quality of Specific Data Items . . . . .	162
Sampling Error . . . . .	163
Determination of Relative Sampling Errors for Household Counts . . . . .	164
Determining Relative Standard Errors for Percentages Based upon Household Counts . . . . .	166
Determining Relative Standard Errors for Average and Aggregate Statistics . . . . .	167
D. Survey Forms . . . . .	173
E. U.S. Weather Zone Map . . . . .	207
F. U.S. Census Regions and Divisions . . . . .	211
G. Related Publications on Energy Consumption . . . . .	215
Residential Sector . . . . .	215
Housing Characteristics . . . . .	215
Consumption and Expenditures . . . . .	215
Other Publications on the Residential Sector . . . . .	216
Residential Transportation Sector . . . . .	216
Commercial Sector . . . . .	216
Characteristics of Buildings . . . . .	216
Consumption and Expenditures . . . . .	217
Industrial Sector . . . . .	217
Cross-Sector . . . . .	217
Glossary . . . . .	219

## Tables

	Page
1. Total Number of Households That Changed Their Main Heating Fuel Between November 1978 and November 1981 . . . . .	1
2. Number of Households That Changed Their Main Heating Fuel Between November 1982 and November 1984 . . . . .	2
3. Comparison of Homes That Used Heat Pumps for Central Air Conditioning in 1978 and 1984 . . . . .	3
4. Percent of Fuel Companies Supplying RECS Households That Offered Budget Plans, 1984 . . . . .	3
5. Number of Households Paying Directly for Fuels and Percent Paying on a Budget Plan . . . . .	10
6. Percent of Natural-Gas-Heated Homes Using a Budget Plan to Pay for Natural Gas, by Burden of the Bill and Income, 1984 . . . . .	10
7. Prevalence and Annual Consumption of Major Energy-Using Appliances in U.S. Homes, 1984 . . . . .	12
8. Age of Natural-Gas Forced-Air Furnaces in Single-Family Homes, by Age of Home . . . . .	16
9. Proportion of Single-Family Homes Whose Main Heating Equipment Is at Least 15 Years Old . . . . .	16
10. Fuels Used by the Water Heater in Single-Family and Mobile Homes . . . . .	17
11. Water-Heater Fuel Used in the South Compared with Other Regions . . . . .	17
12. Age of Water Heaters in Single-Family and Mobile Homes, by Fuel Used . . . . .	18
13. Prevalence of Conservation Features by Characteristics of Single-Family Housing Units, 1984 . . . . .	20
14. Prevalence of Conservation Features by Characteristics of Single-Family Households, 1984 . . . . .	25
15. Factors Related to Household Use of Tax Credits for Energy-Conservation Improvements, by Income Group . . . . .	27
16. Housing Characteristics by Census Region and Metropolitan Status, as of November 1984 . . . . .	32
17. Housing Characteristics by Census Region and Metropolitan Status, as of November 1984 . . . . .	34
18. Housing Characteristics by Year of Construction, as of November 1984 . . . . .	36

19.	Housing Characteristics by Year of Construction, as of November 1984 . . . . .	38
20.	Housing Characteristics by Average Square Feet per Housing Unit, as of November 1984 . . . . .	40
21.	Total Square Footage by Housing Characteristics, as of November 1984 . . . . .	42
22.	Fuel Use by Census Region and Metropolitan Status, as of November 1984 . . . . .	44
23.	Fuel Use by Census Region and Metropolitan Status, as of November 1984 . . . . .	47
24.	Fuel Use by Family Income, as of November 1984 . . . . .	50
25.	Fuel Use by Family Income, as of November 1984 . . . . .	53
26.	Fuel Use by Housing Structure and Ownership, as of November 1984 . . . . .	56
27.	Fuel Use by Housing Structure and Ownership, as of November 1984 . . . . .	59
28.	Fuel Use by Average Square Feet per Housing Unit, as of November 1984 . . . . .	62
29.	Total Square Footage by Fuel Use, as of November 1984 . . . . .	66
30.	Fuel Use by Main Heating Fuel, as of November 1984 . . . . .	69
31.	Fuel Use by Main Heating Fuel, as of November 1984 . . . . .	72
32.	Fuel Use by Weather Zone and Census Regions, as of November 1984 . . . . .	75
33.	Fuel Use by Weather Zone and Census Regions, as of November 1984 . . . . .	79
34.	Fuel Use by Year of Construction, as of November 1984 . . . . .	83
35.	Fuel Use by Year of Construction, as of November 1984 . . . . .	86
36.	Appliance Use by Census Region and Metropolitan Status, as of November 1984 . . . . .	89
37.	Appliance Use by Census Region and Metropolitan Status, as of November 1984 . . . . .	90
38.	Appliance Use by Family Income as of November 1984 . . . . .	91
39.	Appliance Use by Family Income as of November 1984 . . . . .	92
40.	Thermal Characteristics by Census Region and Metropolitan Status, as of November 1984 . . . . .	93
41.	Thermal Characteristics by Census Region and Metropolitan Status, as of November 1984 . . . . .	96
42.	Thermal Characteristics by Housing Structure and Ownership, as of November 1984 . . . . .	98
43.	Thermal Characteristics by Housing Structure and Ownership, as of November 1984 . . . . .	101
44.	Thermal Characteristics by Weather Zone and Census Regions, as of November 1984 . . . . .	104
45.	Thermal Characteristics by Weather Zone and Census Regions, as of November 1984 . . . . .	107
46.	Thermal Characteristics by Year of Construction, as of November 1984 . . . . .	110
47.	Thermal Characteristics by Year of Construction, as of November 1984 . . . . .	113
48.	Conservation Improvements Made from December 1983 Through November 1984, by Census Region and Metropolitan Status . . . . .	116
49.	Conservation Improvements Made from December 1983 Through November 1984, by Census Region and Metropolitan Status . . . . .	117
50.	Number of U.S. Households by Inside Temperatures, Heating Degree-Days and Size of Residence, as of November 1984 . . . . .	118
51.	Number of U.S. Households by Inside Temperatures, Heating Degree-Days and Size of Residence, as of November 1984 . . . . .	119
52.	Number of U.S. Households Changing Temperatures at Night by Heating Degree-Days and Size of Residence, as of November 1984 . . . . .	120
53.	Number of U.S. Households Changing Temperatures at Night by Heating Degree-Days and Size of Residence, as of November 1984 . . . . .	120
54.	Mean Daytime Temperature for U.S. Households by Main Heating Fuel, Secondary Heating, and Age of Householder, as of November 1984--Households with Heating Controls and Heat On in Daytime . . . . .	121
55.	Number of U.S. Households by Main Heating Fuel, Secondary Heating, and Age of Householder, as of November 1984--Households with Heating Controls and Heat On in Daytime . . . . .	122
56.	Use of Air-Conditioning Equipment in the United States in the Summer of 1984 and Indoor Temperatures by Region, Climate Zones, Income, Type of Equipment, and Payment for Air-Conditioning Fuel-- Households with Air-Conditioning Equipment . . . . .	123
57.	U.S. Residential Wood Consumption for the Year Ending November 1984 . . . . .	124
58.	U.S. Average Annual Heating Degree-Days by Type of Main Heating Fuel and Region, Secondary Heating, Housing Structure, Year Built, Tenure, Income, Age and Origin of Householder . . . . .	126
A1.	Experience and Training of 1984 RECS Interviewers . . . . .	132
A2.	Sources of Data for 1984 RECS Sample Design . . . . .	133
A3.	Overview of RECS Sample Operations . . . . .	134
A4.	Relative Sampling Rates Based on Income Rating and Main Home-Heating Fuels . . . . .	136
A5.	Poverty Status in 1984 and Home Heating Fuel in 1984 RECS Main and Supplemental Samples*	137
A6.	Population Estimates Used as Controls in Ratio Estimates . . . . .	139
A7.	Interviews Completed by Stage . . . . .	140
A8.	Response Rates by Region, Location, Type of Structure, and Rotation Groups . . . . .	141
A9.	1984 RECS--Items Most Frequently Imputed . . . . .	143
A10.	Changes Made in Household Records on the Basis of Information from Rental Agents . . . . .	144
A11.	Companies in Fuel-Supplier Survey and Number of Households Supplied . . . . .	145

A12.	Energy-Consumption Records and Missing Data for Survey Households Using Electricity, Natural Gas, Fuel Oil, Kerosene, or LPG . . . . .	147
A13.	Energy-Consumption Records and Missing Data for Surveyed Households, by Fuels Used and Type of Housing Structure . . . . .	149
B1.	Completeness of Data on Square Footage of Housing Units . . . . .	156
C1.	Consistency of Responses to Question 72 and Detailed Questions on Individual Conservation Improvements . . . . .	163
C2.	Relative Standard Errors for Survey Estimates of the Number of Households . . . . .	164
C3.	Clustering Factors for Calculation of Relative Standard Errors for Survey Estimates of the Number of Households . . . . .	165
C4.	Relative Standard Error Control Totals . . . . .	166
C5.	Relative Standard Errors for Statistics of Heated Square Footage of the Housing Unit . . . . .	168
C6.	Relative Standard Errors for Statistics of Square Footage of Housing Unit (Heated and Unheated), Wood Burned, and Indoor Temperatures . . . . .	168
C7.	Relative Standard Errors for Statistics of Average Number of Doors . . . . .	169
C8.	Relative Standard Error for Statistics of Average Number of Windows, Inches of Insulation, and Number of Storm Windows or Storm Doors Added . . . . .	169
C9.	Relative Standard Error Equations . . . . .	170

## Illustrations

	Page
1. Distribution of Households by Main Heating Fuel, 1978, 1980, 1982, 1984 . . . . .	3
2. Features of Air Conditioning in 1984 . . . . .	6
3. U.S. Homes Using Major Appliances, 1984 . . . . .	13
4. Conservation Features by Size of Single-Family Homes, 1984 . . . . .	21
5. Conservation Features by Total Single-Family Housing Units, Showing Regional Differences (Coldest and Warmest), 1984 . . . . .	22
6. Conservation Features by Total Single-Family Housing Units, Comparing Characteristics of Homeowners and Renters, 1984 . . . . .	24
7. Major Reasons Households Did Not Claim a Tax Credit for Home Improvements in 1983 . . . . .	29

# Executive Summary

This report presents data collected in the 1984 Residential Energy Consumption Survey (RECS) conducted by the Energy Information Administration (EIA). The 1984 RECS was the sixth national survey of households and their fuel suppliers. The purpose of these surveys is to provide baseline information on how households use energy. Households living in all types of housing units--single-family homes (including townhouses), apartments, and mobile homes--were chosen to participate. Data from the surveys are available to the public in published reports such as this one and on public-use data tapes.<sup>1</sup>

Statistical information from the 1984 survey is useful for cross-sectional study--comparing households, fuels, and their usage profiles for that one year. Data from previous fieldings of this survey are cited to provide the basis for statements about trends in the usage of energy.

The housing characteristics this report describes include fuels and the uses they are put to in the home; appliances; square footage of floorspace; heating (and cooling) equipment; thermal characteristics of housing structures; conservation features and measures taken; the consumption of wood; temperatures indoors; and regional weather. These data are presented in tables in the Detailed Statistics section that follows the Summary. The detailed tables are organized in sets, first showing counts of households and then showing percentages.

Following are highlights from the 1984 RECS data analysis. These topics are detailed in the Summary.

- **Trends in Home Heating Fuel and Air Conditioning:** Fewer households are changing their main heating fuel. More households are air conditioned than before. Some 50 percent of air-conditioned homes now use central systems.
- **Popular Appliances:** The three appliances considered essential are the refrigerator, the range, and the television set. At least 98 percent of U.S. homes have at least one television set; but automatic dishwashers are still not prevalent.
- **Paying Energy Bills:** Few households use the budget plans that are available from their utility companies to ease the payment burden of seasonal surges in fuel bills.
- **Age of Furnaces or Water Heaters:** The most common type of heating equipment in the United States is the natural-gas forced-air furnace. About 40 percent of those furnaces are at least 15 years old. The oldest water heaters are those that use fuel oil.
- **Insulation:** The most common conservation feature in 1984 is ceiling or attic insulation--80 percent of homes report having this item.
- **Tax Credits for Energy-Conservation Improvements:** Relatively few households claimed tax credits in 1984 for energy-conservation improvements.

Readers of the RECS findings may refer to the appendices, which contain information on how the survey was conducted, how the floorspace of homes is estimated, the quality of the data, the 1984 survey forms, maps of U.S. weather zones and Census regions, and a bibliography of relevant published works. A glossary of residential energy-consumption terms is also provided.

This report should be of use to economists, public and private planners, housing construction concerns, suppliers of fuel, and manufacturers and suppliers of home appliances. The Summary describing RECS findings and the detailed statistics can also provide officials, businesses, and consumers with an overview of the ways energy has come to be used in homes.

<sup>1</sup>Published reports are available from the National Energy Information Center (NEIC) or the U.S. Government Printing Office (GPO). Addresses and telephone numbers are provided on the inside front cover of this report. Data tapes for public use are available from the National Technical Information Service (NTIS), Computer Products Division, 5285 Port Royal Road, Springfield, Virginia 22161 (telephone: 703-487-4808). See Appendix G for a list of publications available concerning the consumption of energy.



# Households Are More Likely to Stay with Their Main Heating Fuel

During the most recent two-year period for which data have been collected and analyzed, most households in the United States have continued with whatever main fuel they used previously for heating. Between 1982 and 1984 (the period between the 1982 survey and the 1984 survey), the rate of changing main heating fuel was down to just 1.2 ( $\pm 0.4$ ) million households per year, on the basis of some 2.5 ( $\pm 0.6$ ) million households having reported a change in their main heating fuel sometime between November 1982 and November 1984.<sup>2</sup> This rate of changing a household's main heating fuel was smaller than it had been between 1979 and 1981 (Table 1).

Changing the main heating fuel may not always involve removing the main heating equipment, nor even adding heating equipment. Changing may simply mean that the primary source of heat has shifted from one piece of equipment to another. For example, if the price of natural gas were to soar during some particular winter, a household that has both a central warm-air furnace and a wood stove might use the latter more often to burn more wood.

**Table 1. Total Number of Households That Changed Their Main Heating Fuel Between November 1978 and November 1981**

Year of Survey	Households That Changed Main Heating Fuel During the Preceding Year (millions)
November 1979 .....	2.1 ( $\pm 0.6$ )
November 1980 .....	2.0 ( $\pm 0.4$ )
November 1981 .....	1.9 ( $\pm 0.5$ )

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1979, 1980, and 1981 Residential Energy Consumption Surveys.<sup>3</sup>

Much of the fuel changing that went on between 1982 and 1984, however, yielded neither gains nor losses for natural gas or electricity. There was a net change of 100,000 households or fewer for these fuels (Table 2). Natural gas lost 600,000 ( $\pm 300,000$ ) users but picked up a similar number that changed from other fuels, for a net change of zero.

<sup>2</sup>The  $\pm$  value after a statistic quoted in the text represents two standard errors of the statistic. The standard error is a measure of the variability of an estimate that is based on a sample survey. A 95-percent confidence interval can be approximated by taking two standard errors and subtracting this value from the statistic to obtain the lower end of the interval. Adding two standard errors to the statistic gives the upper end of the interval. A 95-percent confidence interval means that if the survey were repeated, using all possible samples, 95 percent of all intervals calculated in this way should contain the true value of the statistic.

**Table 2. Number of Households That Changed Their Main Heating Fuel Between November 1982 and November 1984**  
(Million Households)

Main Heating Fuel	Households Using the Fuel (millions)		
	As of November 1982	As of November 1984	Net Change
Wood .....	0.2 ( $\pm 0.1$ )	0.9 ( $\pm 0.3$ )	+0.7 ( $\pm 0.3$ )
Natural Gas .....	0.6 ( $\pm 0.3$ )	0.6 ( $\pm 0.3$ )	0
Coal, Kerosene, Other .....	0.3 ( $\pm 0.2$ )	0.3 ( $\pm 0.2$ )	0
Electricity .....	0.4 ( $\pm 0.2$ )	0.3 ( $\pm 0.2$ )	-0.1 ( $\pm 0.1$ )
LPG .....	0.4 ( $\pm 0.2$ )	0.2 ( $\pm 0.1$ )	-0.2 ( $\pm 0.1$ )
Fuel Oil .....	0.6 ( $\pm 0.2$ )	0.1 ( $\pm 0.1$ )	-0.5 ( $\pm 0.2$ )
Total .....	2.5 ( $\pm 0.6$ )	2.5 ( $\pm 0.6$ )	

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Fuels that did show a net gain or loss were wood and fuel oil. Wood has gained some increased acceptance, showing a net gain of 700,000 ( $\pm 300,000$ ) homes, while fuel oil experienced a net loss of about 500,000 ( $\pm 200,000$ ) homes, although the price of fuel oil decreased from 1982 to 1984.<sup>3</sup> Analysis of data not given in Table 2 shows that among homes that changed to wood, 0.3 ( $\pm 0.2$ ) million formerly used natural gas as their main heating fuel. Other households that changed to wood formerly used fuel oil, LPG, or electricity. The fuels that gained from the movement away from fuel oil are natural gas 0.3 ( $\pm 0.02$ ) and wood.

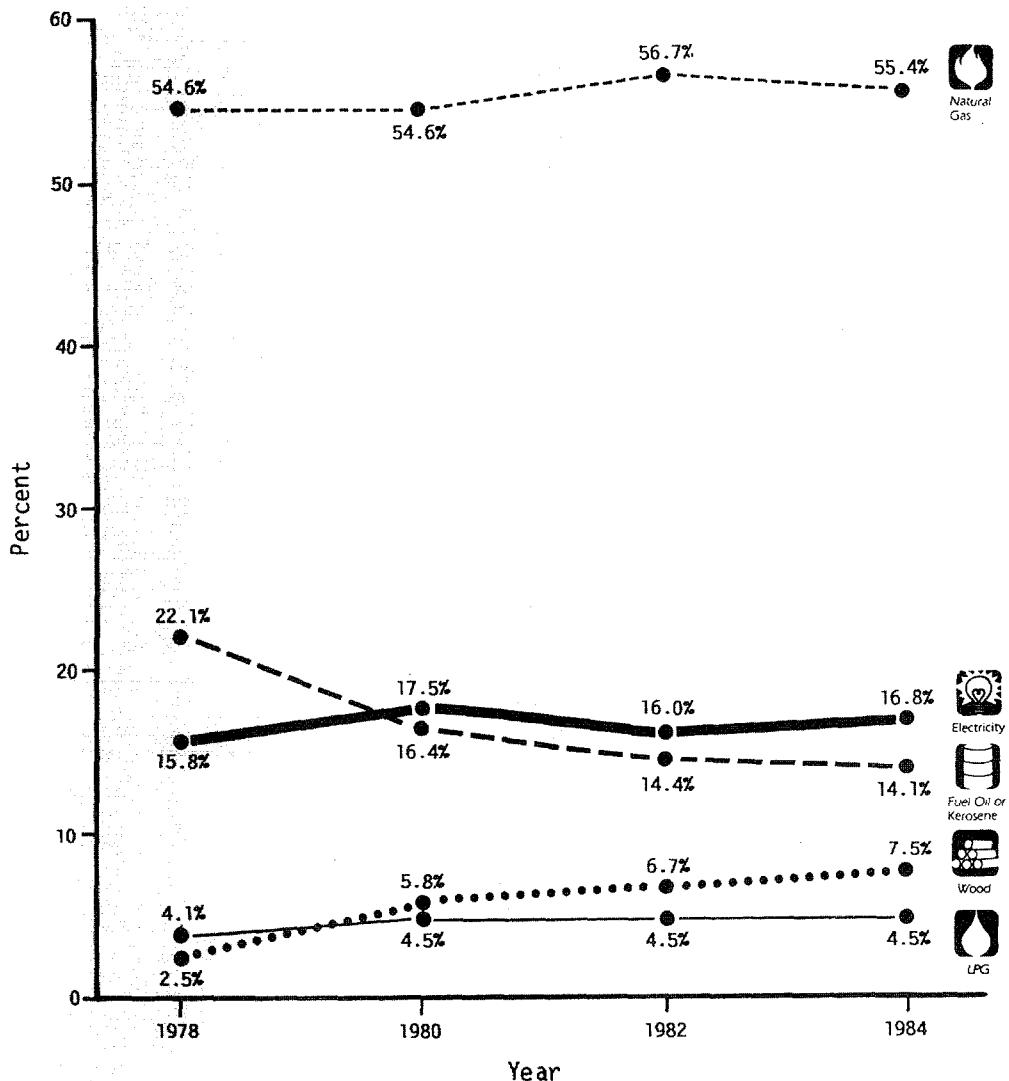
Fuel changing is only one cause of variations in the use of fuels for home heating. New or rebuilt houses are added to the stock of homes; others are removed from the stock because they are dilapidated or otherwise uninhabitable. The overall picture is affected by which heating fuels these homes will use--or did use.

Although the RECS does not collect data on the heating fuels of homes deleted from the stock, it does collect data on a small sample of new homes. The preferred heating fuels in new homes (those built in 1980 or later) are natural gas, at 36.1 ( $\pm 12.9$ ) percent, and electricity, at 40.4 ( $\pm 13.1$ ) percent.

Overall, there are no statistically important changes in the proportion of homes using the five major home heating fuels from 1982 to 1984 (Figure 1). In the 1984 survey, 55.4 ( $\pm 2.8$ ) percent of households were using natural gas as the main heating fuel. Next in importance was electricity, which 16.8 ( $\pm 1.7$ ) percent used; then came fuel oil/kerosene at 14.1 ( $\pm 1.5$ ) percent. Fuel oil/kerosene has ranked third in customer preference since 1980. In 1984, wood was the main heating fuel in 7.5 ( $\pm 1.1$ ) percent of homes, and LPG was used in 4.5 ( $\pm 0.8$ ) percent of homes (Figure 1).

<sup>3</sup>The average U.S. price for Number 2 distillate was \$1.16 per gallon for 1982, dropping to \$1.09 for 1984. Energy Information Administration, *Monthly Energy Review* (June 1985).

**Figure 1. Distribution of Households by Main Heating Fuel, 1978, 1980, 1982, 1984**



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.



## Half of All Air-Conditioned Homes Stay Cool with Central Air Systems

In 1984, homes with air conditioning constituted 59.6 ( $\pm 2.5$ ) percent of all households (Figure 2). An increasing percentage of these air-conditioned homes are being cooled by central air-conditioning equipment. Whereas central units cooled just 41.2 ( $\pm 3.6$ ) percent of air-conditioned homes in 1978, by 1984 the usage of central units had reached parity with usage of room units, at 49.9 ( $\pm 3.0$ ) percent.<sup>4</sup> But because they cool the whole house and not only selected rooms, central air-conditioning units use more energy than window units.

By contrast, home heating is becoming more decentralized with the use of limited-space heating units. There has been an increase in the use of room heaters or portable heaters that heat one room or part of a room rather than the whole house--thus saving energy.

A relatively new type of central air-conditioning equipment is the heat pump that cools in summer and heats in winter. As the use of heat pumps becomes more widespread, they are likely to compose a larger proportion of central air-conditioning systems. In 1984, heat pumps were in 3.1 ( $\pm 0.7$ ) million homes--12.2 ( $\pm 2.5$ ) percent of all homes with central air-conditioning systems. These numbers show an increase in the use of heat pumps for central air since 1978, when only 6.5 ( $\pm 2.5$ ) percent of air-conditioned homes had heat pumps (Table 3).

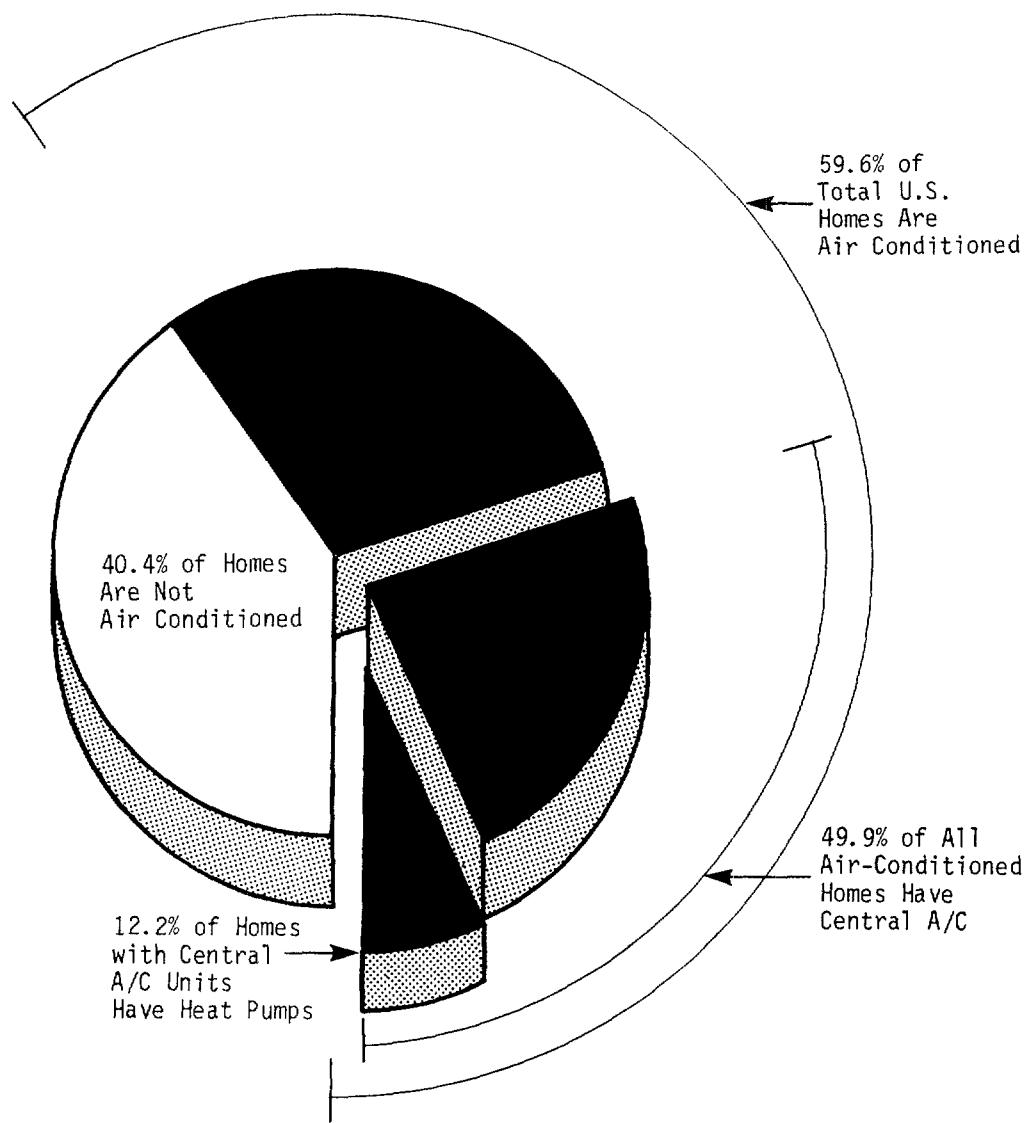
How households use air-conditioning equipment is another important factor that can change energy needs. In the RECS interview, households were asked whether they had used their air conditioners during the summer of 1984. About 7 ( $\pm 1$ ) percent of the households living in the same home in the fall of 1984 as in the previous summer had not used their air-conditioning equipment during the summer of 1984. A similar proportion (8 percent) did not use their air-conditioning equipment in the summer of 1982. Apparently this restraint is a conservation strategy.<sup>5</sup>

Among households that used their air conditioning in the summer of 1984, about half (49.8 [ $\pm 2.9$ ] percent) used it "only a few times," versus about a quarter (26.8 [ $\pm 2.6$ ] percent) that left it turned on all summer. More households in the highest income group (\$35,000 or more) had their air conditioners turned on all summer (31.5 [ $\pm 4.8$ ] percent) than in the lower income groups (Table 56).

<sup>4</sup>The American Housing Survey, conducted by the Bureau of the Census, shows a change in the percentage of air-conditioned homes that have central air-conditioning systems, from 44.8 percent in 1978 to 50.6 percent in 1983.

<sup>5</sup>Data in this paragraph were derived from Table 56.

Figure 2. Features of Air Conditioning in 1984



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

**Table 3. Comparison of Homes That Used Heat Pumps for Central Air Conditioning in 1978 and 1984**

Year	Centrally Air-Conditioned Homes (million households)	Central Air-Conditioning Units That Are Heat Pumps (percent)
1978 .....	17.6 ( $\pm 2.0$ )	6.5 ( $\pm 2.5$ )
1984 .....	25.7 ( $\pm 1.9$ )	12.2 ( $\pm 2.2$ )

Note: Number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1978 and 1984 Residential Energy Consumption Surveys.

One reason for this behavior is the predominance of central units in homes where family income exceeded \$35,000. In that income category, central units were in 66 ( $\pm 5$ ) percent of the homes, versus 44 ( $\pm 3$ ) percent which family income was less than \$35,000. Central units are more likely than window or wall units to be turned on all summer.

Although affluent households might have air conditioning turned on more of the time than less affluent households do, there is no evidence that higher income families keep their air-conditioned homes cooler than lower income families when the equipment is in use. Respondents reported temperatures averaging 73 degrees ( $\pm 1$ ) Fahrenheit in homes of each income group.<sup>6</sup>

The 1984 RECS was the first data collection to request temperature estimates of air-conditioned homes in the summer. Other findings indicate that users of air-conditioning units in the warmer regions of the country reported maintaining a temperature of 75 degrees ( $\pm 1$ ) Fahrenheit (Table 56). This level is less comfortable than the reported temperature of 71 degrees ( $\pm 1$ ) in areas with the coolest temperatures (during the same summer). In the warmest areas, people apparently do not keep their homes as cool as in the coolest areas. This behavior may be a measure of regional adaptation.

<sup>6</sup>This statistic, however, is not absolutely reliable. Because these data on temperatures are self-reported--not actual temperature readings--they may be subject both to reporting errors based on faulty recollection and to bias in deciding what temperature to report.



## Budget Plans Are Seldom Used

Most householders pay their own energy bills directly to a fuel company (rather than having these costs included in the rent or paid through social service agencies). Direct payments are commonest for electricity--93 ( $\pm 1$ ) percent of all households that use electricity, and LPG--94 ( $\pm 3$ ) percent of all user households, not including those that use LPG only for outdoor grills. Fewer households pay directly for natural gas--83 ( $\pm 3$ ) percent, and the fewest of all pay directly for fuel oil--69 ( $\pm 5$ ) percent.

One method that is available to households for easing the payment burden is known as the budget plan. This method distributes payments evenly over the year, thus flattening the effects of seasonal fluctuations in the consumption of fuel.<sup>7</sup> The majority of fuel suppliers to RECS households (between 60 and 72 percent) do offer a budget-plan payment option (Table 4).

But despite the availability of budget plans, few households choose the option, considering figures from 1984. In fact, only 16.9 ( $\pm 2.6$ ) percent of households using natural gas for heating pay their bills on a budget plan (Table 5). The percentage is about the same for homes heated with fuel oil (15.1 [ $\pm 4.3$ ]) and LPG (9.2 [ $\pm 4.7$ ]), and lowest for those heating or cooling with electricity (5.5 [ $\pm 1.3$ ]). An estimated 55.1 million households use electricity as their main fuel for heating the home, but even among this group, only 6.7 ( $\pm 2.7$ ) percent use a budget plan.

**Table 4. Percent of Fuel Companies Supplying RECS Households That Offered Budget Plans, 1984**

Characteristics of Fuel-Supplying Company	Electricity	Natural Gas	LPG	Fuel Oil
Total companies .....	100	100	100	100
Have budget plan .....	63	72	60	65
Do not have budget plan .....	29	17	35	23
Don't know/No answer .....	8	12	5	12

Notes: •Some column sums are greater than 100 percent because of rounding.  
•Standard errors are not available for these numbers.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

<sup>7</sup>Question 123 of the 1984 Residential Energy Consumption Survey questionnaire described the budget plan to respondents as follows: "A budget plan is a plan under which the utility company or fuel dealer and household agree that the household will pay the same amount for fuel each month for a number of months." (Appendix D contains a copy of the 1984 RECS questionnaire.)

**Table 5. Number of Households Paying Directly for Fuels and Percent Paying on a Budget Plan**

Uses of Fuel Paid For	Number of Households Paying Directly for Fuels (millions)	Percent Paying on a Budget Plan
<b>Household Pays for Fuel To Heat or Cool the Home</b>		
Natural Gas .....		
Natural Gas .....	40.5 ( $\pm 2.6$ )	16.9 ( $\pm 2.6$ )
Fuel Oil .....	8.4 ( $\pm 1.1$ )	15.1 ( $\pm 4.3$ )
Electricity .....	55.1 ( $\pm 2.3$ )	5.5 ( $\pm 1.3$ )
LPG .....	4.8 ( $\pm 0.9$ )	9.2 ( $\pm 4.7$ )
<b>Household Pays for Electricity as Main Home Heating Fuel .....</b>		
Electricity as Main Home Heating Fuel .....	13.6 ( $\pm 1.5$ )	6.7 ( $\pm 2.7$ )

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

The percentage of households that pay their heating bills for natural gas on a budget plan are categorized by their income and energy burden (Table 6). Energy burden is a relative index that is based on the size of the annual bill for natural gas in proportion to the annual income of the family. When the energy burden is heavy--8 percent or more of income--25 ( $\pm 7$ ) percent of households use the budget plan. But when the burden is less than 3 percent of household income, the proportion using the budget plan drops to 13 ( $\pm 3$ ) percent.

Use of the budget plan is not related to income alone. About 17 ( $\pm 2$ ) percent of households use the budget plan regardless of whether the income of the family is less than \$10,000 or is more than \$20,000 per year.

**Table 6. Percent of Natural-Gas-Heated Homes Using a Budget Plan to Pay for Natural Gas, by Burden of the Bill and Income, 1984**

Characteristics of Billpayers	Percent Using a Budget Payment Plan
All Households .....	17.1 ( $\pm 2.4$ )
Energy Burden*	
Light .....	13.2 ( $\pm 3.0$ )
Moderate .....	21.5 ( $\pm 5.5$ )
Heavy .....	25.3 ( $\pm 7.2$ )
1984 Income	
Less than \$10,000 .....	17.6 ( $\pm 4.6$ )
\$10,000 to \$20,000 .....	17.7 ( $\pm 4.3$ )
\$20,000 or more .....	16.7 ( $\pm 2.9$ )

\*Households whose bills for natural gas add up to less than 3 percent of the annual family income are considered to bear a "light" energy burden; those whose bills for natural gas are between 3 percent and 7 percent (inclusive) of annual income bear a moderate burden; those whose bills come to 8 percent or more of the family income are said to carry a "heavy" energy burden.

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

# Almost Every Home in the United States Has at Least One Refrigerator, One Range, and One Television Set

The RECS collects data on the major energy-using appliances. Several questions on the 1984 RECS questionnaire dealt with major appliances (Table 7, Figure 3, and Tables 36 through 39) and also elicited responses concerning equipment used for home heating and air conditioning (Tables 22 through 35). Analysis of the data from respondents yielded some interesting findings on the prevalence of various appliances.

Nearly every home in the United States has a refrigerator (99.7 [ $\pm 0.2$ ] percent), a range (98.6 [ $\pm 0.4$ ] percent), and a television set (98.1 [ $\pm 0.5$ ] percent). Most homes (91.6 [ $\pm 1.1$ ] percent) have an oven.

About two-thirds of the most-used refrigerators are frost-free (62.4 [ $\pm 2.2$ ] percent); the remainder must be defrosted either automatically (7.7 [ $\pm 1.0$ ] percent) or manually (29.4 [ $\pm 1.9$ ] percent). Among homes with a refrigerator, very few (0.3 [ $\pm 0.2$ ] percent) lack a freezer unit.

About one-third of the homes surveyed have a separate freezer. But separate freezers, unlike refrigerators, are not usually frost free. Thirteen ( $\pm 1$ ) percent of homes have a frost-free freezer, as compared with 24.7 ( $\pm 1.8$ ) percent that have a non-frost-free freezer.

As the fuel for cooking appliances, electricity is slightly ahead of gas (on the basis of the number of households using either of these fuels in ranges or ovens). Electric ranges are found in 53.9 ( $\pm 2.4$ ) percent of homes; gas ranges, in 45.2 ( $\pm 2.0$ ) percent. Electric ovens are found in 49.1 ( $\pm 2.5$ ) percent of homes; gas ovens, in 41.5 ( $\pm 2.3$ ) percent.

The microwave oven, a fast-cooking electrical appliance, is being accepted rapidly, having come into use in 34.3 ( $\pm 2.1$ ) percent of all homes by the time of the RECS in November 1984. In 1978, by contrast, only 7.8 ( $\pm 0.9$ ) percent of homes had a microwave oven.

Nearly three-quarters of American homes have a clothes washer; most are automatic. Most of these homes (83.5 [ $\pm 2.1$ ] percent) also have a clothes dryer to meet laundry needs. An insignificant number of homes (0.4 [ $\pm 0.2$ ] million) have a clothes dryer but not a clothes washer (one possible explanation is that the household washer was not counted because it was not in working order at the time of the interview).

One home appliance not powered by electricity--the outdoor grill--is found in 13.3 ( $\pm 1.3$ ) percent of homes. Liquified petroleum gas (LPG) is the fuel used most frequently in these grills--75.1 percent ( $\pm 4.4$ ).

**Table 7. Prevalence and Annual Consumption of Major Energy-Using Appliances in U.S. Homes, 1984**

Appliance	Households Using Appliance (percent)	Estimated Annual Consumption per Appliance* (million Btu)
Refrigerator# .....	99.7 ( $\pm 0.2$ )	
Frost-free (Most-Used) .....	62.4 ( $\pm 2.2$ )	7.7
Not Frost-free/No Freezer .....	37.3 ( $\pm 2.2$ )	5.1
Range# .....	98.6 ( $\pm 0.4$ )	
Electric .....	53.9 ( $\pm 2.4$ )	2.4
Gas .....	45.2 ( $\pm 2.0$ )	7.9
Television# .....	98.1 ( $\pm 0.5$ )	
Color .....	88.0 ( $\pm 1.3$ )	1.1
Black/White .....	43.2 ( $\pm 2.3$ )	0.3
Oven# .....	91.6 ( $\pm 1.1$ )	
Electric .....	49.1 ( $\pm 2.5$ )	IR
Gas .....	41.5 ( $\pm 2.3$ )	IR
Microwave .....	34.3 ( $\pm 2.1$ )	0.6
Clothes Washer# .....	73.1 ( $\pm 1.9$ )	
Automatic .....	70.7 ( $\pm 1.9$ )	0.4
Wringer .....	3.1 ( $\pm 0.6$ )	0.3
Clothes Dryer# .....	61.6 ( $\pm 2.2$ )	
Electric .....	45.8 ( $\pm 2.4$ )	3.4
Gas .....	15.9 ( $\pm 1.5$ )	6.0
Cooling Equipment# .....	46.9 ( $\pm 2.4$ )	
Window/Ceiling Fan .....	35.5 ( $\pm 2.1$ )	0.6
Dehumidifier .....	8.7 ( $\pm 1.1$ )	1.3
Whole-House Cooling Fan .....	7.8 ( $\pm 1.0$ )	0.9
Evaporative Cooler .....	3.8 ( $\pm 0.7$ )	0.9
Dishwasher# .....	37.6 ( $\pm 2.2$ )	1.2
Freezer# .....	36.7 ( $\pm 2.2$ )	
Not Frost-free .....	24.7 ( $\pm 1.8$ )	4.1
Frost-free .....	13.0 ( $\pm 1.3$ )	6.2
Electric Blanket .....	29.4 ( $\pm 1.9$ )	0.5
Portable Heater# .....	16.0 ( $\pm 1.5$ )	
Electric .....	10.3 ( $\pm 1.2$ )	0.6
Kerosene .....	6.1 ( $\pm 0.9$ )	13.0
Outdoor Gas Grill .....	13.3 ( $\pm 1.3$ )	2.6
Humidifier .....	13.1 ( $\pm 1.3$ )	0.6
Waterbed Heater .....	9.8 ( $\pm 1.2$ )	4.4

\*Annual consumption figures for gas appliances are from the American Gas Association; data for electric appliances are from the Edison Electric Institute; data for evaporative coolers are from "The Energy Auditor and Retrofitter," September-October 1985; data for kerosene heaters are based on 13,000 Btu/hour x 1,000 hours. Figures for electric appliances are based on submetering; those for gas appliances are not. Similar types of estimates are being prepared (in the Energy End Use Division) from the 1984 RECS, using nonlinear regression techniques.

#Consumption data are reported separately for subcategories of the item; data for category totals are unavailable.

IR=Included with range.

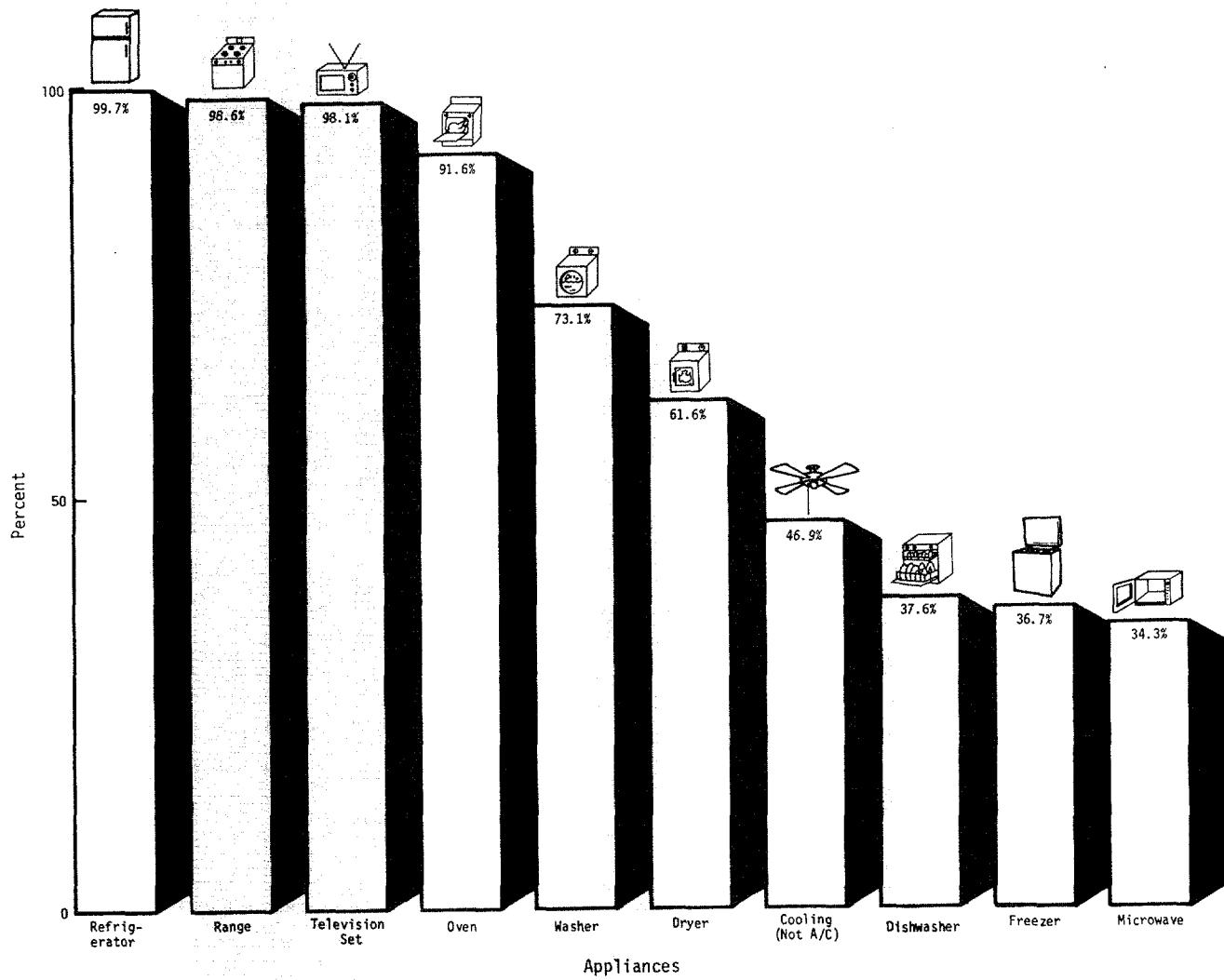
Notes: •Some households have more than one appliance; therefore, the totals and subtotals may not agree. •The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Another group of appliances is used for space heating or keeping warm in the home. About one-third of homes (29.4 [ $\pm 1.9$ ] percent) use at least one percent) use at least one electric blanket. Because waterbeds must be heated for greater sleeping comfort, 9.8 ( $\pm 1.2$ ) percent of homes have an electric heater for their waterbed. Portable space heaters are used in 16.0 ( $\pm 1.5$ ) percent of homes, with somewhat more homes using electric rather than kerosene heaters. Humidifiers, which add moisture to the air in winter, are found in 13.1 ( $\pm 1.3$ ) percent of homes.

Nearly half of the homes surveyed use nonrefrigerated types of cooling equipment (46.9 [ $\pm 2.4$ ] percent). Most of these homes have window or ceiling fans (35.5 [ $\pm 2.1$ ] percent). (The use of circulating fans was not included in the survey.) Others use dehumidifiers (8.7 [ $\pm 1.1$ ] percent), whole-house cooling fans (7.8 [ $\pm 1.0$ ] percent), or evaporative coolers (3.8 [ $\pm 0.7$ ] percent) (these cool by adding moisture to dry air). Most evaporative coolers (81 [ $\pm 7$ ] percent) are in the West, where the dry climate is most compatible with the moisture-added cooling method (Table 36).

Figure 3. U.S. Homes Using Major Appliances, 1984



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Of appliances used in homes, the automatic dishwasher is the luxury item- the one that most distinguishes between highest and lowest income levels (Table 39). Somewhat more than one-third of all homes use a dishwasher (37.6 [ $\pm 2.2$ ] percent). Whereas only 6.4 ( $\pm 2.4$ ) percent of homes in the lowest annual income group of \$5,000 or less use a dishwasher, 70.7 ( $\pm 2.9$ ) percent of homes in the highest annual income group of \$35,000 or more use this appliance (Table 39).

Microwave ovens are also more widely distributed among high-income households, although differences between high and low-income groups are not as great in this case as in the case of dishwashers. In proportion with dishwashers, slightly more than a third of all homes use a microwave oven. But only 6.6 ( $\pm 2.5$ ) percent in the lowest annual income groups use a microwave oven, whereas 55.5 ( $\pm 3.4$ ) percent in the highest annual income group use this appliance.



# The Graying of Home and Water-Heating Equipment--Current Patterns

The age of a furnace or water heater is believed to be related to its efficiency in converting energy into usable heat. Not only have advances been made recently in the design of more efficient units but older units may suffer from additional inefficiencies because of poor maintenance practices. Age is also important as an indication of the likelihood of replacement.

## Age of Furnaces

The most common type of home heating equipment in the United States is the natural-gas forced-air furnace. This furnace uses a fan to circulate the air--unlike the gravity furnace, which relies on the natural flow of cold air down and warm air up. The natural-gas forced-air furnace is found in 21.7 ( $\pm 2.0$ ) million (or more than one-third) of the 57.6 ( $\pm 1.9$ ) million single-family homes. In 40.6 ( $\pm 4.6$ ) percent of these homes, the furnace is at least 15 years old.

The age of the natural-gas forced-air furnace is related to the age of the house. The proportion of single-family homes with the largest proportion of older natural-gas forced-air furnaces are those from 15 to 24 years old (built in the 1960's) at the time of the 1984 RECS (Table 8). That proportion is 66.2 ( $\pm 9.0$ ) percent. Fewer than half of the single-family homes built before the 1960's have natural-gas forced-air furnaces that are 15 years old or older.

The following types of natural-gas and fuel-oil furnaces are the oldest types of heating equipment in the United States (on the basis of the proportion of the furnaces that are at least 15 years old):

- Natural-gas gravity furnace, 78 ( $\pm 17$ ) percent
- Natural-gas floor, wall, or pipeless furnace, 61 ( $\pm 9$ ) percent
- Fuel-oil hot-water system, 59 ( $\pm 9$ ) percent
- Fuel-oil forced-air furnace, 49 ( $\pm 9$ ) percent
- Natural-gas hot-water system, 49 ( $\pm 10$ ) percent.

Wood stoves, heat pumps, and electric forced-air furnaces dominate as the newest heating equipment (having comparatively the fewest units 15 years old or older).

- Wood stove, 9 ( $\pm 4$ ) percent
- Electric heat pump, 10 ( $\pm 6$ ) percent
- Electric forced-air furnace, 13 ( $\pm 7$ ) percent.

At the extreme ends of the age scale, 78.3 ( $\pm 16.8$ ) percent of natural-gas gravity furnaces in single-family homes are 15 years old or older; the number of wood stoves at least that old is only 9.0 ( $\pm 3.8$ ) percent (Table 9). In terms of total numbers, however, there are only 0.6 ( $\pm 0.3$ ) million natural-gas gravity furnaces still in use in the country, as opposed to 5.2 ( $\pm 0.8$ ) million wood stoves.

**Table 8. Age of Natural-Gas Forced-Air Furnaces in Single-Family Homes, by Age of Home**

Age of Home (years)	Number of Homes (millions)	Total	Age of Furnace (percent)		
			Less Than 5 Years Old	5 to 14 Years Old	At Least 15 Years Old
Total .....	21.7 ( $\pm 2.0$ )	100.0	19.6 ( $\pm 3.7$ )	39.8 ( $\pm 4.6$ )	40.6 ( $\pm 4.6$ )
Less than 5 .....	0.9 ( $\pm 0.4$ )	100.0	90.4 ( $\pm 12.0$ )	9.6*	--
5 to 9 .....	1.7 ( $\pm 0.5$ )	100.0	11.2 ( $\pm 8.4$ )	88.2 ( $\pm 9.8$ )	0.6*
10 to 14 .....	2.6 ( $\pm 0.7$ )	100.0	5.3 ( $\pm 4.7$ )	89.2 ( $\pm 7.9$ )	5.5*
15 to 24 .....	5.0 ( $\pm 1.0$ )	100.0	14.0 ( $\pm 6.1$ )	19.8 ( $\pm 7.2$ )	66.2 ( $\pm 9.0$ )
25 to 34 .....	4.8 ( $\pm 0.9$ )	100.0	22.6 ( $\pm 7.7$ )	29.5 ( $\pm 8.5$ )	47.9 ( $\pm 9.5$ )
35 or Older .....	6.6 ( $\pm 1.1$ )	100.0	20.3 ( $\pm 6.5$ )	34.0 ( $\pm 7.8$ )	45.7 ( $\pm 8.2$ )

\*The apparent conflict between reported age of home and age of furnace was not resolved in the editing process. No sampling errors are shown for these estimates.

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

**Table 9. Proportion of Single-Family Homes Whose Main Heating Equipment Is at Least 15 Years Old**

Main Heating Equipment	Number of Households (millions)	Equipment at Least 15 Years Old (percent)
Natural-Gas Gravity Furnace .....	0.6 ( $\pm 0.3$ )	78.3 ( $\pm 16.8$ )
Natural-Gas Floor, Wall, or Pipeless Furnace .....	3.8 ( $\pm 0.7$ )	61.1 ( $\pm 9.2$ )
Fuel-Oil Hot-Water System .....	3.0 ( $\pm 0.6$ )	58.5 ( $\pm 8.9$ )
Fuel-Oil Forced-Air Furnace .....	3.3 ( $\pm 0.6$ )	49.3 ( $\pm 8.6$ )
Natural-Gas Hot-Water System .....	3.0 ( $\pm 0.7$ )	48.8 ( $\pm 10.3$ )
Electric Built-in Units .....	2.8 ( $\pm 0.6$ )	40.8 ( $\pm 10.3$ )
Natural-Gas Forced-Air Furnace .....	21.7 ( $\pm 2.0$ )	40.6 ( $\pm 4.6$ )
LPG Room Heater .....	0.9 ( $\pm 0.3$ )	40.1 ( $\pm 15.1$ )
Natural-Gas Room Heater .....	3.0 ( $\pm 0.7$ )	33.0 ( $\pm 9.5$ )
LPG Forced-Air Furnace .....	1.2 ( $\pm 0.4$ )	33.0 ( $\pm 12.9$ )
Electric Forced-Air Furnace .....	2.5 ( $\pm 0.6$ )	12.9 ( $\pm 6.8$ )
Electric Heat Pump .....	2.3 ( $\pm 0.6$ )	9.8 ( $\pm 6.0$ )
Wood Stove .....	5.2 ( $\pm 0.8$ )	9.0 ( $\pm 3.8$ )

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Age of Water Heaters

Nearly all ( $98.9 \pm 0.6$  percent) American single-family and mobile homes with water heaters use as their main energy source one of the following four fuels (in order of prevalence): natural gas, electricity, LPG, and fuel oil (Table 10).

The largest number of single-family homes use natural gas for heating water; the largest number of mobile homes use electricity.<sup>8</sup>

<sup>8</sup>Natural gas is unavailable to an estimated  $60.3 (\pm 11.4)$  percent of mobile homes, whereas only  $28.6 (\pm 2.6)$  percent of single-family homes find it unavailable (Table 27). Mobile homes are more likely to be located in nonmetropolitan areas, where natural gas is generally less accessible.

**Table 10. Fuels Used by the Water Heater in Single-Family and Mobile Homes**

Fuel for Water Heater	Number of Households (millions)		
	Total	Single-Family Homes	Mobile Homes
Natural Gas .....	31.7 ( $\pm 2.2$ )	30.7 ( $\pm 2.1$ )	0.9 ( $\pm 0.4$ )
Electricity .....	23.3 ( $\pm 1.9$ )	20.0 ( $\pm 1.7$ )	3.3 ( $\pm 0.8$ )
LPG .....	3.4 ( $\pm 0.7$ )	2.7 ( $\pm 0.6$ )	0.7 ( $\pm 0.4$ )
Fuel Oil .....	2.5 ( $\pm 0.5$ )	2.5 ( $\pm 0.5$ )	--

Notes: •The number in parentheses is two standard errors. Because of rounding, data may not add up to totals. •The number of households in this table is slightly smaller than the number of households using the fuel for heating water, because not all single-family and mobile homes have their own water heater.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

The one region of the country where this pattern does not hold is in the South, where more single-family homes use electricity than use natural gas for water heating (Table 11). Mobile homes in the South are also more likely to use electricity for water heating. But in the other regions as a whole, just as many mobile homes use natural gas or LPG as use electricity.

**Table 11. Water-Heater Fuel Used in the South Compared with Other Regions**

Type of Home; Fuel for Water Heater	South (millions)	Other Regions (millions)
<b>Single-Family Homes</b>		
Electricity .....	10.5 ( $\pm 1.3$ )	9.4 ( $\pm 1.2$ )
Natural Gas .....	9.0 ( $\pm 1.2$ )	21.8 ( $\pm 1.8$ )
<b>Mobile Homes</b>		
Electricity .....	2.0 ( $\pm 0.6$ )	1.4 ( $\pm 0.5$ )
Natural Gas/LPG .....	0.3 ( $\pm 0.2$ )	1.4 ( $\pm 0.5$ )

Notes: •The number in parentheses is two standard errors. •Because of rounding, data may not add up to totals. •The number of households in this table is slightly smaller than the number of households using the fuel for heating water, because not all single-family and mobile homes have their own water heater.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

As for the age of household equipment, fuel-oil water heaters are older than those that use other fuels (judging by the percentage of water heaters that are 15 years old or older). More than half ( $\pm 10$ ) of the fuel-oil water heaters are at least 15 years old. Among the water heaters in single-family and mobile homes using other fuels, only about 16 to 17 percent are that old. Data on the age of the water heaters in single-family and mobile homes for the four main water-heating fuels show the pattern clearly (Table 12).

The type of system the water heater is part of may explain why the fuel-oil water heaters are the oldest ones. A fuel-oil hot-water system is the main home heating equipment in most ( $79.4 [\pm 8.4]$  percent) of the 2.5 million households with fuel-oil water heaters. When a boiler is part of the home heating equipment, the water for washing and cooking is often heated by coils that run through the boiler; there is no separate water heater in such cases. Under these conditions, the age of the water heater is likely to reflect the age of the heating equipment--and an estimated 50.1 ( $\pm 10.2$ ) percent of fuel-oil water heaters are at least 15 years old, while a similar proportion ( $58.5 [\pm 8.9]$  percent) of fuel-oil hot-water systems are that old (Table 9).

**Table 12. Age of Water Heaters in Single-Family and Mobile Homes, by Fuel Used**

Fuel for Water Heater	Millions of Households	Water Heater at Least 15 Years Old (percent)
Natural Gas .....	31.7 ( $\pm 2.2$ )	16.8 ( $\pm 2.9$ )
Electricity .....	23.3 ( $\pm 1.9$ )	15.5 ( $\pm 2.9$ )
LPG .....	3.4 ( $\pm 0.7$ )	16.9 ( $\pm 6.8$ )
Fuel Oil .....	2.5 ( $\pm 0.5$ )	50.1 ( $\pm 10.2$ )

Notes: •The number in parentheses is two standard errors. •The number of households in this table is slightly smaller than the number of households using the fuel for heating water, because not all single-family and mobile homes have their own water heater.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Large Homes Are Weatherized Best

Upon analysis, data from the 1984 RECS suggest certain patterns in the way insulation is used. The data are drawn from single-family housing units having any of the following three types of insulation:

- Roof or ceiling insulation
- Wall insulation
- Floor insulation,

or any of the following three types of air-infiltration protection:

- Caulking or weatherstripping
- Storm windows on at least 90 percent of the windows
- Storm doors on at least 90 percent of the outside doors.

The main conclusions of the analysis are as follows: (1) large homes are weatherized best, (2) homes in colder regions are much more likely to be well insulated than those in warmer regions, (3) the most recently constructed homes generally (but not always) have superior insulation features, and (4) owners of a home are more likely to insulate it than renters are. Socioeconomic factors--age, race, income, and education of householders--also play a significant part in determining which items of energy conservation are used. Consideration of all these factors reveals some interesting variations within the general tendencies.

## Housing Characteristics Affecting Conservation Features

The most common conservation item in the United States in 1984 was insulation of the ceiling or the roof. Nearly 80 ( $\pm 3$ ) percent of all single-family homes reported having this item (Table 13). The next most common method of conservation was caulking or weatherstripping (considered as one item): about 70 ( $\pm 3$ ) percent of households had at least one of the two.

Next most commonly used were floor insulation (58 [ $\pm 3$ ] percent of households), and wall insulation (54 [ $\pm 3$ ] percent). The lowest percentages of households were those that had either storm windows on most of their windows (49 [ $\pm 3$ ] percent) or storm doors on most of their doors (39 [ $\pm 2$ ] percent).

**Size.** The size of the housing unit is a major influence on the presence of conservation features (Figure 4). Larger homes tend to have a higher incidence of each type of conservation feature than smaller homes. The transition in size (between homes with lower and those with higher percentages of conservation features) is between approximately 1,600 and 2,000 heated square feet. Homes larger than that vary little in the incidence of each conservation feature. In homes smaller than that, the incidence of conservation features generally declines with size.

**Table 13. Prevalence of Conservation Features by Characteristics of Single-Family Housing Units, 1984**

Household Characteristics	Total Single-Family Units (millions)	Total Single-Family Housing Units with Conservation Features (percent)					
		Roof or Ceiling Insulation	Caulking or Weather-stripping	Floor Insulation*	Wall Insulation	Storm Windows#	Storm Doors**
Total.....	57.6 (±1.9)	78.5 (±2.7)	69.3 (±2.8)	58.2 (±2.7)	53.5 (±2.7)	48.8 (±2.6)	38.7 (±2.4)
<b>Weather Zone</b>							
Fewer than 2,000 CDD and--							
More than 7,000 HDD ..	6.2 (±1.6)	89.1 (±8.2)	78.1 (±10.4)	61.4 (±12.5)	73.7 (±11.0)	75.0 (±10.9)	53.1 (±12.6)
5,500 to 7,000 HDD ..	13.6	83.3	76.6	65.8	61.4	69.3	53.7
4,000 to 5,499 HDD ..	15.2 (±2.5)	77.6 (±7.1)	72.8 (±7.5)	58.4 (±8.2)	56.0 (±8.4)	57.5 (±8.3)	50.1 (±8.4)
Fewer than 4,000 HDD ..	12.9	77.2	63.5	44.1	41.2	29.7	22.4
More than 2,000 CDD and--							
Fewer than 4,000 HDD ..	9.6	68.2	55.7	63.9	41.4	14.4	12.1
<b>Measured Heated Area of Residence (square feet)</b>							
Fewer than 600 .....	2.1 (±0.4)	38.7 (±9.2)	30.8 (±9.0)	35.7 (±9.4)	20.7 (±7.6)	20.2 (±7.5)	14.3 (±6.1)
600 to 999 .....	9.1 (±0.9)	64.9 (±4.8)	55.8 (±4.9)	37.6 (±4.8)	34.7 (±4.6)	38.5 (±4.8)	35.9 (±4.7)
1,000 to 1,599 .....	19.0	77.5	66.3	48.2	51.0	45.3	38.5
1,600 to 1,999 .....	10.5	85.5	72.9	65.0	58.8	53.0	40.3
2,000 or More .....	17.0 (±1.2)	87.6 (±2.4)	82.4 (±2.8)	79.4 (±3.0)	67.1 (±3.5)	58.8 (±3.6)	42.2 (±3.6)
<b>Year of Construction</b>							
1939 or Earlier .....	17.7 (±1.5)	63.2 (±4.1)	64.5 (±4.2)	44.8 (±4.4)	42.8 (±4.3)	48.7 (±4.4)	41.9 (±4.3)
1940 to 1959 .....	15.8	79.1	67.7	51.9	43.0	43.0	42.2
1960 to 1979 .....	21.2	89.6	73.6	72.2	66.5	49.5	34.9
1980 or Later .....	2.8 (±0.6)	93.1 (±4.8)	76.3 (±8.9)	73.0 (±9.5)	83.4 (±7.9)	75.6 (±8.9)	34.6 (±9.3)
<b>Status of Unit</b>							
Owned .....	47.9 (±1.9)	85.1 (±2.3)	74.2 (±2.5)	60.6 (±2.5)	59.6 (±2.7)	53.4 (±2.5)	42.1 (±2.5)
Rented .....	8.6 (±1.0)	44.7 (±5.4)	45.4 (±5.5)	46.5 (±5.5)	20.7 (±4.3)	25.7 (±4.7)	21.1 (±4.4)

\*Households that have floor insulation or do not need it, either because there is no basement or crawl space.

#Households with storm windows on at least 90 percent of the windows.

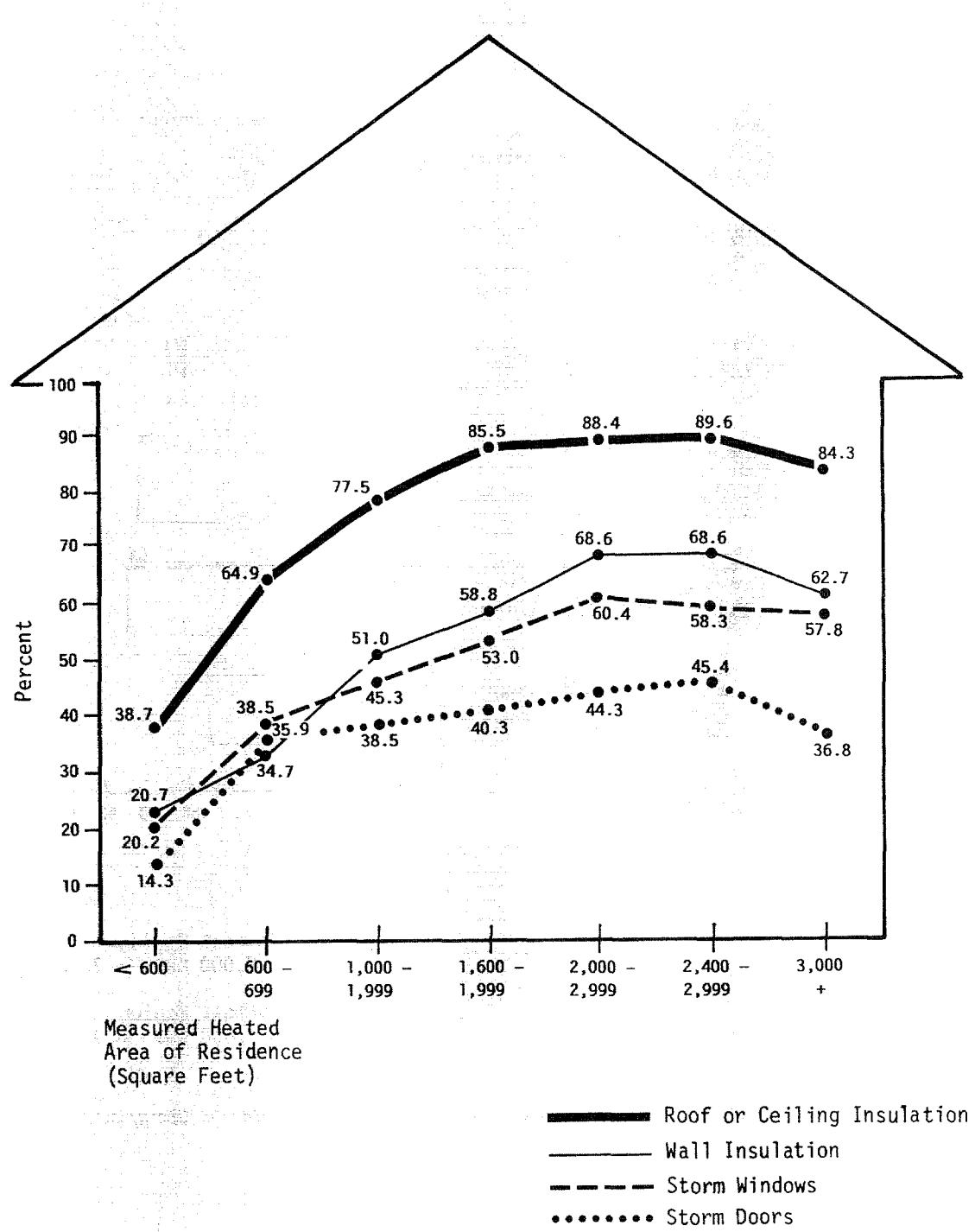
\*\*Households with storm doors on at least 90 percent of the outside doors.

Notes: •Because of rounding, data may not add up to totals. •Percentages are calculated on unrounded numbers. •Households not counted in the percentages displayed in this table include those responding that they did not have the conservation item, those responding that they did not know, and those for whom no answer was recorded in the interview. •The number in parentheses is two standard errors and applies to the estimate above it and to other estimates based on a similar number of households. In cases where standard errors are not provided for certain estimates, it is because their standard errors closely approximate those that are provided in the same column categories.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

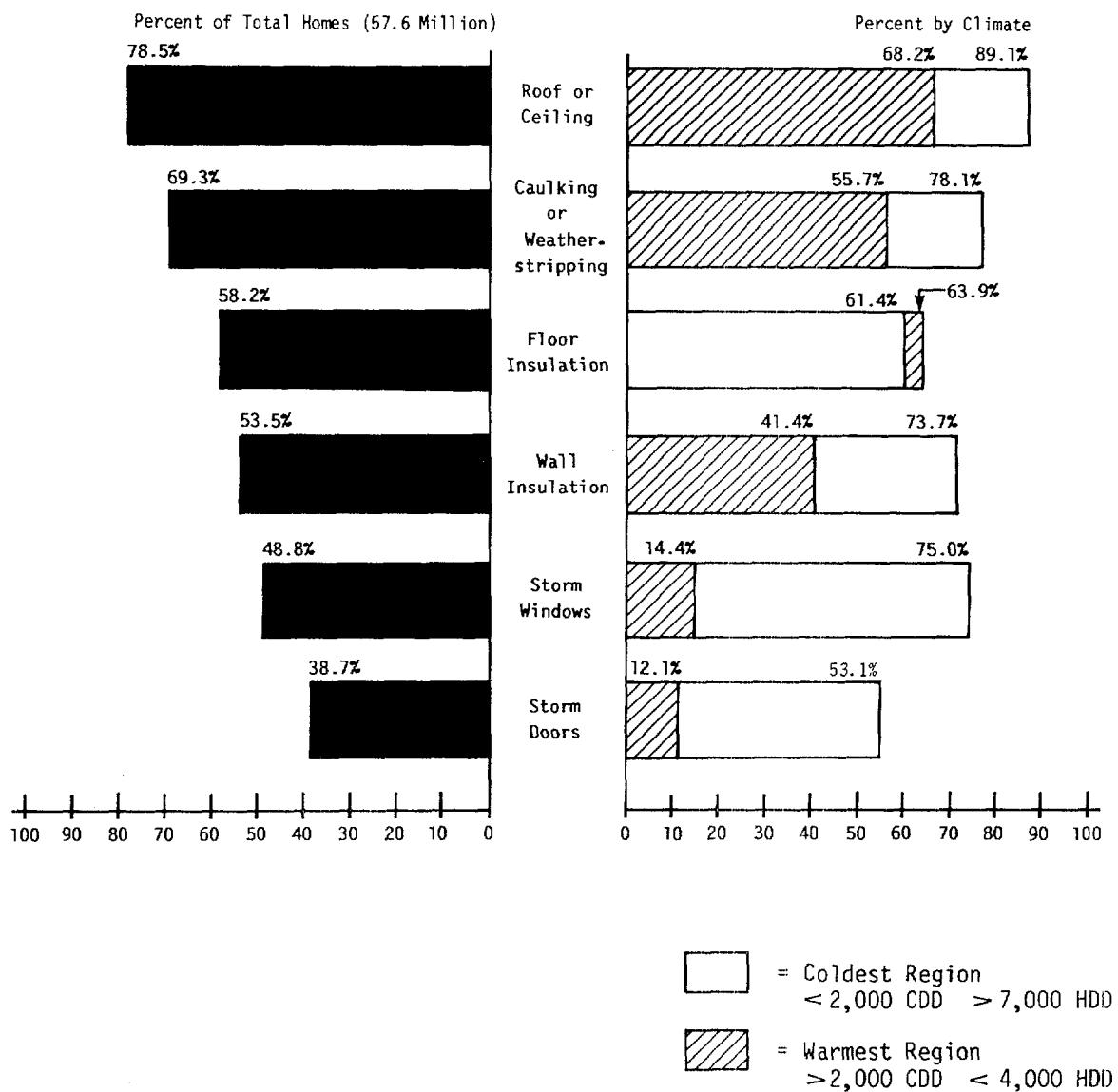
**Climate.** Climate is strongly associated with the incidence of conservation features (Table 13 and Figure 5). In the coldest weather zone, with more than 7,000 heating degree-days (HDD), almost 90 (±8) percent of homes have roof or ceiling insulation. In the warmest region, with fewer than 4,000 HDD and more than 2,000 cooling degree-days, slightly less than 70 (±10) percent of the households have such insulation. The colder the region, then, the more likely a household is to have roof or ceiling insulation.

**Figure 4. Conservation Features by Size of Single-Family Homes, 1984**



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

**Figure 5. Conservation Features by Total Single-Family Housing Units, Showing Regional Differences (Coldest and Warmest), 1984**



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Analysis of the data reveals similar patterns for the other conservation items. The frequency of homes with wall insulation ranges from 74 ( $\pm 11$ ) percent in the coldest zone to 41 ( $\pm 10$ ) percent in the warmest zones. Caulking or weatherstripping is found in 78 ( $\pm 10$ ) percent of homes in the coldest zone but in just 56 ( $\pm 10$ ) percent in the warmest zone. There is also a wide variation in the presence of storm windows and storm doors. Homes with storm windows range from a high of 75 ( $\pm 11$ ) percent in the coldest region to a low of 14 ( $\pm 7$ ) percent in the warmest region, while 53 ( $\pm 13$ ) percent of homes in the coldest region have storm doors but only 12 ( $\pm 6$ ) percent of homes in the warmest region have them.

**Age of Home.** The presence of conservation features varies significantly with the age of the house. There was a steady increase in the percentage of homes with attic, wall, and floor insulation as the age of the home decreased. For example, 93 ( $\pm 5$ ) percent of homes built after 1980 have roof or ceiling insulation, whereas 63 ( $\pm 4$ ) percent of homes built in 1939 or earlier have that type of insulation.

Surprisingly, the presence of storm windows and storm doors in relation to the age of the house follows a pattern different from other conservation features. Houses with storm windows on at least 90 percent of the windows show a U-shaped statistical pattern, with houses constructed before 1939 and after 1980 having significantly more windows covered with storm windows than houses constructed in the intervening years. But, in contrast to other conservation features, slightly more of the older homes than of the newer ones have at least 90 percent of the doors covered with storm doors.

**Ownership.** Home ownership is also an important factor affecting the presence of conservation features. In all categories except storm doors, housing units owned by the household occupying it are much more likely to have each type of conservation feature than those in which the occupants are renters (Figure 6). In some cases, homeowners are more than twice as likely to have a particular conservation feature than renters are.

## Socioeconomic Factors Affecting Conservation Features

The survey does reveal associations between the proportion of homes with various conservation features and the socioeconomic characteristics of the resident households (Table 14). There is some relationship between the associations discussed below and those discussed earlier. For example, higher income families are more likely to live in larger homes. Therefore, association between family income and the incidence of conservation measures is not due to income alone but also reflects the energy effects of the large house. Another example is that older people tend to live in older homes. However, no attempt is made here to determine the relative importance of these correlated factors.

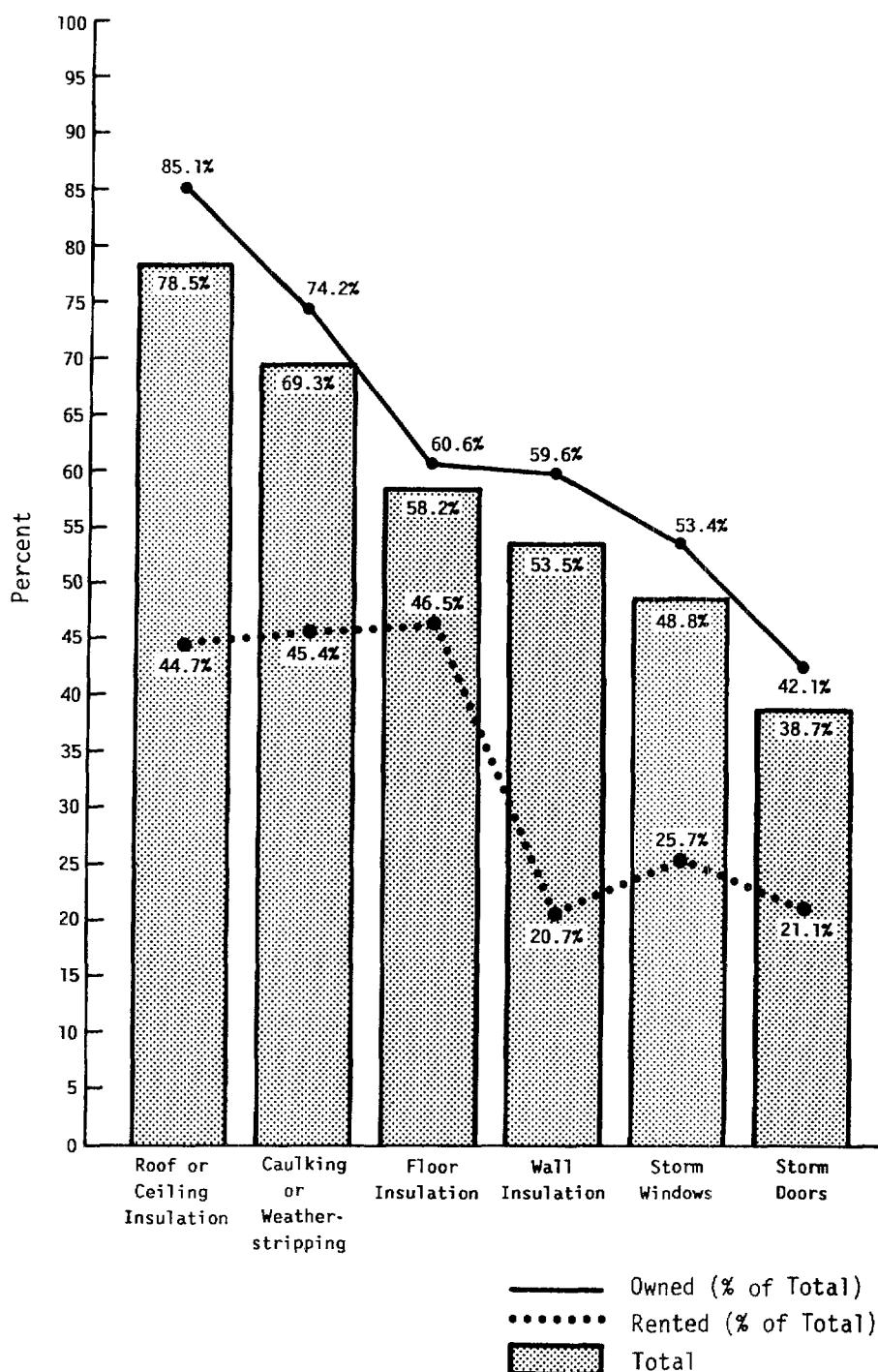
**Age of Householder.** The incidence of conservation features tends to increase with the increasing age of householders, up to middle age (35 to 44 years), when it reaches a peak (Table 14). The survey shows that conservation measures decline for householders of age 45 or older. This relationship between age and the presence of energy-saving measures holds true for all conservation items except for storm doors and storm windows.

**Race.** Among respondents of various races, white householders are more likely to have the conservation items under discussion than black householders or householders of other nonwhite races are. The disparities are quite substantial. For example, 81.7 ( $\pm 2.8$ ) percent of white householders have roof or ceiling insulation, versus 54.0 ( $\pm 7.8$ ) percent of black householders. Among other racial groups, 64.6 ( $\pm 15.0$ ) percent have roof or ceiling insulation.

**Education.** Only for householders who did not graduate from high school does the education of the householder make a difference in the presence or absence of conservation features. All conservation items except storm doors are less prevalent among householders who failed to finish high school.

**Income.** Family income is also an important determinant of household conservation measures. As family income increases, the percentage of homes having each conservation measure increases also (again, except for storm doors). Whereas about 50 ( $\pm 7$ ) percent of households with incomes less than \$5,000 have roof or ceiling insulation, some 88 ( $\pm 2$ ) percent of households with incomes of \$35,000 or more have such insulation. The range of differences between low and high-income households having wall insulation, floor insulation, and caulking or weatherstripping is similar to the range these income groups show for roof or ceiling insulation.

**Figure 6. Conservation Features by Total Single-Family Housing Units, Comparing Characteristics of Homeowners and Renters, 1984**



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey

**Table 14. Prevalence of Conservation Features by Characteristics of Single-Family Households, 1984**

Household Characteristics	Total Single-Family Units (millions)	Total Single-Family Housing Units with Conservation Features (percent)					
		Roof or Ceiling Insulation	Caulking or Weather-stripping	Floor Insulation*	Wall Insulation	Storm Windows#	Storm Doors**
Total .....	57.6 (±1.9)	78.5 (±2.7)	69.3 (±2.8)	58.2 (±2.7)	53.5 (±2.7)	48.8 (±2.6)	38.7 (±2.4)
Age of Householder							
Under 25 Years .....	2.3 (±0.9)	67.7 (±8.4)	50.3 (±8.9)	55.7 (±9.1)	38.0 (±8.6)	34.0 (±8.4)	29.6 (±4.0)
25 to 34 Years .....	11.7	77.6	69.1	57.2	54.7	48.3	35.0
35 to 44 Years .....	12.6	83.5	78.2	65.2	62.4	48.8	35.1
45 to 59 Years .....	13.4	79.9	71.5	62.4	55.9	50.4	40.1
60 Years and Over .....	17.7 (±2.5)	76.1 (±1.6)	64.0 (±3.6)	51.0 (±3.6)	46.4 (±3.7)	49.7 (±3.7)	44.0 (±3.6)
Race of Householder							
White .....	50.5 (±2.2)	81.7 (±2.8)	72.2 (±3.2)	59.7 (±2.9)	56.5 (±2.9)	51.8 (±3.0)	40.5 (±2.8)
Black .....	5.8 (±0.9)	54.0 (±7.8)	48.0 (±7.6)	46.9 (±7.7)	32.1 (±7.0)	29.9 (±7.0)	28.6 (±6.7)
Other .....	1.3	64.6	51.2	49.7	28.5	15.5	14.7
Family Income							
Less Than \$5,000 .....	4.2 (±0.6)	51.2 (±7.0)	40.8 (±7.0)	33.6 (±6.7)	28.4 (±6.3)	30.7 (±6.4)	29.8 (±6.2)
\$5,000 to \$19,999 .....	19.1 (±1.3)	74.3 (±11.3)	61.8 (±11.0)	49.7 (±9.0)	45.0 (±9.2)	42.9 (±8.8)	40.3 (±8.0)
\$20,000 to \$34,999 .....	16.8	83.3	75.6	61.9	59.5	54.8	42.9
\$35,000 or More .....	15.8	88.0	81.3	72.2	66.1	54.8	35.6
Education of Householder							
Less Than High School .....	14.7 (±1.3)	65.8 (±4.3)	53.5 (±4.5)	46.7 (±4.4)	42.8 (±4.4)	42.3 (±4.3)	41.1 (±4.3)
High School Graduate and Above .....	38.2 (±2.0)	81.9 (±2.2)	73.0 (±2.5)	61.0 (±2.7)	56.5 (±2.6)	50.8 (±2.7)	39.3 (±2.7)

\*Households that have floor insulation or do not need it, either because the basement is heated or because there is no basement or crawl space.

#Households with storm windows on at least 90 percent of the windows.

\*\*Households with storm doors on at least 90 percent of the outside doors.

Notes: •Because of rounding, data may not add up to totals. •Percentages are calculated on unrounded numbers. •Households not counted in the percentages displayed in this table include those responding that they did not have the conservation item, those responding that they did not know, and those for whom no answer was recorded in the interview. •The number in parentheses is two standard errors and applies to the estimate above it and to estimates based on a similar number of households. In cases where standard errors are not provided for certain estimates it is because their standard errors closely approximate those that are provided in the same column categories.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.



# Tax Credits for Energy-Saving Home Improvements Are Seldom Claimed

In the 1984 Residential Energy Consumption Survey, households that made conservation improvements in 1983 were asked whether or not they took a tax credit on their 1983 tax returns. For those making a claim, a further question sought to ascertain whether the conservation item would have been installed in the absence of a tax credit. For those not making a claim, further questions probed for the reasons (Table 15).<sup>9</sup>

**Table 15. Factors Related to Household Use of Tax Credits for Energy-Conservation Improvements, by Income Group (Percent)**

Households That Made at Least One Energy-Conservation Improvement in 1983	Total	Family Income				
		Less than \$10,000	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$29,999	\$30,000 or More
Percent of Homes That Claimed a Tax Credit on 1983 Return	17 (±3)	9 (±4)	11 (±5)	17 (±8)	21 (±7)	26 (±5)
Percent of Homes That Claimed a Tax Credit but Still Would Have Made All the Same Improvements Even If the Tax Credit Had Not Been Available	88 (±6)	100	89 (±14)	93 (±12)	84 (±11)	88 (±7)
Percent of Homes That Made a Conservation Improvement but Did Not Claim a Tax Credit, for Particular Reasons*						
Didn't Know About the Credit	26 (±4)	38 (±8)	37 (±9)	30 (±9)	20 (±6)	19 (±5)
Amount Too Small To Claim	23 (±3)	18 (±6)	16 (±6)	22 (±8)	22 (±6)	28 (±6)
Didn't File the Long Form	21 (±3)	34 (±8)	28 (±9)	28 (±9)	19 (±5)	12 (±4)
Too Much Trouble To File Tax-Credit Forms	14 (±3)	14 (±6)	15 (±6)	12 (±6)	14 (±5)	15 (±4)
Took the Maximum Credit in Previous Years	5 (±2)	Q	Q	NC	8 (±4)	7 (±3)
Ineligible Because House Was Built After April 1977	4 (±1)	Q	Q	Q	Q	Q
No 1983 Tax Filed	2 (±1)	7 (±4)	Q	Q	Q	Q
Percent Giving at Least One Reason	85 (±3)	86 (±6)	87 (±6)	83 (±8)	81 (±6)	86 (±4)

\*More than one reason may have been selected.

Q=Data withheld because of a large variance.

NC=No cases in sample.

Note: The number in parentheses is two standard errors.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

<sup>9</sup>These data were published in preliminary form in an overall report on residential energy tax credits: *An Evaluation of Energy Conservation and Renewable Energy Tax Credits*, Office of Energy Markets and End Use, Energy Information Administration, October 1985 (Service Report).

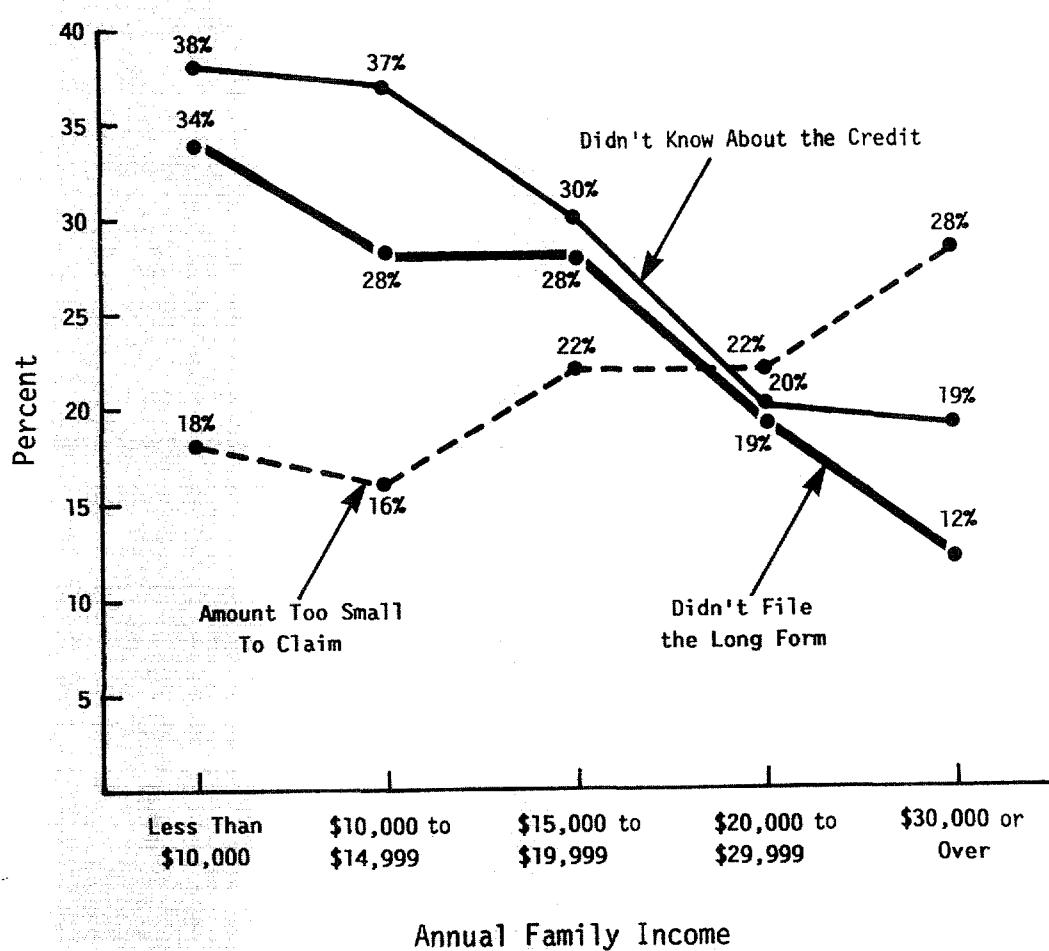
Analysis of the data indicates that a large majority of all households that made conservation improvements in 1983 did not claim a tax credit (Table 15). Among households that did claim a tax credit for taking conservation measures, there is a significant variation by income. About 10 ( $\pm 5$ ) percent of households with incomes of less than \$15,000 that made some conservation improvement claimed a tax credit. On the other hand, among households with incomes greater than \$30,000, about 26 ( $\pm 5$ ) percent claimed a tax credit. Of all households that claimed the credit in 1983, 57 ( $\pm 7$ ) percent had incomes of \$30,000 or more.

Reasons given by households for not claiming a tax credit underscore the differences between lower and higher income households (Figure 7). Lower income households often did not claim tax credits for making energy-saving home improvements because (1) they simply did not know about the tax credit, or (2) they did not file the long income-tax form necessary to claim the tax credit.

Higher income households most often indicated that they did not claim a tax credit because the monetary amount was too small to bother with--although other reasons were also cited. Respondents in a few of the higher income groups said they had claimed the maximum credit in previous years.

Households were asked whether they would have made the same home improvements even if the tax credit had not been available. An overwhelming majority, 88 ( $\pm 6$ ) percent of households that made improvements, said that they would have made the same investment without the credit; this intention did not differ according to household income. Lower income households were just as likely as higher income households to say they would have made the improvement regardless of the availability of the tax credit.

**Figure 7. Major Reasons Households Did Not Claim a Tax Credit for Home Improvements in 1983**



Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.



## **Detailed Statistics Tables, 1984**

**Table 16. Housing Characteristics by Census Region and Metropolitan Status, as of November 1984 (Million Households)**

Household Characteristics	Census Region						Metropolitan Status		
	Total	Northeast	North Central	South	West	Total	Metropolitan		
							Central City	Outside Central City	Non-Metropolitan
<b>Total Households</b>	86.3	18.3	21.6	29.3	17.1	65.7	30.6	35.1	20.6
<b>Weather Zone</b>									
Fewer than 2,000 CDD and--									
More than 7,000 HDD	9.0	1.9	5.5	--	1.7	4.0	2.1	1.9	5.0
5,500 to 7,000 HDD	21.5	8.1	11.7	NC	1.8	18.2	8.0	10.2	3.3
4,000 to 5,499 HDD	22.5	8.4	4.5	6.4	3.2	17.6	7.9	9.6	4.9
Fewer than 4,000 HDD	20.0	--	NC	10.7	9.3	15.6	7.4	8.2	4.3
More than 2,000 CDD and									
Fewer than 4,000 HDD	13.3	--	--	12.2	1.1	10.2	5.1	5.1	3.1
<b>Measured Heated Area of Residence (square feet)</b>									
Fewer than 600	8.3	2.2	1.5	2.7	1.9	6.3	3.9	2.3	2.1
600 to 999	23.5	3.9	6.3	8.3	5.1	17.8	9.5	8.4	5.7
1,000 to 1,599	24.9	4.2	4.9	10.0	5.8	18.1	8.6	9.5	6.8
1,600 to 1,999	11.5	2.6	2.9	4.1	2.0	8.8	3.4	5.4	2.7
2,000 to 2,399	7.4	2.2	2.3	1.9	1.0	5.8	2.0	3.8	1.5
2,400 to 2,999	5.8	1.4	2.3	1.3	.8	4.7	1.6	3.1	1.1
3,000 or More	4.9	1.7	1.5	1.0	.6	4.1	1.5	2.6	.8
<b>Payment Method for Utilities</b>									
All Paid by Household	70.6	13.0	17.2	26.3	14.0	51.5	21.3	30.2	19.0
Some Paid, Some in Rent	9.2	3.2	3.2	1.0	1.8	8.6	5.5	3.1	.6
All Included in Rent	4.3	1.2	.8	1.6	.8	3.6	2.8	.8	.7
Other Method	2.2	.9	.4	.5	.5	1.9	1.0	.9	.3
<b>Status of Unit</b>									
Owned	55.3	12.1	14.3	18.8	10.1	40.2	15.4	24.8	15.1
Rented	31.0	6.2	7.3	10.5	7.0	25.4	15.2	10.2	5.6
<b>Housing Structure</b>									
Single-Family Detached	53.5	9.1	13.7	20.7	10.0	37.8	14.0	23.7	15.7
Owned	45.0	8.5	12.0	16.4	8.1	32.2	11.5	20.7	12.8
Rented	8.5	.6	1.7	4.3	1.9	5.6	2.5	3.1	2.9
Single-Family Attached	4.1	1.8	.9	1.1	.3	3.8	2.3	1.5	.3
Owned	2.8	1.4	.6	.6	.2	2.6	1.5	1.1	.2
Rented	1.2	.3	.3	.5	Q	1.2	.8	.4	Q
Building of 2 to 4 Units	10.0	3.2	2.8	1.7	2.3	8.9	5.6	3.2	1.2
Owned	2.0	1.1	.6	Q	.2	1.9	1.1	.7	Q
Rented	8.0	2.1	2.3	1.6	2.1	7.0	4.5	2.5	1.0
Building of 5 or More Units	13.6	3.6	3.1	3.5	3.4	12.6	8.2	4.4	1.0
Owned	1.4	.5	Q	Q	.7	1.4	.9	.5	Q
Rented	12.2	3.1	3.0	3.5	2.7	11.2	7.3	3.9	1.0
Mobile Home	5.1	.7	1.1	2.3	1.0	2.7	.5	2.2	2.4
Owned	4.1	.6	1.0	1.6	.8	2.2	.4	1.8	1.9
Rented	1.1	Q	Q	.7	.2	.5	Q	.4	.6
<b>Year of Construction</b>									
1939 or Before	25.2	8.7	8.0	5.3	3.1	18.4	11.5	6.9	6.8
1940 to 1949	7.0	1.4	1.6	2.5	1.5	5.6	3.3	2.3	1.4
1950 to 1959	12.6	2.5	2.6	4.6	2.9	10.4	4.2	6.3	2.2
1960 to 1964	7.5	1.2	1.4	3.2	1.7	5.8	2.3	3.5	1.7
1965 to 1969	8.2	1.3	1.5	3.6	1.8	6.4	2.5	3.9	1.8
1970 to 1974	10.7	1.4	2.6	4.8	1.8	8.1	2.9	5.2	2.6
1975 to 1979	10.1	1.1	3.0	3.4	2.7	7.3	2.3	5.0	2.8
1980 or After	5.0	.6	.8	2.0	1.6	3.6	1.6	2.0	1.4
<b>1984 Family Income</b>									
Less than \$5,000	7.9	1.1	2.2	3.5	1.1	5.3	3.5	1.8	2.6
\$5,000 to \$9,999	14.0	3.0	3.9	4.8	2.2	9.2	4.9	4.3	4.8
\$10,000 to \$14,999	13.1	2.3	3.1	4.7	3.0	9.8	5.3	4.6	3.2
\$15,000 to \$19,999	9.0	1.8	2.4	3.2	1.5	6.8	3.3	3.5	2.2
\$20,000 to \$24,999	8.4	2.0	2.4	2.3	1.7	6.4	2.8	3.6	2.0
\$25,000 to \$34,999	15.3	3.3	3.7	4.9	3.3	12.1	5.4	6.7	3.2
\$35,000 or More	18.7	4.8	4.0	5.8	4.2	16.1	5.5	10.6	2.6

See footnotes at end of table.

**Table 16. Housing Characteristics by Census Region and Metropolitan Status,  
as of November 1984 (Continued)  
(Million Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				Non-Metropolitan	
		Northeast	North Central	South	West	Metropolitan					
						Total	Central City	Outside Central City			
<b>Below 100% of Poverty</b>	13.7	2.0	3.5	5.9	2.3	8.9	5.2	3.7	4.8		
<b>Below 125% of Poverty</b>	19.6	3.1	5.1	8.2	3.1	12.8	7.2	5.6	6.8		
<b>Age of Householder</b>											
Under 25 Years	6.8	1.0	1.8	2.5	1.6	5.4	2.9	2.6	1.4		
25 to 34 Years	20.7	3.5	5.4	7.2	4.6	16.0	8.3	7.7	4.7		
35 to 44 Years	16.8	4.0	3.7	5.3	3.8	13.6	5.4	8.2	3.2		
45 to 59 Years	17.2	4.1	4.1	6.2	2.8	13.1	5.8	7.4	4.1		
60 Years and Over	24.8	5.7	6.7	8.1	4.3	17.5	8.3	9.2	7.3		
<b>Race of Householder</b>											
White	72.7	15.5	19.3	23.3	14.5	54.7	22.8	32.0	18.0		
Black	10.5	2.2	1.8	5.6	1.0	8.3	6.0	2.3	2.2		
Other	3.1	.6	.5	.4	1.6	2.6	1.8	.8	.4		
<b>Householder of Hispanic Descent</b>											
Yes	4.4	1.1	.4	1.1	1.8	4.0	2.4	1.5	.4		
No	81.9	17.2	21.2	28.2	15.3	61.7	28.2	33.6	20.2		
<b>Household Size</b>											
1 Person	20.4	4.1	6.1	6.1	4.1	16.1	9.0	7.1	4.3		
2 Persons	26.6	5.7	6.2	9.0	5.6	20.0	9.3	10.7	6.6		
3 Persons	15.4	3.3	3.3	6.1	2.7	11.7	4.8	6.9	3.8		
4 Persons	13.6	2.9	3.7	4.8	2.2	9.9	4.6	5.3	3.6		
5 Persons	6.3	1.4	1.5	2.1	1.3	4.8	1.7	3.1	1.5		
6 or More Persons	4.1	.8	.8	1.3	1.2	3.2	1.2	2.0	.9		

NC No cases in sample.

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 17. Housing Characteristics by Census Region and Metropolitan Status,  
as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan			
						Total	Central City	Outside Central City	Non- Metropolitan
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Weather Zone</b>									
Fewer than 2,000 CDD and--									
More than 7,000 HDD	10.4	10.1	25.2	--	10.0	6.1	6.9	5.5	24.1
5,500 to 7,000 HDD	24.9	44.1	54.0	NC	10.5	27.7	26.2	29.0	16.1
4,000 to 5,499 HDD	26.1	45.8	20.8	22.0	18.6	26.8	25.9	27.5	23.8
Fewer than 4,000 HDD	23.1	--	NC	36.5	54.2	23.8	24.3	23.4	20.9
More than 2,000 CDD and									
Fewer than 4,000 HDD	15.4	--	--	41.5	6.7	15.6	16.6	14.6	15.0
<b>Measured Heated Area of Residence (square feet)</b>									
Fewer than 600	9.6	12.1	6.8	9.2	11.3	9.5	12.9	6.6	9.9
600 to 999	27.2	21.1	29.3	28.2	29.6	27.2	31.0	23.8	27.5
1,000 to 1,599	28.9	23.1	22.8	34.2	33.7	27.6	28.2	27.1	33.0
1,600 to 1,999	13.3	14.2	13.2	13.9	11.6	13.4	11.1	15.4	13.0
2,000 to 2,399	8.6	12.0	10.5	6.6	5.7	8.9	6.7	10.8	7.5
2,400 to 2,999	6.7	7.9	10.6	4.4	4.5	7.2	5.2	8.8	5.3
3,000 or More	5.6	9.5	6.8	3.5	3.6	6.2	4.9	7.4	3.8
<b>Payment Method for Utilities</b>									
All Paid by Household	81.8	71.1	79.6	89.7	82.2	78.5	69.8	86.1	92.2
Some Paid, Some in Rent	10.6	17.7	14.7	3.3	10.5	13.1	17.9	9.0	2.7
All Included in Rent	5.0	6.3	3.9	5.3	4.5	5.5	9.2	2.4	3.4
Other Method	2.6	4.9	1.8	1.6	2.7	2.9	3.2	2.6	1.7
<b>Status of Unit</b>									
Owned	64.1	66.0	66.2	64.2	59.1	61.3	50.3	70.8	72.9
Rented	35.9	34.0	33.8	35.8	40.9	38.7	49.7	29.2	27.1
<b>Housing Structure</b>									
Single-Family Detached	62.0	49.6	63.5	70.6	58.6	57.5	45.9	67.6	76.3
Owned	52.2	46.2	55.6	55.9	47.6	49.0	37.6	58.9	62.2
Rented	9.8	3.4	7.8	14.6	11.0	8.5	8.3	8.7	14.1
Single-Family Attached	4.7	9.7	4.0	3.7	2.0	5.8	7.4	4.3	1.3
Owned	3.3	7.9	2.7	2.0	1.1	4.0	4.9	3.2	1.0
Rented	1.4	1.8	1.2	1.7	Q	1.8	2.5	1.1	Q
Building of 2 to 4 Units	11.6	17.6	13.0	5.8	13.4	13.5	18.4	9.2	5.6
Owned	2.3	6.1	2.6	Q	1.2	2.8	3.6	2.1	Q
Rented	9.3	11.5	10.4	5.4	12.2	10.7	14.7	7.1	5.1
Building of 5 or More Units	15.7	19.5	14.3	12.0	19.9	19.1	26.8	12.5	4.9
Owned	1.6	2.7	Q	Q	4.3	2.1	2.8	1.4	Q
Rented	14.1	16.8	13.9	11.8	15.6	17.1	24.0	11.1	4.8
Mobile Home	5.9	3.6	5.3	7.9	6.0	4.1	1.5	6.3	11.8
Owned	4.7	3.1	4.8	5.6	4.8	3.4	1.4	5.1	9.0
Rented	1.2	Q	Q	2.3	1.2	.7	Q	1.2	2.9
<b>Year of Construction</b>									
1939 or Before	29.2	47.8	37.2	18.1	18.0	28.0	37.5	19.7	32.8
1940 to 1949	8.1	7.6	7.5	8.5	8.7	8.5	10.8	6.5	7.0
1950 to 1959	14.6	13.8	12.1	15.6	17.0	15.9	13.7	17.9	10.6
1960 to 1964	8.6	6.6	6.5	10.8	9.9	8.8	7.5	9.9	8.2
1965 to 1969	9.5	7.2	7.0	12.2	10.7	9.8	8.2	11.2	8.7
1970 to 1974	12.4	7.6	12.2	16.4	10.7	12.3	9.5	14.8	12.4
1975 to 1979	11.7	6.1	13.7	11.5	15.7	11.2	7.5	14.4	13.5
1980 or After	5.8	3.2	3.7	7.0	9.3	5.5	5.3	5.7	6.8
<b>1984 Family Income</b>									
Less than \$5,000	9.2	6.0	10.0	12.0	6.6	8.1	11.4	5.1	12.7
\$5,000 to \$9,999	16.2	16.6	17.9	16.5	13.0	14.0	16.0	12.2	23.2
\$10,000 to \$14,999	15.2	12.5	14.1	16.2	17.5	15.0	17.2	13.1	15.7
\$15,000 to \$19,999	10.4	10.1	11.3	10.9	9.0	10.3	10.8	9.9	10.8
\$20,000 to \$24,999	9.7	10.7	11.1	7.8	9.9	9.7	9.1	10.3	9.5
\$25,000 to \$34,999	17.7	18.1	17.2	16.8	19.5	18.4	17.6	19.0	15.7
\$35,000 or More	21.7	26.0	18.5	19.7	24.5	24.6	18.0	30.3	12.5

See footnotes at end of table.

**Table 17. Housing Characteristics by Census Region and Metropolitan Status, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				Non-Metropolitan	
		Northeast	North Central	South	West	Metropolitan					
						Total	Central City	Outside Central City			
<b>Below 100% of Poverty</b>	15.8	10.7	16.4	20.1	13.3	13.5	17.1	10.4	23.3		
<b>Below 125% of Poverty</b>	22.7	17.2	23.7	28.0	18.1	19.5	23.5	15.9	33.0		
<b>Age of Householder</b>											
Under 25 Years	7.9	5.5	8.1	8.4	9.2	8.3	9.4	7.3	6.6		
25 to 34 Years	24.0	19.3	24.9	24.6	26.6	24.4	27.1	22.0	22.6		
35 to 44 Years	19.5	21.7	17.2	18.1	22.4	20.7	17.5	23.4	15.7		
45 to 59 Years	20.0	22.4	19.0	21.2	16.6	20.0	18.9	21.0	19.9		
60 Years and Over	28.7	31.1	30.8	27.7	25.1	26.6	27.2	26.2	35.2		
<b>Race of Householder</b>											
White	84.2	84.9	89.4	79.6	84.9	83.3	74.4	91.1	87.0		
Black	12.2	11.8	8.5	19.0	5.7	12.6	19.7	6.5	10.9		
Other	3.6	3.2	2.1	1.5	9.4	4.0	5.9	2.4	2.1		
<b>Householder of Hispanic Descent</b>											
Yes	5.1	5.9	1.8	3.9	10.4	6.0	8.0	4.4	2.0		
No	94.9	94.1	98.2	96.1	89.6	94.0	92.0	95.6	98.0		
<b>Household Size</b>											
1 Person	23.6	22.7	28.1	20.7	23.9	24.5	29.5	20.1	20.7		
2 Persons	30.8	31.4	28.7	30.7	32.9	30.5	30.4	30.6	31.7		
3 Persons	17.9	17.9	15.5	20.7	15.9	17.7	15.6	19.6	18.2		
4 Persons	15.7	15.7	17.0	16.4	12.9	15.1	15.0	15.2	17.6		
5 Persons	7.3	7.8	6.9	7.0	7.5	7.3	5.5	8.8	7.3		
6 or More Persons	4.8	4.5	3.8	4.5	6.9	4.9	4.0	5.7	4.5		

NC No cases in sample.

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 18. Housing Characteristics by Year of Construction, as of November 1984  
(Million Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	86.3	5.0	10.1	10.7	8.2	7.5	12.6	7.0	25.2
<b>Weather Zone</b>									
Fewer than 2,000 CDD and--									
More than 7,000 HDD	9.0	.7	1.4	1.4	.6	.6	1.0	.5	2.8
5,500 to 7,000 HDD	21.5	1.1	2.6	2.2	1.7	1.0	2.6	1.4	8.9
4,000 to 5,499 HDD	22.5	.9	1.8	2.4	1.9	2.1	3.5	1.9	8.0
Fewer than 4,000 HDD	20.0	1.2	2.5	2.5	2.7	2.1	3.4	2.0	3.5
More than 2,000 CDD and									
Fewer than 4,000 HDD	13.3	1.2	1.8	2.1	1.4	1.6	2.1	1.2	1.9
<b>Measured Heated Area of Residence (square feet)</b>									
Fewer than 600	8.3	.4	1.0	.9	.8	.6	.9	.7	3.0
600 to 999	23.5	1.5	2.8	3.7	2.3	2.0	3.3	1.9	6.0
1,000 to 1,599	24.9	1.5	2.5	2.8	2.6	2.5	3.9	2.1	7.0
1,600 to 1,999	11.5	.8	1.4	1.1	1.0	1.0	1.9	.9	3.5
2,000 to 2,399	7.4	.3	1.1	1.0	.5	.5	1.2	.6	2.2
2,400 to 2,999	5.8	.2	.9	.7	.4	.5	.8	.5	1.7
3,000 or More	4.9	.2	.5	.5	.7	.4	.5	.3	1.8
<b>Payment Method for Utilities</b>									
All Paid by Household	70.6	4.4	8.2	8.6	6.6	5.9	11.1	5.9	19.9
Some Paid, Some in Rent	9.2	.5	1.3	1.4	.8	1.0	.7	.5	3.0
All Included in Rent	4.3	Q	.5	.4	.7	.5	.5	.4	1.2
Other Method	2.2	Q	Q	.2	.2	Q	.2	.2	1.1
<b>Status of Unit</b>									
Owned	55.3	3.2	6.5	6.6	5.3	4.6	9.2	4.6	15.2
Rented	31.0	1.9	3.6	4.1	2.9	2.9	3.4	2.4	10.0
<b>Housing Structure</b>									
Single-Family Detached	53.5	2.5	5.0	5.0	5.0	4.8	10.0	5.1	16.0
Single-Family Attached	4.1	.3	.5	.4	.2	.2	.4	.3	1.7
Building of 2 to 4 Units	10.0	.5	.7	.6	.7	1.0	1.1	1.0	4.6
Building of 5 or More Units	13.6	1.2	2.6	2.8	1.5	1.1	.9	.6	2.9
Mobile Home	5.1	.5	1.2	1.9	.9	.3	.2	Q	Q
<b>1984 Family Income</b>									
Less than \$5,000	7.9	Q	.6	.8	.8	.4	1.0	.7	3.4
\$5,000 to \$9,999	14.0	.7	1.3	1.3	1.2	1.3	1.7	1.2	5.2
\$10,000 to \$14,999	13.1	.6	1.2	1.8	1.1	1.3	2.2	1.0	4.0
\$15,000 to \$19,999	9.0	.4	.9	1.1	.7	.7	1.6	.8	2.7
\$20,000 to \$24,999	8.4	.5	1.1	1.2	.6	.7	1.2	.8	2.2
\$25,000 to \$34,999	15.3	1.0	2.1	1.9	1.7	1.3	1.9	1.3	4.0
\$35,000 or More	18.7	1.6	2.9	2.5	2.1	1.7	3.1	1.1	3.7
<b>Below 100% of Poverty</b>	13.7	.3	1.2	1.6	1.3	1.0	1.7	1.1	5.5
<b>Below 125% of Poverty</b>	19.6	.8	1.7	2.3	1.7	1.6	2.6	1.6	7.4
<b>Age of Householder</b>									
Under 25 Years	6.8	.5	1.0	1.0	.7	.6	.9	.4	1.6
25 to 34 Years	20.7	2.3	3.0	2.7	1.4	1.4	2.5	1.3	6.1
35 to 44 Years	16.8	1.1	2.6	2.5	1.7	1.5	2.1	1.1	4.2
45 to 59 Years	17.2	.6	1.3	2.0	2.4	1.8	2.9	1.5	4.9
60 Years and Over	24.8	.6	2.2	2.5	2.1	2.1	4.2	2.7	8.3
<b>Race of Householder</b>									
White	72.7	4.4	9.3	9.1	7.0	6.2	10.8	5.7	20.1
Black	10.5	.3	.6	1.2	1.0	1.0	1.5	1.1	3.8
Other	3.1	.2	.2	.3	.3	.3	.3	.2	1.2
<b>Householder of Hispanic Descent</b>									
Yes	4.4	.3	.2	.4	.3	.5	.6	.5	1.5
No	81.9	4.7	9.9	10.3	7.9	7.0	12.0	6.5	23.6

See footnotes at end of table.

**Table 18. Housing Characteristics by Year of Construction, as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Household Size</b>									
1 Person .....	20.4	1.2	2.0	2.7	1.9	1.4	2.4	1.8	6.9
2 Persons .....	26.6	1.7	3.2	2.9	2.4	2.2	4.5	2.5	7.2
3 Persons .....	15.4	1.0	1.8	1.7	1.3	1.5	2.7	1.1	4.3
4 Persons .....	13.6	.7	1.8	1.9	1.3	1.2	1.6	.9	4.1
5 Persons .....	6.3	.2	1.0	.8	.8	.8	.8	.4	1.5
6 or More Persons .....	4.1	.2	.4	.7	.5	.4	.6	.3	1.1

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 19. Housing Characteristics by Year of Construction, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Weather Zone</b>									
Fewer than 2,000 CDD and--									
More than 7,000 HDD .....	10.4	13.9	14.0	13.5	6.8	8.3	7.7	7.0	11.2
5,500 to 7,000 HDD .....	24.9	21.1	25.4	20.8	20.1	13.6	20.9	20.4	35.4
4,000 to 5,499 HDD .....	26.1	17.1	18.0	22.3	22.6	28.1	28.1	27.1	31.9
Fewer than 4,000 HDD .....	23.1	24.6	25.1	23.2	33.4	28.0	26.9	28.1	13.9
More than 2,000 CDD and									
Fewer than 4,000 HDD .....	15.4	23.2	17.5	20.1	17.1	21.9	16.5	17.4	7.5
<b>Measured Heated Area of Residence (square feet)</b>									
Fewer than 600 .....	9.6	8.9	10.1	8.0	9.4	8.7	7.2	10.2	11.7
600 to 999 .....	27.2	30.8	27.5	34.5	27.9	26.4	26.4	27.2	23.8
1,000 to 1,599 .....	28.9	30.0	24.3	26.4	31.4	33.3	31.0	30.6	28.0
1,600 to 1,999 .....	13.3	15.5	14.0	9.9	12.0	12.8	15.3	12.2	13.9
2,000 to 2,399 .....	8.6	6.0	10.5	9.8	6.5	6.4	9.3	8.4	8.8
2,400 to 2,999 .....	6.7	4.5	8.7	6.7	4.7	7.1	6.5	7.3	6.9
3,000 or More .....	5.6	4.3	5.0	4.7	8.0	5.4	4.3	4.1	7.0
<b>Payment Method for Utilities</b>									
All Paid by Household .....	81.8	87.7	81.1	80.5	79.6	78.8	88.3	84.3	79.1
Some Paid, Some in Rent .....	10.6	9.6	12.7	13.4	9.1	13.1	5.8	7.2	12.0
All Included in Rent .....	5.0	Q	5.4	4.0	8.6	6.2	4.1	5.9	4.6
Other Method .....	2.6	Q	Q	2.1	2.6	Q	1.8	2.7	4.4
<b>Status of Unit</b>									
Owned .....	64.1	63.1	64.5	62.0	64.3	61.7	72.9	66.4	60.5
Rented .....	35.9	36.9	35.5	38.0	35.7	38.3	27.1	33.6	39.5
<b>Housing Structure</b>									
Single-Family Detached .....	62.0	49.3	49.8	47.3	60.3	64.9	79.1	73.1	63.7
Single-Family Attached .....	4.7	6.3	5.2	3.7	2.2	3.2	3.3	4.7	6.6
Building of 2 to 4 Units .....	11.6	9.4	7.0	5.2	8.4	12.7	8.8	13.7	18.1
Building of 5 or More Units .....	15.7	24.3	25.8	26.0	17.7	15.3	7.0	8.5	11.6
Mobile Home .....	5.9	10.8	12.2	17.8	11.3	3.9	1.9	Q	Q
<b>1984 Family Income</b>									
Less than \$5,000 .....	9.2	Q	6.2	7.4	10.3	6.0	7.9	10.6	13.3
\$5,000 to \$9,999 .....	16.2	14.6	12.8	12.0	14.8	17.6	13.5	17.4	20.6
\$10,000 to \$14,999 .....	15.2	12.2	11.4	17.3	13.3	16.8	17.0	14.3	15.8
\$15,000 to \$19,999 .....	10.4	8.7	9.3	10.8	8.2	9.4	12.9	12.0	10.5
\$20,000 to \$24,999 .....	9.7	10.4	10.5	11.3	7.7	9.9	9.4	11.5	8.8
\$25,000 to \$34,999 .....	17.7	20.6	21.1	17.4	20.1	17.5	15.1	19.2	16.1
\$35,000 or More .....	21.7	31.6	28.8	23.8	25.7	22.8	24.2	15.1	14.9
<b>Below 100% of Poverty</b> .....	15.8	6.0	11.7	14.7	15.7	13.1	13.8	15.9	21.8
<b>Below 125% of Poverty</b> .....	22.7	15.3	16.6	21.1	20.2	22.1	20.4	23.0	29.4
<b>Age of Householder</b>									
Under 25 Years .....	7.9	10.1	10.3	9.2	8.1	8.3	7.3	6.1	6.5
25 to 34 Years .....	24.0	46.0	29.4	25.7	17.2	19.1	19.5	17.9	24.2
35 to 44 Years .....	19.5	20.9	26.2	23.4	20.6	20.2	16.8	16.3	16.6
45 to 59 Years .....	20.0	11.5	12.5	18.4	29.1	23.7	22.9	21.1	19.6
60 Years and Over .....	28.7	11.4	21.6	23.4	25.1	28.8	33.5	38.7	33.1
<b>Race of Householder</b>									
White .....	84.2	88.3	92.1	85.6	84.6	82.8	85.9	81.0	80.0
Black .....	12.2	6.8	5.8	11.2	12.3	13.5	11.5	16.1	15.2
Other .....	3.6	4.8	2.0	3.1	3.1	3.7	2.6	2.9	4.9
<b>Householder of Hispanic Descent</b>									
Yes .....	5.1	6.6	2.0	3.6	4.0	6.7	5.0	6.7	6.1
No .....	94.9	93.4	98.0	96.4	96.0	93.3	95.0	93.3	93.9

See footnotes at end of table.

**Table 19. Housing Characteristics by Year of Construction, as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Household Size</b>									
1 Person .....	23.6	24.5	19.4	25.5	23.3	18.6	19.4	25.2	27.5
2 Persons .....	30.8	32.8	31.4	27.3	29.6	29.0	35.3	36.4	28.8
3 Persons .....	17.9	19.4	17.4	16.0	16.0	20.3	21.4	16.1	17.1
4 Persons .....	15.7	14.9	18.1	17.5	15.9	16.2	12.9	12.4	16.3
5 Persons .....	7.3	4.5	10.2	7.2	9.3	10.9	6.5	5.4	5.8
6 or More Persons .....	4.8	3.9	3.6	6.6	5.9	4.9	4.6	4.5	4.5

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 20. Housing Characteristics by Average Square Feet per Housing Unit, as of November 1984**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Total Households</b>	86.3	1,672	1,440	1,434	1,225	1,711	914	819	534	
<b>Census Region and Division</b>										
Northeast	18.3	1,914	1,601	1,862	1,407	2,062	939	826	591	
New England	4.3	2,108	1,666	2,127	1,481	2,086	1,071	Q	597	
Middle Atlantic	14.0	1,854	1,581	1,784	1,380	2,055	897	851	590	
North Central	21.6	1,811	1,561	1,646	1,322	1,849	987	860	602	
East North Central	15.2	1,783	1,540	1,594	1,296	1,843	1,015	865	601	
West North Central	6.4	1,876	1,610	1,750	1,406	1,861	892	846	605	
South	29.3	1,518	1,337	1,290	1,174	1,527	800	758	487	
South Atlantic	14.8	1,579	1,381	1,309	1,185	1,594	805	755	509	
East South Central	5.8	1,560	1,367	1,282	1,175	1,561	887	750	501	
West South Central	8.8	1,389	1,244	1,262	1,139	1,397	736	784	441	
West	17.1	1,503	1,289	1,280	1,113	1,535	913	905	475	
Mountain	4.5	1,548	1,356	1,300	1,132	1,600	847	835	492	
Pacific	12.6	1,486	1,265	1,280	1,104	1,507	927	959	468	
<b>Weather Zone</b>										
Fewer than 2,000 CDD and--										
More than 7,000 HDD	9.0	1,854	1,524	1,798	1,336	1,840	828	794	593	
5,500 to 7,000 HDD	21.5	1,918	1,634	1,780	1,408	1,999	1,016	906	609	
4,000 to 5,499 HDD	22.5	1,754	1,506	1,589	1,287	1,795	908	842	552	
Fewer than 4,000 HDD	20.0	1,433	1,270	1,208	1,106	1,492	886	795	468	
More than 2,000 CDD and--										
Fewer than 4,000 HDD	13.3	1,371	1,212	1,200	1,105	1,378	786	771	447	
<b>Measured Heated Area of Residence (square feet)</b>										
Fewer than 600	8.3	573	422	521	480	388	433	435	223	
600 to 999	23.5	925	801	840	800	836	776	789	343	
1,000 to 1,599	24.9	1,519	1,266	1,399	1,250	1,283	1,202	1,265	451	
1,600 to 1,999	11.5	2,118	1,789	1,961	1,792	1,795	1,727	Q	616	
2,000 to 2,399	7.4	2,485	2,179	2,376	2,160	2,180	2,158	Q	690	
2,400 to 2,999	5.8	2,960	2,642	2,886	2,628	2,641	2,664	Q	814	
3,000 or More	4.9	4,125	3,773	3,866	3,470	3,777	3,667	Q	1117	
<b>Payment Method for Utilities</b>										
All Paid by Household	70.6	1,844	1,569	1,660	1,368	1,721	1,029	844	559	
Some Paid, Some in Rent	9.2	818	794	734	732	1,461	781	Q	372	
All Included in Rent	4.3	813	775	723	698	1,145	722	Q	355	
Other Method	2.2	1,432	1,293	1,285	1,146	1,283	1,442	639	535	
<b>Status of Unit</b>										
Owned	55.3	2,031	1,724	1,898	1,564	1,811	1,530	853	612	
Rented	31.0	1,033	934	863	816	1,215	811	689	377	
<b>Housing Structure</b>										
Single-Family Detached	53.5	2,049	1,716	1,904	1,548	1,716	--	--	584	
Owned	45.0	2,160	1,811	2,018	1,658	1,811	--	--	623	
Rented	8.5	1,463	1,214	1,272	1,082	1,214	--	--	388	
Single-Family Attached	4.1	1,890	1,643	1,819	1,550	1,643	--	--	621	
Owned	2.8	2,098	1,826	1,961	1,710	1,826	--	--	721	
Rented	1.2	1,412	1,224	1,300	1,105	1,224	--	--	421	
Building of 2 to 4 Units	10.0	1,159	1,067	991	900	--	1,067	--	430	
Owned	2.0	1,843	1,680	1,708	1,540	--	1,680	--	649	
Rented	8.0	991	916	885	849	--	916	--	374	
Building of 5 or More Units	13.6	816	801	743	736	--	801	--	398	
Owned	1.4	1,375	1,317	1,260	1,242	--	1,317	--	658	
Rented	12.2	752	742	723	713	--	742	--	369	
Mobile Home	5.1	837	819	780	768	--	--	819	340	
Owned	4.1	871	853	804	784	--	--	853	353	
Rented	1.1	705	689	696	684	--	--	689	291	

See footnotes at end of table.

**Table 20. Housing Characteristics by Average Square Feet per Housing Unit, as of November 1984 (Continued)**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Year of Construction</b>										
1939 or Before .....	25.2	1,761	1,478	1,584	1,258	1,695	963	Q	566	
1940 to 1949 .....	7.0	1,596	1,387	1,400	1,224	1,541	850	Q	549	
1950 to 1959 .....	12.6	1,696	1,451	1,529	1,243	1,577	914	435	541	
1960 to 1964 .....	7.5	1,654	1,456	1,368	1,231	1,731	912	557	503	
1965 to 1969 .....	8.2	1,621	1,431	1,326	1,175	1,804	823	777	511	
1970 to 1974 .....	10.7	1,562	1,376	1,164	1,100	1,858	883	859	500	
1975 to 1979 .....	10.1	1,709	1,472	1,500	1,317	1,908	963	883	524	
1980 or After .....	5.0	1,543	1,353	1,300	1,206	1,753	834	913	530	
<b>1984 Family Income</b>										
Less than \$5,000 .....	7.9	1,146	979	1,003	833	1,121	838	696	453	
\$5,000 to \$9,999 .....	14.0	1,292	1,114	1,062	952	1,385	786	739	512	
\$10,000 to \$14,999 .....	13.1	1,350	1,158	1,100	991	1,393	864	849	460	
\$15,000 to \$19,999 .....	9.0	1,481	1,278	1,219	1,091	1,519	876	795	481	
\$20,000 to \$24,999 .....	8.4	1,680	1,421	1,475	1,249	1,693	970	895	513	
\$25,000 to \$34,999 .....	15.3	1,830	1,582	1,732	1,476	1,815	880	937	546	
\$35,000 or More .....	18.7	2,363	2,044	2,264	1,897	2,174	1,341	1,179	630	
<b>Below 100% of Poverty</b>										
Below 100% of Poverty .....	13.7	1,222	1,065	1,034	912	1,258	845	736	357	
<b>Below 125% of Poverty</b>										
Below 125% of Poverty .....	19.6	1,244	1,078	1,054	952	1,285	832	726	376	
<b>Age of Householder</b>										
Under 25 Years .....	6.8	1,028	914	836	805	1,179	780	760	357	
25 to 34 Years .....	20.7	1,459	1,266	1,200	1,074	1,583	857	844	429	
35 to 44 Years .....	16.8	1,925	1,660	1,750	1,511	1,899	979	846	463	
45 to 59 Years .....	17.2	1,964	1,725	1,820	1,530	1,924	1,101	842	592	
60 Years and Over .....	24.8	1,652	1,381	1,440	1,185	1,570	942	803	784	
<b>Race of Householder</b>										
White .....	72.7	1,750	1,499	1,529	1,299	1,757	939	821	574	
Black .....	10.5	1,273	1,149	1,075	1,008	1,389	863	793	377	
Other .....	3.1	1,205	1,022	960	864	1,337	791	Q	299	
<b>Householder of Hispanic Descent</b>										
Yes .....	4.4	1,338	1,157	1,118	1,004	1,448	798	Q	355	
No .....	81.9	1,690	1,455	1,450	1,243	1,722	924	820	546	
<b>Household Size</b>										
1 Person .....	20.4	1,237	1,058	980	863	1,389	771	737	1058	
2 Persons .....	26.6	1,674	1,437	1,456	1,224	1,679	950	843	718	
3 Persons .....	15.4	1,757	1,520	1,509	1,324	1,738	1,003	808	507	
4 Persons .....	13.6	1,919	1,659	1,790	1,500	1,818	1,074	874	415	
5 Persons .....	6.3	2,110	1,805	1,925	1,632	1,982	1,196	918	361	
6 or More Persons .....	4.1	2,010	1,768	1,653	1,462	1,960	1,039	1,037	269	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 21. Total Square Footage by Housing Characteristics, as of November 1984**

Household Characteristics	Total Households		Total Square Footage			
	(millions)	(percent)	Total Heated and Unheated		Total Heated	
			(billions)	(percent)	(billions)	(percent)
<b>Total Households</b>	86.3	100.0	144.4	100.0	124.3	100.0
<b>Census Region and Main Heating Fuel</b>						
Northeast	18.3	21.2	35.0	24.3	29.3	23.6
Fuel Oil or Kerosene	8.2	9.5	15.1	10.4	12.6	10.2
Natural Gas	7.2	8.3	13.9	9.7	11.9	9.6
Electricity	1.4	1.6	2.1	1.5	1.7	1.4
Wood	1.1	1.3	2.8	2.0	2.2	1.8
Other/None	.5	.5	1.0	.7	.8	.6
North Central	21.6	25.0	39.1	27.1	33.7	27.2
Natural Gas	16.4	19.0	29.1	20.2	25.5	20.5
Electricity	1.3	1.6	2.5	1.7	2.1	1.7
Fuel Oil or Kerosene	1.2	1.4	2.3	1.6	1.8	1.5
LPG	1.3	1.4	2.2	1.5	1.9	1.5
Wood	1.4	1.6	2.7	1.9	2.2	1.7
Other/None	.1	.1	.2	.2	.2	.2
South	29.3	34.0	44.5	30.8	39.2	31.5
Natural Gas	13.1	15.2	21.3	14.7	18.9	15.2
Electricity	8.4	9.8	11.9	8.3	10.6	8.6
Fuel Oil or Kerosene	2.4	2.8	3.7	2.5	3.2	2.5
LPG	2.1	2.4	2.3	1.6	2.0	1.6
Wood	2.8	3.3	4.6	3.2	3.9	3.2
Other/None	.5	.6	.7	.5	.6	.5
West	17.1	19.8	25.7	17.8	22.0	17.7
Natural Gas	11.2	12.9	17.1	11.9	15.1	12.2
Electricity	3.4	3.9	4.5	3.1	4.0	3.2
Other/None	2.5	3.0	4.0	2.8	2.9	2.4
<b>Weather Zone</b>						
Fewer than 2,000 CDD and--						
More than 7,000 HDD	9.0	10.4	16.7	11.6	13.7	11.1
5,500 to 7,000 HDD	21.5	24.9	41.3	28.6	35.2	28.3
4,000 to 5,499 HDD	22.5	26.1	39.5	27.3	33.9	27.3
Fewer than 4,000 HDD	20.0	23.1	28.6	19.8	25.4	20.4
More than 2,000 CDD and						
Fewer than 4,000 HDD	13.3	15.4	18.3	12.7	16.1	13.0
<b>Measured Heated Area of Residence (square feet)</b>						
Fewer than 600	8.3	9.6	4.8	3.3	3.5	2.8
600 to 999	23.5	27.2	21.8	15.1	18.8	15.2
1,000 to 1,599	24.9	28.9	37.9	26.2	31.6	25.4
1,600 to 1,999	11.5	13.3	24.3	16.9	20.6	16.5
2,000 to 2,399	7.4	8.6	18.4	12.7	16.1	13.0
2,400 to 2,999	5.8	6.7	17.1	11.9	15.3	12.3
3,000 or More	4.9	5.6	20.1	13.9	18.4	14.8
<b>Payment Method for Utilities</b>						
All Paid by Household	70.6	81.8	130.1	90.1	110.8	89.1
Some Paid, Some in Rent	9.2	10.6	7.5	5.2	7.3	5.9
All Included in Rent	4.3	5.0	3.5	2.4	3.4	2.7
Other Method	2.2	2.6	3.2	2.2	2.9	2.3
<b>Status of Unit</b>						
Owned	55.3	64.1	112.3	77.8	95.3	76.7
Rented	31.0	35.9	32.1	22.2	29.0	23.3

See footnotes at end of table.

**Table 21. Total Square Footage by Housing Characteristics, as of November 1984 (Continued)**

Household Characteristics	Total Households		Total Square Footage			
	(millions)	(percent)	Total Heated and Unheated		Total Heated	
			(billions)	(percent)	(billions)	(percent)
<b>Housing Structure</b>						
Single-Family Detached .....	53.5	62.0	109.7	76.0	91.8	73.9
Owned .....	45.0	52.2	97.3	67.4	81.5	65.6
Rented .....	8.5	9.8	12.4	8.6	10.3	8.3
Single-Family Attached .....	4.1	4.7	7.7	5.3	6.7	5.4
Owned .....	2.8	3.3	5.9	4.1	5.2	4.2
Rented .....	1.2	1.4	1.7	1.2	1.5	1.2
Building of 2 to 4 Units .....	10.0	11.6	11.6	8.0	10.7	8.6
Owned .....	2.0	2.3	3.6	2.5	3.3	2.7
Rented .....	8.0	9.3	8.0	5.5	7.4	5.9
Building of 5 or More Units .....	13.6	15.7	11.1	7.7	10.9	8.8
Owned .....	1.4	1.6	1.9	1.3	1.8	1.5
Rented .....	12.2	14.1	9.2	6.4	9.1	7.3
Mobile Home .....	5.1	5.9	4.3	3.0	4.2	3.4
Owned .....	4.1	4.7	3.6	2.5	3.5	2.8
Rented .....	1.1	1.2	.7	.5	.7	.6
<b>Year of Construction</b>						
1939 or Before .....	25.2	29.2	44.4	30.7	37.2	29.9
1940 to 1949 .....	7.0	8.1	11.2	7.7	9.7	7.8
1950 to 1959 .....	12.6	14.6	21.4	14.8	18.3	14.7
1960 to 1964 .....	7.5	8.6	12.3	8.5	10.9	8.7
1965 to 1969 .....	8.2	9.5	13.3	9.2	11.8	9.5
1970 to 1974 .....	10.7	12.4	16.7	11.5	14.7	11.8
1975 to 1979 .....	10.1	11.7	17.3	12.0	14.9	12.0
1980 or After .....	5.0	5.8	7.8	5.4	6.8	5.5
<b>1984 Family Income</b>						
Less than \$5,000 .....	7.9	9.2	9.1	6.3	7.7	6.2
\$5,000 to \$9,999 .....	14.0	16.2	18.0	12.5	15.6	12.5
\$10,000 to \$14,999 .....	13.1	15.2	17.7	12.2	15.2	12.2
\$15,000 to \$19,999 .....	9.0	10.4	13.3	9.2	11.5	9.3
\$20,000 to \$24,999 .....	8.4	9.7	14.0	9.7	11.9	9.6
\$25,000 to \$34,999 .....	15.3	17.7	28.0	19.4	24.2	19.5
\$35,000 or More .....	18.7	21.7	44.2	30.6	38.3	30.8
Below 100% of Poverty .....	13.7	15.8	16.7	11.6	14.6	11.7
Below 125% of Poverty .....	19.6	22.7	24.4	16.9	21.1	17.0
<b>Age of Householder</b>						
Under 25 Years .....	6.8	7.9	7.0	4.8	6.2	5.0
25 to 34 Years .....	20.7	24.0	30.2	20.9	26.2	21.1
35 to 44 Years .....	16.8	19.5	32.4	22.4	27.9	22.5
45 to 59 Years .....	17.2	20.0	33.9	23.5	29.7	23.9
60 Years and Over .....	24.8	28.7	40.9	28.3	34.2	27.5
<b>Race of Householder</b>						
White .....	72.7	84.2	127.2	88.1	109.0	87.7
Black .....	10.5	12.2	13.4	9.3	12.1	9.7
Other .....	3.1	3.6	3.7	2.6	3.1	2.5
<b>Householder of Hispanic Descent</b>						
Yes .....	4.4	5.1	5.9	4.1	5.1	4.1
No .....	81.9	94.9	138.5	95.9	119.2	95.9
<b>Household Size</b>						
1 Person .....	20.4	23.6	25.2	17.4	21.5	17.3
2 Persons .....	26.6	30.8	44.5	30.8	38.2	30.7
3 Persons .....	15.4	17.9	27.1	18.8	23.4	18.8
4 Persons .....	13.6	15.7	26.0	18.0	22.5	18.1
5 Persons .....	6.3	7.3	13.2	9.2	11.3	9.1
6 or More Persons .....	4.1	4.8	8.3	5.8	7.3	5.9

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 22. Fuel Use by Census Region and Metropolitan Status, as of November 1984**  
**(Million Households)**

Household Characteristics	Census Region					Metropolitan Status			
	Total	Northeast	North Central	South	West	Metropolitan			
						Total	Central City	Outside Central City	Non-Metropolitan
<b>Total Households</b>	86.3	18.3	21.6	29.3	17.1	65.7	30.6	35.1	20.6
<b>Fuels Used for Any Use</b> (more than one fuel often used)									
Electricity	86.3	18.3	21.6	29.3	17.0	65.7	30.6	35.1	20.6
Natural Gas	55.4	11.7	16.9	14.3	12.5	46.1	24.6	21.5	9.3
Wood	24.0	4.6	4.8	8.7	5.8	16.9	5.0	11.9	7.1
Fuel Oil/Kerosene	17.5	9.5	2.6	4.6	.7	13.1	5.4	7.7	4.4
Fuel Oil	12.2	8.4	1.5	1.8	.5	9.7	4.3	5.4	2.5
Kerosene	6.4	1.8	1.2	3.1	.2	4.2	1.2	3.0	2.2
LPG	7.8	1.4	1.9	3.7	.9	3.6	.4	3.2	4.2
Coal	1.2	.5	Q	.5	Q	.5	Q	.4	.6
Solar Collectors	.9	Q	Q	Q	.5	.8	.3	.5	Q
<b>Main Heating Fuel and Equipment</b>									
Natural Gas	47.8	7.2	16.4	13.1	11.2	39.1	20.4	18.6	8.8
Central Warm-Air Furnace	29.3	3.2	11.8	7.8	6.5	24.1	11.3	12.8	5.2
Steam or Hot-Water System	8.7	3.7	3.4	.7	.8	7.9	4.9	3.0	.9
Floor, Wall, or Pipeless Furnace	5.6	Q	.4	1.9	3.3	4.6	2.4	2.2	1.0
Room Heater/Other	4.2	.2	.6	2.7	.7	2.5	1.9	.7	1.7
Electricity	14.5	1.4	1.3	8.4	3.4	11.7	4.9	6.8	2.8
Built-In Electric Units	5.4	1.1	.4	1.9	2.0	4.1	1.4	2.6	1.4
Central Warm-Air Furnace	5.2	Q	.6	3.9	.7	4.5	2.2	2.3	.7
Heat Pump	3.1	.2	.2	2.2	.5	2.4	1.0	1.4	.7
Other	.8	Q	Q	.5	.2	.7	.3	.4	.2
Fuel Oil	10.7	7.8	1.1	1.3	.4	8.8	4.1	4.8	1.9
Steam or Hot-Water System	6.3	5.8	.2	.3	Q	6.0	3.0	2.9	.3
Central Warm-Air Furnace	4.0	2.0	.9	.8	.3	2.6	.9	1.8	1.4
Other	.4	Q	Q	.2	Q	.2	Q	Q	.2
Wood	6.5	1.1	1.4	2.8	1.1	2.8	.5	2.3	3.7
Heating Stove	5.7	.9	1.1	2.7	1.0	2.5	.4	2.0	3.2
Other	.8	.2	.2	.2	.2	.3	Q	.3	.5
LPG	3.9	.2	1.3	2.1	.4	1.7	.2	1.4	2.2
Central Warm-Air Furnace	2.3	Q	1.0	1.0	.3	1.0	Q	.9	1.3
Room Heater	1.0	Q	Q	.8	Q	.4	Q	.3	.7
Other	.6	Q	.2	.3	Q	.3	Q	.2	.3
Kerosene	1.5	.4	Q	1.0	Q	1.0	.3	.7	.5
Other	.9	.3	Q	.4	Q	.4	Q	.4	.5
None	.6	Q	Q	Q	.5	.3	Q	Q	.3
<b>Use Secondary Heating Fuel</b> (more than one may be used)									
Yes	35.5	7.2	7.2	13.3	7.9	26.4	10.2	16.2	9.1
Wood	17.4	3.4	3.4	5.8	4.7	14.1	4.5	9.5	3.3
Electricity	12.1	1.9	2.2	4.9	3.1	8.9	4.0	4.9	3.3
Natural Gas	2.8	.6	.5	1.1	.6	2.2	1.1	1.1	.6
Fuel Oil/Kerosene	6.2	2.2	1.4	2.3	.2	4.1	1.4	2.8	2.0
Fuel Oil	1.4	.9	.2	.2	Q	1.0	.5	.5	.4
Kerosene	4.9	1.4	1.2	2.1	.2	3.2	.9	2.3	1.7
LPG	1.3	Q	.4	.7	Q	.4	Q	.4	.9
Other	.5	.2	Q	Q	Q	.4	Q	.2	.2
No	50.8	11.1	14.5	16.1	9.2	39.3	20.4	18.9	11.5
<b>Use Secondary Heating Equipment</b> (more than one may be used)									
Yes	35.5	7.2	7.2	13.3	7.9	26.4	10.2	16.2	9.1
Fireplace	13.3	2.3	2.6	4.5	3.9	11.4	4.0	7.4	1.9
Portable Electric Heater	8.2	1.4	1.5	3.3	2.1	6.2	3.0	3.3	1.9
Heating Stove	4.5	1.2	1.0	1.3	1.0	3.1	.7	2.4	1.5
Built-In Electric Units	3.5	.6	.7	1.2	1.0	2.4	1.0	1.4	1.1
Portable Kerosene Heater	4.7	1.3	1.2	2.0	.2	3.0	.8	2.2	1.6
Central Warm-Air Furnace	2.0	.4	.5	.7	.4	1.0	.2	.8	1.0
Oil or Gas Room Heater	1.8	.3	.3	1.2	Q	1.3	.5	.8	.5
Cooking Stove	1.4	.2	.2	.8	.3	.9	.5	.3	.6
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	2.8	1.0	.4	.9	.5	2.3	1.2	1.1	.6
No	50.8	11.1	14.5	16.1	9.2	39.3	20.4	18.9	11.5

See footnotes at end of table.

**Table 22. Fuel Use by Census Region and Metropolitan Status, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan		Outside Central City	Non-Metropolitan
						Total	Central City		
<b>Fuel Combinations</b>									
Use Natural Gas for Heating	47.8	7.2	16.4	13.1	11.2	39.1	20.4	18.6	8.8
Use Natural Gas To Heat Water									
and Have A/C	26.4	4.0	9.7	8.5	4.2	22.0	10.8	11.1	4.5
and Lack A/C	16.3	2.8	5.1	2.3	6.2	13.9	8.0	5.9	2.5
Use Electricity To Heat Water									
and Have A/C	2.9	.2	.7	1.9	Q	1.9	1.0	.9	1.0
and Lack A/C	2.0	.3	.8	.4	.5	1.2	.5	.6	.8
Other	.2	Q	Q	Q	.2	.2	Q	Q	Q
Use Electricity for Heating	14.5	1.4	1.3	8.4	3.4	11.7	4.9	6.8	2.8
Use Electricity To Heat Water									
and Have A/C	10.4	.8	1.0	7.3	1.3	8.5	3.5	5.0	1.9
and Lack A/C	2.7	.5	.2	.5	1.4	1.9	.7	1.2	.8
Other	1.4	Q	Q	.6	.7	1.3	.7	.6	Q
Use Fuel Oil for Main Heat	10.7	7.8	1.1	1.3	.4	8.8	4.1	4.8	1.9
Use Fuel Oil To Heat Water									
and Have A/C	2.4	2.2	Q	Q	Q	2.4	1.1	1.2	Q
and Lack A/C	2.7	2.6	Q	Q	Q	2.4	1.4	1.0	.2
Use Electricity To Heat Water									
and Have A/C	1.9	.7	.3	.8	Q	1.3	.4	.9	.5
and Lack A/C	1.7	.6	.6	.2	.3	.8	.2	.5	1.0
Other	2.0	1.7	Q	.2	Q	1.9	.8	1.1	Q
Use Wood for Main Heat	6.5	1.1	1.4	2.8	1.1	2.8	.5	2.3	3.7
Use LPG for Main Heat	3.9	.2	1.3	2.1	.4	1.7	.2	1.4	2.2
Use Kerosene for Main Heat	1.5	.4	Q	1.0	Q	1.0	.3	.7	.5
Use Coal for Main Heat	.7	.3	Q	.4	Q	.3	Q	.3	.4
No Heating Fuel	.6	Q	Q	Q	.5	.3	Q	Q	.3
Other Fuel	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Water-Heating Fuel</b>									
Natural Gas	46.9	8.5	15.2	11.7	11.5	39.6	20.6	19.0	7.2
Electricity	28.9	4.0	5.0	15.4	4.5	18.5	7.1	11.4	10.3
Fuel Oil or Kerosene	5.4	5.1	Q	.2	Q	5.1	2.5	2.5	.4
LPG	3.8	.5	1.2	1.5	.6	1.7	Q	1.5	2.2
Wood	.3	Q	Q	.2	Q	Q	Q	Q	.2
Coal	.2	Q	Q	Q	Q	Q	Q	Q	Q
Solar	.5	Q	Q	Q	.4	.4	.2	.3	Q
None	.2	Q	Q	.2	Q	Q	Q	Q	.2
<b>Main Cooking Fuel</b>									
Electricity	47.3	7.8	11.5	18.4	9.7	34.0	13.2	20.8	13.3
Natural Gas	33.3	9.3	9.0	8.3	6.8	28.9	17.1	11.9	4.4
LPG	5.2	1.1	1.1	2.4	.6	2.4	.2	2.2	2.8
Wood	.2	Q	Q	Q	Q	Q	Q	Q	Q
Other/None	.3	Q	Q	Q	Q	.2	Q	Q	Q
<b>Clothes-Drying Fuel</b>									
With Clothes Dryer	53.1	10.7	14.2	17.8	10.5	39.9	15.1	24.8	13.2
Electricity	39.6	7.6	9.6	14.7	7.7	28.2	10.3	17.9	11.3
Natural Gas	12.6	2.9	4.2	2.7	2.7	11.3	4.8	6.5	1.3
LPG	1.1	.2	.4	.3	.2	.5	Q	.5	.6
Without Clothes Dryer	33.2	7.6	7.5	11.6	6.6	25.8	15.5	10.3	7.5
<b>Air Conditioning</b>									
Yes	51.5	9.3	12.9	22.6	6.6	40.7	18.1	22.6	10.8
Central Unit	25.7	2.0	5.9	13.9	3.9	21.3	9.1	12.2	4.3
Electric	25.1	2.0	5.8	13.5	3.7	20.8	8.7	12.1	4.3
Individual Room Units	25.8	7.3	7.0	8.8	2.7	19.4	9.0	10.4	6.4
One Unit	17.9	4.3	5.7	5.9	2.1	13.2	6.1	7.1	4.8
Two or More Units	7.9	3.0	1.3	2.9	.6	6.2	2.9	3.3	1.7
No	34.9	9.0	8.7	6.7	10.5	25.0	12.5	12.5	9.9

See footnotes at end of table.

**Table 22. Fuel Use by Census Region and Metropolitan Status, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	Census Region				Metropolitan Status			Non-Metropolitan	
		Northeast	North Central	South	West	Metropolitan				
						Total	Central City	Outside Central City		
<b>Number of Rooms That Can Be Air Conditioned</b>										
All .....	34.0	3.5	8.2	17.8	4.4	27.0	12.0	15.0	7.0	
Some .....	17.5	5.8	4.8	4.8	2.2	13.7	6.1	7.6	3.8	
None .....	34.9	9.0	8.7	6.7	10.5	25.0	12.5	12.5	9.9	
<b>Wood Burned in Past 12 Months</b>										
Yes .....	22.9	4.4	4.7	8.3	5.5	16.0	4.8	11.3	6.9	
One-Third Cord or Less .....	7.2	1.4	1.2	2.2	2.4	6.4	2.4	4.0	.8	
More than One-Third Cord .....	15.7	3.0	3.5	6.1	3.1	9.6	2.4	7.2	6.1	
No .....	63.4	13.9	16.9	21.0	11.6	49.7	25.8	23.8	13.7	
<b>Household Owns or Has Regular Use of a Vehicle</b>										
Yes .....	75.3	14.7	18.9	25.9	15.8	57.1	24.3	32.7	18.2	
No .....	11.0	3.6	2.7	3.5	1.3	8.6	6.2	2.4	2.4	
<b>Total Single-Family Units and Mobile Homes</b>										
Homes .....	62.7	11.5	15.7	24.1	11.4	44.3	16.8	27.5	18.5	
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>										
Uses Any Natural Gas .....	37.4	6.3	11.4	11.7	8.0	29.5	13.1	16.3	7.9	
Does Not Use Natural Gas .....	25.3	5.3	4.4	12.4	3.4	14.8	3.6	11.1	10.6	
Gas Is Available .....	5.7	1.5	1.0	2.1	1.1	4.1	1.5	2.6	1.6	
(percent) .....	22.6	27.8	22.8	17.4	33.4	27.7	41.8	23.1	15.4	
Gas Is Not Available .....	19.6	3.8	3.4	10.2	2.2	10.7	2.1	8.6	8.9	
(percent) .....	77.4	72.2	77.2	82.6	66.6	72.3	58.2	76.9	84.6	
<b>Total Households in 2-or-More-Unit Buildings</b>										
.....	23.6	6.8	5.9	5.2	5.7	21.4	13.8	7.6	2.2	
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	9.6	4.7	3.5	.7	.7	8.9	6.1	2.7	.7	
No/No Main Heating System .....	14.1	2.1	2.4	4.6	4.9	12.6	7.7	4.9	1.5	
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	12.4	4.7	4.0	1.4	2.3	11.5	7.9	3.6	.8	
No/No Water-Heating Fuel .....	11.2	2.1	1.9	3.8	3.4	9.9	5.9	4.0	1.4	
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>										
Yes .....	.7	.2	Q	.3	.2	.7	.6	Q	Q	
No .....	12.8	3.0	3.6	4.1	2.1	12.0	6.9	5.1	.9	
No Air Conditioning .....	10.0	3.5	2.3	.9	3.4	8.8	6.3	2.5	1.2	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 23. Fuel Use by Census Region and Metropolitan Status, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				
		Northeast	North Central	South	West	Metropolitan		Central City	Outside Central City	Non- Metropolitan
						Total	Metropolitan			
Total Households	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>										
Electricity	99.9	100.0	100.0	100.0	99.7	100.0	100.0	100.0	100.0	99.7
Natural Gas	64.2	64.2	78.0	48.9	73.0	70.3	80.5	61.3	44.9	44.9
Wood	27.8	25.1	22.3	29.8	34.2	25.7	16.4	33.9	34.4	34.4
Fuel Oil/Kerosene	20.2	52.0	12.1	15.8	4.0	19.9	17.7	21.9	21.1	21.1
Fuel Oil	14.1	45.9	6.9	6.1	2.9	14.8	14.2	15.4	11.9	11.9
Kerosene	7.4	9.8	5.8	10.6	1.4	6.4	4.0	8.4	10.7	10.7
LPG	9.1	7.4	8.9	12.5	5.2	5.5	1.4	9.1	20.4	20.4
Coal	1.4	2.6	Q	1.7	Q	.8	Q	1.3	3.1	3.1
Solar Collectors	1.0	Q	Q	Q	3.2	1.2	1.0	1.4	Q	Q
<b>Main Heating Fuel and Equipment</b>										
Natural Gas	55.4	39.2	75.8	44.7	65.3	59.5	66.8	53.1	42.5	42.5
Central Warm-Air Furnace	33.9	17.2	54.8	26.7	37.8	36.6	36.8	36.5	25.3	25.3
Steam or Hot-Water System	10.1	20.4	15.9	2.5	4.5	12.0	16.0	8.4	4.1	4.1
Floor, Wall, or Pipeless Furnace	6.5	Q	2.1	6.4	19.1	7.1	7.9	6.4	4.8	4.8
Room Heater/Other	4.9	1.3	3.0	9.1	3.9	3.8	6.1	1.9	8.3	8.3
Electricity	16.8	7.5	6.2	28.7	19.8	17.8	16.1	19.3	13.8	13.8
Built-In Electric Units	6.3	6.1	2.1	6.4	11.5	6.2	4.7	7.4	6.6	6.6
Central Warm-Air Furnace	6.0	Q	2.7	13.3	4.1	6.9	7.2	6.7	3.2	3.2
Heat Pump	3.6	1.0	1.0	7.4	2.9	3.7	3.2	4.1	3.2	3.2
Other	.9	Q	Q	1.6	1.3	1.0	1.0	1.0	.8	.8
Fuel Oil	12.4	42.6	5.3	4.6	2.5	13.5	13.3	13.6	9.1	9.1
Steam or Hot-Water System	7.3	31.8	.8	1.0	Q	9.1	10.0	8.3	1.5	1.5
Central Warm-Air Furnace	4.7	10.7	4.2	2.8	1.9	4.0	2.8	5.0	6.8	6.8
Other	.5	Q	Q	.8	Q	.4	Q	Q	.8	.8
Wood	7.5	6.0	6.3	9.7	6.7	4.3	1.5	6.6	17.7	17.7
Heating Stove	6.6	5.0	5.2	9.1	5.6	3.8	1.4	5.8	15.4	15.4
Other	.9	1.0	1.1	.6	1.1	.5	Q	.8	2.3	2.3
LPG	4.5	.9	5.8	7.0	2.4	2.5	.8	4.0	10.8	10.8
Central Warm-Air Furnace	2.7	Q	4.5	3.3	1.6	1.6	Q	2.6	6.1	6.1
Room Heater	1.2	Q	Q	2.8	Q	.5	Q	.9	3.3	3.3
Other	.7	Q	.8	.9	Q	.4	Q	.6	1.4	1.4
Kerosene	1.7	2.1	Q	3.5	Q	1.5	1.1	1.9	2.3	2.3
Other	1.0	1.6	Q	1.4	Q	.6	Q	1.0	2.3	2.3
None	.7	Q	Q	Q	2.8	.4	Q	Q	1.4	1.4
<b>Use Secondary Heating Fuel (more than one may be used)</b>										
Yes	41.1	39.3	33.1	45.2	46.3	40.2	33.2	46.2	44.2	44.2
Wood	20.1	18.7	15.9	19.8	27.5	21.4	14.8	27.1	16.0	16.0
Electricity	14.1	10.5	10.4	16.6	18.2	13.5	12.9	13.9	15.9	15.9
Natural Gas	3.2	3.0	2.1	3.9	3.5	3.3	3.6	3.1	2.8	2.8
Fuel Oil/Kerosene	7.1	12.0	6.5	7.9	1.3	6.3	4.5	7.9	9.8	9.8
Fuel Oil	1.6	4.8	.9	.8	Q	1.5	1.6	1.4	1.9	1.9
Kerosene	5.7	7.6	5.7	7.2	1.0	4.9	3.0	6.6	8.2	8.2
LPG	1.5	Q	1.9	2.3	Q	.7	Q	1.2	4.2	4.2
Other	.6	1.3	Q	Q	Q	.5	Q	.6	.8	.8
No	58.9	60.7	66.9	54.8	53.7	59.8	66.8	53.8	55.8	55.8
<b>Use Secondary Heating Equipment (more than one may be used)</b>										
Yes	41.1	39.3	33.1	45.2	46.3	40.2	33.2	46.2	44.2	44.2
Fireplace	15.4	12.8	12.2	15.2	22.6	17.4	13.0	21.2	9.2	9.2
Portable Electric Heater	9.5	7.4	6.8	11.2	12.2	9.5	9.7	9.4	9.4	9.4
Heating Stove	5.3	6.6	4.5	4.6	6.1	4.7	2.3	6.8	7.1	7.1
Built-In Electric Units	4.0	3.4	3.1	4.2	5.6	3.7	3.2	4.1	5.2	5.2
Portable Kerosene Heater	5.4	7.0	5.5	6.9	1.0	4.6	2.6	6.4	7.8	7.8
Central Warm-Air Furnace	2.3	2.4	2.5	2.3	2.1	1.5	.6	2.3	4.8	4.8
Oil or Gas Room Heater	2.1	1.7	1.4	4.0	Q	2.0	1.7	2.2	2.6	2.6
Cooking Stove	1.7	1.2	.8	2.6	1.7	1.3	1.8	.9	2.8	2.8
Heat Pump, Steam or Water System, Pipeless										
Furnace, or Other	3.3	5.5	2.1	3.2	2.7	3.5	3.8	3.2	2.7	2.7
No	58.9	60.7	66.9	54.8	53.7	59.8	66.8	53.8	55.8	55.8

See footnotes at end of table.

**Table 23. Fuel Use by Census Region and Metropolitan Status, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				Non-Metropolitan	
		Northeast	North Central	South	West	Metropolitan					
						Total	Central City	Outside Central City			
<b>Fuel Combinations</b>											
Use Natural Gas for Heating .....	55.4	39.2	75.8	44.7	65.3	59.5	66.8	53.1	42.5		
Use Natural Gas To Heat Water and Have A/C .....	30.6	21.7	45.1	28.9	24.7	33.4	35.4	31.7	21.6		
and Lack A/C .....	18.9	15.2	23.6	7.7	36.1	21.1	26.1	16.7	11.9		
Use Electricity To Heat Water and Have A/C .....	3.4	.9	3.3	6.6	Q	2.9	3.2	2.6	5.0		
and Lack A/C .....	2.3	1.4	3.7	1.4	2.9	1.8	1.8	1.8	3.8		
Other .....	.3	Q	Q	Q	.9	.3	Q	Q	Q		
Use Electricity for Heating .....	16.8	7.5	6.2	28.7	19.8	17.8	16.1	19.3	13.8		
Use Electricity To Heat Water and Have A/C .....	12.1	4.5	4.7	24.8	7.7	12.9	11.4	14.3	9.3		
and Lack A/C .....	3.1	2.7	1.2	1.8	8.2	2.9	2.4	3.3	3.8		
Other .....	1.6	Q	Q	2.1	3.9	1.9	2.2	1.7	Q		
Use Fuel Oil for Main Heat .....	12.4	42.6	5.3	4.6	2.5	13.5	13.3	13.6	9.1		
Use Fuel Oil To Heat Water and Have A/C .....	2.8	12.1	Q	Q	Q	3.6	3.7	3.5	Q		
and Lack A/C .....	3.1	14.1	Q	Q	Q	3.7	4.6	2.9	1.1		
Use Electricity To Heat Water and Have A/C .....	2.2	3.7	1.5	2.6	Q	2.0	1.5	2.5	2.6		
and Lack A/C .....	2.0	3.3	2.8	.8	1.7	1.2	.8	1.5	4.6		
Other .....	2.4	9.3	Q	.7	Q	2.9	2.7	3.1	Q		
Use Wood for Main Heat .....	7.5	6.0	6.3	9.7	6.7	4.3	1.5	6.6	17.7		
Use LPG for Main Heat .....	4.5	.9	5.8	7.0	2.4	2.5	.8	4.0	10.8		
Use Kerosene for Main Heat .....	1.7	2.1	Q	3.5	Q	1.5	1.1	1.9	2.3		
Use Coal for Main Heat .....	.9	1.6	Q	1.3	Q	.5	Q	.8	2.1		
No Heating Fuel .....	.7	Q	Q	Q	2.8	.4	Q	Q	1.4		
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q		
<b>Water-Heating Fuel</b>											
Natural Gas .....	54.3	46.2	70.4	39.8	67.5	60.3	67.4	54.2	35.1		
Electricity .....	33.5	21.9	23.1	52.5	26.3	28.2	23.2	32.6	50.1		
Fuel Oil or Kerosene .....	6.3	27.9	Q	.7	Q	7.7	8.3	7.2	1.7		
LPG .....	4.5	2.9	5.4	5.1	3.7	2.5	Q	4.4	10.5		
Wood .....	.3	Q	Q	.6	Q	Q	Q	Q	1.0		
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q		
Solar .....	.6	Q	Q	Q	2.2	.7	.6	.7	Q		
None .....	.3	Q	Q	.7	Q	Q	Q	Q	.8		
<b>Main Cooking Fuel</b>											
Electricity .....	54.8	42.8	53.0	62.6	56.6	51.8	43.2	59.3	64.2		
Natural Gas .....	38.6	50.7	41.5	28.3	39.7	44.1	55.8	33.8	21.3		
LPG .....	6.1	6.1	5.1	8.3	3.5	3.7	.8	6.2	13.7		
Wood .....	.2	Q	Q	Q	Q	Q	Q	Q	Q		
Other/None .....	.3	Q	Q	Q	Q	.3	Q	Q	Q		
<b>Clothes-Drying Fuel</b>											
With Clothes Dryer .....	61.5	58.3	65.5	60.6	61.6	60.8	49.4	70.7	63.9		
Electricity .....	45.8	41.5	44.2	50.3	44.8	43.0	33.7	51.1	54.8		
Natural Gas .....	14.6	15.9	19.5	9.3	15.9	17.1	15.6	18.4	6.5		
LPG .....	1.3	1.0	1.8	1.1	1.3	.8	Q	1.4	2.8		
Without Clothes Dryer .....	38.5	41.7	34.5	39.4	38.4	39.2	50.6	29.3	36.1		
<b>Air Conditioning</b>											
Yes .....	59.6	50.8	59.8	77.2	38.7	62.0	59.2	64.4	52.1		
Central Unit .....	29.7	10.8	27.2	47.3	23.1	32.5	29.9	34.8	21.0		
Electric .....	29.1	10.8	27.0	46.2	21.9	31.7	28.6	34.4	20.8		
Individual Room Units .....	29.9	39.9	32.6	29.8	15.7	29.5	29.3	29.6	31.1		
One Unit .....	20.8	23.6	26.4	20.0	12.0	20.0	19.9	20.2	23.1		
Two or More Units .....	9.1	16.4	6.2	9.9	3.6	9.4	9.4	9.5	8.0		
No .....	40.4	49.2	40.2	22.8	61.3	38.0	40.8	35.6	47.9		

See footnotes at end of table.

**Table 23. Fuel Use by Census Region and Metropolitan Status, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				
		Northeast	North Central	South	West	Metropolitan		Central City	Outside Central City	Non-Metropolitan
						Total	Central City			
<b>Number of Rooms That Can Be Air Conditioned</b>										
All	39.3	19.3	37.8	60.7	26.0	41.1	39.2	42.7	33.7	
Some	20.3	31.5	22.0	16.4	12.7	20.9	20.0	21.7	18.4	
None	40.4	49.2	40.2	22.8	61.3	38.0	40.8	35.6	47.9	
<b>Wood Burned in Past 12 Months</b>										
Yes	26.6	24.2	21.7	28.3	32.2	24.4	15.5	32.1	33.5	
One-Third Cord or Less	8.4	7.7	5.6	7.7	13.8	9.8	7.8	11.5	3.9	
More than One-Third Cord	18.2	16.5	16.1	20.6	18.4	14.6	7.7	20.6	29.6	
No	73.4	75.8	78.3	71.7	67.8	75.6	84.5	67.9	66.5	
<b>Household Owns or Has Regular Use of a Vehicle</b>										
Yes	87.2	80.6	87.6	88.2	92.4	86.9	79.6	93.3	88.4	
No	12.8	19.4	12.4	11.8	7.6	13.1	20.4	6.7	11.6	
<b>Total Single-Family Units and Mobile Homes</b>										
Homes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>										
Uses Any Natural Gas	59.6	54.4	72.3	48.7	70.6	66.6	78.3	59.5	42.9	
Does Not Use Natural Gas	40.4	45.6	27.7	51.3	29.4	33.4	21.7	40.5	57.1	
Gas Is Available	9.1	12.7	6.3	8.9	9.8	9.3	9.1	9.4	8.8	
Gas Is Not Available	31.3	32.9	21.4	42.4	19.6	24.1	12.6	31.1	48.3	
<b>Total Households in 2-or-More-Unit Buildings</b>										
Unit Buildings	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>										
Yes	40.5	69.0	58.6	12.8	13.1	41.4	44.4	35.9	31.7	
No/No Main Heating System	59.5	31.0	41.4	87.2	86.9	58.6	55.6	64.1	68.3	
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>										
Yes	52.4	68.7	67.8	26.8	40.4	53.9	57.5	47.2	37.7	
No/No Water-Heating Fuel										
No Hot Running Water	47.6	31.3	32.2	73.2	59.6	46.1	42.5	52.8	62.3	
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>										
Yes	3.1	3.2	Q	5.7	3.6	3.1	4.4	Q	Q	
No	54.3	44.5	61.0	77.8	37.6	55.8	49.9	66.6	39.7	
No Air Conditioning	42.6	52.2	38.8	16.5	58.8	41.1	45.7	32.7	57.2	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 24. Fuel Use by Family Income, as of November 1984**  
**(Million Households)**

Household Characteristics	Total	1984 Family Income								Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More			
<b>Total Households</b>	86.3	7.9	14.0	13.1	9.0	8.4	15.3	18.7	13.7	19.6	
<b>Fuels Used for Any Use (more than one fuel often used)</b>											
Electricity	86.3	7.9	14.0	13.1	9.0	8.4	15.3	18.7	13.7	19.6	
Natural Gas	55.4	4.8	8.2	8.6	5.7	5.5	10.0	12.6	8.1	11.8	
Wood	24.0	1.3	2.0	2.5	2.0	2.0	5.1	9.2	2.4	3.4	
Fuel Oil/Kerosene	17.5	1.5	3.0	2.5	2.1	1.8	2.9	3.7	2.6	3.7	
Fuel Oil	12.2	1.0	2.2	1.8	1.5	1.2	2.1	2.5	1.7	2.5	
Kerosene	6.4	.5	1.0	.8	.7	.7	1.1	1.5	1.0	1.4	
LPG	7.8	1.0	1.8	1.3	1.1	.6	1.1	.9	1.8	2.6	
Coal	1.2	Q	.3	Q	Q	.2	.2	.2	.3	.4	
Solar Collectors	.9	Q	Q	Q	Q	Q	.3	.3	Q	Q	
<b>Main Heating Fuel and Equipment</b>											
Natural Gas	47.8	4.4	7.0	7.3	4.8	4.8	8.4	11.3	7.2	10.3	
Central Warm-Air Furnace	29.3	1.7	3.7	3.7	3.0	2.9	5.7	8.6	3.0	4.7	
Steam or Hot-Water System	8.7	1.1	1.3	1.2	.8	1.0	1.5	1.8	1.6	2.2	
Floor, Wall, or Pipeless Furnace	5.6	.7	.7	1.5	.6	.5	.9	.6	1.1	1.5	
Room Heater/Other	4.2	.9	1.2	.9	.4	.3	.3	.2	1.5	2.0	
Electricity	14.5	1.2	2.2	2.1	1.3	1.3	2.9	3.5	2.3	3.1	
Built-In Electric Units	5.4	.5	.9	.8	.4	.6	1.0	1.3	1.1	1.3	
Central Warm-Air Furnace	5.2	.3	.8	.8	.4	.4	1.3	1.2	.7	1.0	
Heat Pump	3.1	.2	.3	.4	.4	.2	.6	.9	.3	.5	
Other	.8	.2	Q	.2	Q	Q	Q	Q	.3	.3	
Fuel Oil	10.7	.8	2.0	1.6	1.3	1.0	1.9	2.2	1.3	2.1	
Steam or Hot-Water System	6.3	.4	1.3	.9	.7	.6	1.1	1.3	.8	1.3	
Central Warm-Air Furnace	4.0	.3	.6	.6	.5	.4	.7	.9	.4	.6	
Other	.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Wood	6.5	.7	.9	1.0	.8	.6	1.3	1.1	1.3	1.7	
Heating Stove	5.7	.7	.8	1.0	.6	.6	1.2	.8	1.2	1.6	
Other	.8	Q	Q	Q	.2	Q	Q	.2	Q	Q	
LPG	3.9	.5	1.0	.7	.5	.3	.5	.3	.9	1.4	
Central Warm-Air Furnace	2.3	.2	.6	.4	.4	.3	.2	.2	.4	.7	
Room Heater	1.0	.3	.3	.2	Q	Q	Q	Q	.4	.6	
Other	.6	Q	.2	Q	Q	Q	.2	Q	Q	Q	
Kerosene	1.5	.2	.5	.2	.2	Q	Q	Q	Q	.4	.6
Other	.9	Q	.2	Q	Q	Q	Q	Q	.3	.3	
None	.6	Q	.2	Q	Q	Q	Q	Q	Q	Q	
<b>Use Secondary Heating Fuel (more than one may be used)</b>											
Yes	35.5	2.2	4.0	4.4	3.3	3.2	7.2	11.3	4.0	5.8	
Wood	17.4	.5	1.1	1.4	1.2	1.4	3.7	8.1	1.1	1.3	
Electricity	12.1	.9	1.8	1.9	1.3	1.0	2.7	2.5	1.6	2.4	
Natural Gas	2.8	.3	.4	.4	.3	.3	.6	.5	.4	.7	
Fuel Oil/Kerosene	6.2	.5	.7	.8	.7	.8	1.1	1.5	.9	1.2	
Fuel Oil	1.4	.2	.2	.2	Q	Q	.2	.2	.3	.5	
Kerosene	4.9	.3	.5	.6	.5	.6	.9	1.3	.6	.8	
LPG	1.3	.2	.2	.2	Q	Q	.3	.2	.3	.4	
Other	.5	Q	Q	Q	Q	Q	.2	Q	Q	Q	
No	50.8	5.7	10.0	8.7	5.7	5.1	8.1	7.5	9.7	13.8	
<b>Use Secondary Heating Equipment (more than one may be used)</b>											
Yes	35.5	2.2	4.0	4.4	3.3	3.2	7.2	11.3	4.0	5.8	
Fireplace	13.3	.3	.5	1.0	.7	1.0	3.0	6.8	.6	.8	
Portable Electric Heater	8.2	.8	1.3	1.1	1.1	.6	1.8	1.5	1.3	1.8	
Heating Stove	4.5	.2	.6	.4	.5	.5	.8	1.5	.4	.7	
Built-In Electric Units	3.5	Q	.3	.6	.3	.3	.8	1.1	.2	.3	
Portable Kerosene Heater	4.7	.3	.4	.6	.5	.6	.9	1.3	.6	.8	
Central Warm-Air Furnace	2.0	Q	Q	.4	.2	.3	.5	.4	.2	.3	
Oil or Gas Room Heater	1.8	Q	.3	.2	Q	.4	.4	.3	.2	.4	
Cooking Stove	1.4	.3	.3	.3	Q	Q	Q	Q	.6	.8	
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	2.8	.2	.5	.3	.2	.2	.6	.8	.4	.6	
No	50.8	5.7	10.0	8.7	5.7	5.1	8.1	7.5	9.7	13.8	

See footnotes at end of table.

**Table 24. Fuel Use by Family Income, as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Total	1984 Family Income							Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More		
<b>Fuel Combinations</b>										
Use Natural Gas for Heating	47.8	4.4	7.0	7.3	4.8	4.8	8.4	11.3	7.2	10.3
Use Natural Gas To Heat Water										
and Have A/C	26.4	1.5	3.2	3.8	2.5	2.7	5.1	7.5	2.5	3.7
and Lack A/C	16.3	2.3	2.9	2.7	1.7	1.4	2.5	2.7	3.8	5.3
Use Electricity To Heat Water										
and Have A/C	2.9	.3	.4	.5	.3	.3	.5	.7	.3	.6
and Lack A/C	2.0	.3	.4	.3	.2	.3	.2	.3	.5	.7
Other	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
Use Electricity for Heating	14.5	1.2	2.2	2.1	1.3	1.3	2.9	3.5	2.3	3.1
Use Electricity To Heat Water										
and Have A/C	10.4	.8	1.5	1.3	.9	.9	2.1	2.9	1.4	1.9
and Lack A/C	2.7	.3	.7	.4	.3	.2	.4	.5	.7	.8
Other	1.4	Q	Q	.3	Q	.2	.4	.2	.3	.3
Use Fuel Oil for Main Heat	10.7	.8	2.0	1.6	1.3	1.0	1.9	2.2	1.3	2.1
Use Fuel Oil To Heat Water										
and Have A/C	2.4	Q	.5	.3	.2	.3	.6	.6	.2	.3
and Lack A/C	2.7	.3	.5	.4	.4	.2	.4	.5	.5	.7
Use Electricity To Heat Water										
and Have A/C	1.9	Q	.2	.3	.3	.2	.3	.5	Q	.2
and Lack A/C	1.7	.2	.4	.3	.3	.2	.2	.2	.2	.4
Other	2.0	.2	.4	.3	.2	Q	.4	.4	.3	.5
Use Wood for Main Heat	6.5	.7	.9	1.0	.8	.6	1.3	1.1	1.3	1.7
Use LPG for Main Heat	3.9	.5	1.0	.7	.5	.3	.5	.3	.9	1.4
Use Kerosene for Main Heat	1.5	.2	.5	.2	.2	Q	Q	Q	.4	.6
Use Coal for Main Heat	.7	Q	.2	Q	Q	Q	Q	Q	.2	.3
No Heating Fuel	.6	Q	.2	Q	Q	Q	Q	Q	Q	Q
Other Fuel	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Water-Heating Fuel</b>										
Natural Gas	46.9	4.0	6.8	7.2	4.7	4.6	8.7	10.9	6.8	9.7
Electricity	28.9	2.9	4.9	4.2	3.2	2.7	4.9	6.1	4.9	7.0
Fuel Oil or Kerosene	5.4	.4	1.0	.8	.6	.5	1.0	1.1	.7	1.1
LPG	3.8	.4	.9	.7	.5	.4	.5	.4	.9	1.3
Wood	.3	Q	Q	Q	Q	Q	Q	Q	.2	.2
Coal	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
Solar	.5	Q	Q	Q	Q	Q	Q	Q	Q	Q
None	.2	Q	Q	Q	Q	Q	Q	Q	.2	.2
<b>Main Cooking Fuel</b>										
Electricity	47.3	3.3	6.8	6.5	4.7	4.8	9.1	12.1	6.0	8.8
Natural Gas	33.3	3.6	5.7	5.5	3.5	3.2	5.6	6.1	6.1	8.6
LPG	5.2	.8	1.3	1.1	.7	.4	.5	.5	1.4	2.0
Wood	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
Other/None	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Clothes-Drying Fuel</b>										
With Clothes Dryer	53.1	2.2	6.0	6.5	5.3	5.3	11.6	16.3	4.9	7.7
Electricity	39.6	1.6	4.7	5.0	4.0	4.1	8.8	11.3	3.6	5.8
Natural Gas	12.6	.5	1.2	1.4	1.1	1.1	2.5	4.8	1.2	1.7
LPG	1.1	Q	.2	Q	.2	Q	.3	.2	Q	Q
Without Clothes Dryer	33.2	5.7	8.0	6.6	3.8	3.0	3.7	2.4	8.8	11.9
<b>Air Conditioning</b>										
Yes	51.5	3.1	7.0	7.5	5.2	5.2	10.3	13.3	5.5	8.2
Central Unit	25.7	1.1	2.9	3.2	2.3	2.2	5.2	8.8	2.1	3.2
Electric	25.1	.9	2.8	3.1	2.3	2.2	5.2	8.6	2.0	3.1
Individual Room Units	25.8	2.1	4.1	4.3	2.9	2.9	5.0	4.5	3.4	5.0
One Unit	17.9	1.7	3.1	3.3	2.0	2.3	3.3	2.3	2.7	3.9
Two or More Units	7.9	.4	1.0	1.0	.9	.7	1.7	2.2	.7	1.1
No	34.9	4.8	7.0	5.6	3.9	3.2	5.0	5.4	8.2	11.4
<b>Number of Rooms That Can Be Air Conditioned</b>										
All	34.0	1.8	4.2	4.9	3.3	3.2	6.9	9.7	3.2	5.0
Some	17.5	1.3	2.7	2.6	1.8	2.0	3.4	3.6	2.3	3.2
None	34.9	4.8	7.0	5.6	3.9	3.2	5.0	5.4	8.2	11.4

See footnotes at end of table.

**Table 24. Fuel Use by Family Income, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	1984 Family Income							Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More		
<b>Wood Burned in Past 12 Months</b>										
Yes .....	22.9	1.1	1.9	2.4	1.9	2.0	4.9	8.8	2.2	3.2
One-Third Cord or Less .....	7.2	.2	.4	.5	.4	.6	1.3	3.7	.4	.6
More than One-Third Cord .....	15.7	.9	1.5	1.9	1.5	1.3	3.6	5.1	1.8	2.6
No .....	63.4	6.8	12.0	10.7	7.1	6.4	10.4	9.9	11.5	16.4
<b>Household Owns or Has Regular Use of a Vehicle</b>										
Yes .....	75.3	4.0	10.2	11.6	8.3	8.1	14.7	18.4	8.8	13.2
No .....	11.0	3.9	3.8	1.5	.7	.3	.5	.4	4.9	6.4
<b>Total Single-Family Units and Mobile Homes</b>	62.7	4.9	9.4	8.3	6.3	5.8	12.0	16.1	8.7	12.9
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>										
Uses Any Natural Gas .....	37.4	2.4	5.0	4.7	3.7	3.4	7.5	10.7	4.3	6.6
Does Not Use Natural Gas .....	25.3	2.4	4.4	3.6	2.6	2.4	4.5	5.4	4.4	6.3
Gas Is Available .....	5.7	.6	.9	.7	.4	.6	1.4	1.2	.8	1.2
(percent) .....	22.6	24.3	19.3	19.2	14.1	25.0	30.6	23.2	18.5	18.5
Gas Is Not Available .....	19.6	1.8	3.6	2.9	2.3	1.8	3.1	4.1	3.6	5.1
(percent) .....	77.4	75.7	80.7	80.8	85.9	75.0	69.4	76.8	81.5	81.5
<b>Total Households in 2-or-More-Unit Buildings</b>	23.6	3.0	4.6	4.8	2.7	2.6	3.3	2.6	4.9	6.7
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	9.6	1.4	2.1	1.8	1.1	1.1	1.3	.8	2.1	2.9
No/No Main Heating System .....	14.1	1.7	2.4	3.0	1.6	1.5	2.0	1.8	2.9	3.8
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	12.4	1.4	2.7	2.5	1.3	1.5	1.8	1.3	2.3	3.4
No/No Water-Heating Fuel										
No Hot Running Water .....	11.2	1.6	1.9	2.3	1.4	1.1	1.5	1.4	2.7	3.3
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>										
Yes .....	.7	Q	Q	.2	Q	Q	Q	Q	Q	.2
No .....	12.8	1.1	2.2	2.6	1.4	1.7	2.1	1.7	1.8	2.4
No Air Conditioning .....	10.0	1.8	2.2	2.0	1.2	.8	1.1	.8	3.0	4.0

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 25. Fuel Use by Family Income, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	1984 Family Income								Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More			
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>											
Electricity	99.9	100.0	99.9	99.8	100.0	100.0	99.9	99.9	99.9	99.9	99.9
Natural Gas	64.2	61.2	58.5	65.4	63.3	66.1	65.4	67.4	59.0	60.0	
Wood	27.8	15.8	14.4	18.9	22.3	24.4	33.0	49.0	17.4	17.3	
Fuel Oil/Kerosene	20.2	18.6	21.7	19.2	23.0	21.0	19.2	19.7	18.8	19.0	
Fuel Oil	14.1	12.9	15.6	13.9	16.4	14.1	13.4	13.3	12.1	12.9	
Kerosene	7.4	6.7	6.8	6.4	7.9	8.8	7.0	8.2	7.5	6.9	
LPG	9.1	12.1	13.0	10.1	11.7	7.7	7.3	5.0	13.1	13.2	
Coal	1.4	Q	1.9	Q	Q	1.9	1.4	1.2	2.5	2.1	
Solar Collectors	1.0	Q	Q	Q	Q	Q	2.0	1.5	Q	Q	
<b>Main Heating Fuel and Equipment</b>											
Natural Gas	55.4	55.1	50.0	55.8	53.2	56.9	55.0	60.1	52.4	52.8	
Central Warm-Air Furnace	33.9	21.2	26.5	28.1	33.1	34.9	37.5	46.0	22.0	23.8	
Steam or Hot-Water System	10.1	13.9	9.6	9.1	9.1	11.9	9.5	9.7	11.4	11.1	
Floor, Wall, or Pipeless Furnace	6.5	8.6	5.2	11.7	7.0	6.2	5.9	3.4	8.2	7.7	
Room Heater/Other	4.9	11.5	8.7	6.8	4.0	4.0	2.1	1.0	10.8	10.2	
Electricity	16.8	15.4	15.8	15.7	13.9	16.0	19.2	18.8	16.8	15.6	
Built-In Electric Units	6.3	6.9	6.4	5.7	4.0	7.3	6.5	6.8	7.8	6.7	
Central Warm-Air Furnace	6.0	3.5	6.1	6.0	4.2	5.1	8.2	6.6	5.1	4.9	
Heat Pump	3.6	2.3	2.3	2.7	4.8	2.9	3.9	5.0	1.9	2.3	
Other	.9	2.6	Q	1.2	Q	Q	Q	Q	2.1	1.7	
Fuel Oil	12.4	9.5	14.1	12.4	14.5	11.7	12.2	11.9	9.4	10.5	
Steam or Hot-Water System	7.3	5.0	9.1	7.1	7.9	6.9	7.4	6.7	5.9	6.8	
Central Warm-Air Furnace	4.7	3.6	4.3	4.5	5.8	4.5	4.7	5.0	3.0	3.1	
Other	.5	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Wood	7.5	8.8	6.5	7.8	9.1	7.5	8.6	5.7	9.4	8.9	
Heating Stove	6.6	8.2	6.0	7.3	7.0	6.8	7.7	4.5	8.8	8.3	
Other	.9	Q	Q	Q	2.1	Q	Q	1.2	Q	Q	
LPG	4.5	6.7	7.5	5.0	6.0	4.1	3.1	1.6	6.3	6.9	
Central Warm-Air Furnace	2.7	3.0	3.9	3.0	4.2	3.6	1.3	1.3	3.0	3.7	
Room Heater	1.2	3.2	2.2	1.9	Q	Q	Q	Q	2.9	2.8	
Other	.7	Q	1.4	Q	Q	Q	1.3	Q	Q	Q	
Kerosene	1.7	2.7	3.3	1.7	2.6	Q	Q	Q	2.8	2.8	
Other	1.0	Q	1.5	Q	Q	Q	Q	Q	2.0	1.7	
None	.7	Q	1.3	Q	Q	Q	Q	Q	Q	Q	
<b>Use Secondary Heating Fuel (more than one may be used)</b>											
Yes	41.1	27.8	28.5	33.3	36.4	38.9	47.0	60.2	29.1	29.8	
Wood	20.1	6.9	7.6	10.7	13.1	16.5	24.2	43.2	7.7	8.0	
Electricity	14.1	10.8	12.9	14.2	14.9	12.0	17.9	13.6	12.0	12.0	
Natural Gas	3.2	3.6	2.7	3.4	2.8	3.9	3.7	2.7	3.2	3.4	
Fuel Oil/Kerosene	7.1	6.6	5.1	6.3	7.7	9.0	7.3	8.2	6.6	6.2	
Fuel Oil	1.6	2.7	1.7	1.5	Q	Q	1.5	1.2	2.2	2.4	
Kerosene	5.7	4.2	3.4	4.8	6.1	7.7	6.1	7.2	4.7	4.1	
LPG	1.5	2.2	1.6	1.5	Q	2.1	2.0	.8	2.0	2.0	
Other	.6	Q	Q	Q	Q	Q	Q	1.1	Q	Q	
No	58.9	72.2	71.5	66.7	63.6	61.1	53.0	39.8	70.9	70.2	
<b>Use Secondary Heating Equipment (more than one may be used)</b>											
Yes	41.1	27.8	28.5	33.3	36.4	38.9	47.0	60.2	29.1	29.8	
Fireplace	15.4	3.6	3.7	7.5	8.1	11.9	19.4	36.6	4.4	4.3	
Portable Electric Heater	9.5	9.9	9.2	8.4	11.7	7.0	12.1	8.1	9.8	9.4	
Heating Stove	5.3	3.1	4.3	3.4	5.3	5.8	5.2	7.9	3.2	3.8	
Built-In Electric Units	4.0	Q	2.1	4.8	3.2	3.8	5.1	6.0	1.2	1.6	
Portable Kerosene Heater	5.4	3.9	3.1	4.5	6.0	7.1	5.9	6.9	4.3	3.8	
Central Warm-Air Furnace	2.3	Q	Q	2.9	2.1	3.6	3.2	2.2	1.1	1.3	
Oil or Gas Room Heater	2.1	Q	2.1	1.6	Q	4.5	2.6	1.7	1.5	2.0	
Cooking Stove	1.7	4.3	2.4	2.3	Q	Q	Q	Q	4.4	3.8	
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	3.3	2.5	3.3	2.6	2.7	2.4	4.0	4.2	2.6	3.0	
No	58.9	72.2	71.5	66.7	63.6	61.1	53.0	39.8	70.9	70.2	

See footnotes at end of table.

**Table 25. Fuel Use by Family Income, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	1984 Family Income							Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More		
<b>Fuel Combinations</b>										
Use Natural Gas for Heating .....	55.4	55.1	50.0	55.8	53.2	56.9	55.0	60.1	52.4	52.8
Use Natural Gas To Heat Water and Have A/C .....	30.6	18.5	23.3	29.1	27.6	32.7	33.7	40.2	18.5	19.1
and Lack A/C .....	18.9	29.2	20.9	20.8	19.3	17.2	16.5	14.2	27.6	27.0
Use Electricity To Heat Water and Have A/C .....	3.4	3.2	2.5	3.7	3.6	3.3	3.3	3.9	2.3	3.0
and Lack A/C .....	2.3	4.0	2.8	2.0	2.6	3.3	1.2	1.5	3.6	3.4
Other .....	3	Q	Q	Q	Q	Q	Q	Q	Q	Q
Use Electricity for Heating .....	16.8	15.4	15.8	15.7	13.9	16.0	19.2	18.8	16.8	15.6
Use Electricity To Heat Water and Have A/C .....	12.1	10.5	10.5	10.3	9.8	11.0	13.6	15.4	10.1	9.9
and Lack A/C .....	3.1	3.9	4.7	2.9	2.8	2.7	2.7	2.5	4.8	4.3
Other .....	1.6	Q	Q	2.6	Q	2.3	2.9	.8	1.9	1.5
Use Fuel Oil for Main Heat .....	12.4	9.5	14.1	12.4	14.5	11.7	12.2	11.9	9.4	10.5
Use Fuel Oil To Heat Water and Have A/C .....	2.8	Q	3.3	2.5	1.9	3.2	3.7	3.0	1.1	1.7
and Lack A/C .....	3.1	3.3	3.4	3.0	4.8	2.7	2.4	2.7	3.3	3.4
Use Electricity To Heat Water and Have A/C .....	2.2	Q	1.8	2.0	3.1	2.0	1.9	2.7	Q	1.1
and Lack A/C .....	2.0	2.1	2.7	2.2	2.8	2.1	1.5	1.3	1.7	2.0
Other .....	2.4	2.1	2.9	2.6	1.9	Q	2.6	2.2	2.2	2.4
Use Wood for Main Heat .....	7.5	8.8	6.5	7.8	9.1	7.5	8.6	5.7	9.4	8.9
Use LPG for Main Heat .....	4.5	6.7	7.5	5.0	6.0	4.1	3.1	1.6	6.3	6.9
Use Kerosene for Main Heat .....	1.7	2.7	3.3	1.7	2.6	Q	Q	Q	2.8	2.8
Use Coal for Main Heat .....	.9	Q	1.4	Q	Q	Q	Q	Q	1.8	1.5
No Heating Fuel .....	.7	Q	1.3	Q	Q	Q	Q	Q	Q	Q
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Water-Heating Fuel</b>										
Natural Gas .....	54.3	50.5	48.4	55.3	52.0	55.0	57.1	58.2	49.4	49.4
Electricity .....	33.5	36.4	35.2	32.3	35.2	32.7	31.9	32.5	36.0	35.5
Fuel Oil or Kerosene .....	6.3	4.5	7.3	5.9	6.8	6.1	6.6	6.1	4.9	5.5
LPG .....	4.5	5.4	6.1	5.7	5.8	5.2	3.1	2.1	6.3	6.5
Wood .....	.3	Q	Q	Q	Q	Q	Q	Q	1.1	1.2
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
Solar .....	.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
None .....	.3	Q	Q	Q	Q	Q	Q	Q	1.3	1.0
<b>Main Cooking Fuel</b>										
Electricity .....	54.8	41.8	48.9	49.7	52.4	57.1	59.6	64.5	43.6	44.7
Natural Gas .....	38.6	46.2	41.0	42.0	39.0	38.3	36.9	32.6	44.7	44.1
LPG .....	6.1	9.7	9.7	8.0	8.1	4.4	3.0	2.8	10.3	10.1
Wood .....	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
Other/None .....	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Clothes-Drying Fuel</b>										
With Clothes Dryer .....	61.5	28.1	42.8	49.3	58.3	64.0	75.8	87.0	35.7	39.1
Electricity .....	45.8	20.5	33.4	38.1	44.3	49.5	57.6	60.7	26.6	29.5
Natural Gas .....	14.6	6.9	8.3	10.9	12.0	13.0	16.7	25.4	8.6	8.9
LPG .....	1.3	Q	1.3	Q	2.0	Q	1.8	1.2	Q	Q
Without Clothes Dryer .....	38.5	71.9	57.2	50.7	41.7	36.0	24.2	13.0	64.3	60.9
<b>Air Conditioning</b>										
Yes .....	59.6	39.4	49.8	57.1	57.2	61.8	67.2	71.2	40.3	41.9
Central Unit .....	29.7	13.4	20.4	24.4	25.6	26.7	34.3	47.0	15.3	16.4
Electric .....	29.1	11.8	20.0	23.7	25.4	26.7	33.8	45.8	14.4	15.6
Individual Room Units .....	29.9	26.1	29.4	32.7	31.6	35.1	32.9	24.2	25.0	25.5
One Unit .....	20.8	20.9	22.5	24.9	22.1	27.0	21.6	12.4	19.6	19.8
Two or More Units .....	9.1	5.2	6.9	7.8	9.5	8.1	11.3	11.7	5.4	5.7
No .....	40.4	60.6	50.2	42.9	42.8	38.2	32.8	28.8	59.7	58.1
<b>Number of Rooms That Can Be Air Conditioned</b>										
All .....	39.3	22.4	30.2	37.3	37.1	37.9	44.9	51.9	23.7	25.7
Some .....	20.3	17.0	19.7	19.8	20.1	24.0	22.2	19.3	16.5	16.2
None .....	40.4	60.6	50.2	42.9	42.8	38.2	32.8	28.8	59.7	58.1

See footnotes at end of table.

**Table 25. Fuel Use by Family Income, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	1984 Family Income							Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More		
<b>Wood Burned in Past 12 Months</b>										
Yes .....	26.6	14.0	13.7	18.3	20.9	23.5	31.9	46.9	16.0	16.2
One-Third Cord or Less .....	8.4	2.9	2.8	4.0	4.6	7.7	8.4	19.9	3.1	3.1
More than One-Third Cord .....	18.2	11.1	10.9	14.2	16.3	15.8	23.5	27.0	12.9	13.0
No .....	73.4	86.0	86.3	81.7	79.1	76.5	68.1	53.1	84.0	83.8
<b>Household Owns or Has Regular Use of a Vehicle</b>										
Yes .....	87.2	51.0	72.9	88.4	92.5	96.9	96.4	98.1	64.1	67.6
No .....	12.8	49.0	27.1	11.6	7.5	3.1	3.6	1.9	35.9	32.4
<b>Total Single-Family Units and Mobile Homes</b>										
.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>										
Uses Any Natural Gas .....	59.6	50.1	52.8	56.6	58.1	58.8	62.6	66.7	49.4	51.3
Does Not Use Natural Gas .....	40.4	49.9	47.2	43.4	41.9	41.2	37.4	33.3	50.6	48.7
Gas Is Available .....	9.1	12.1	9.1	8.3	5.9	10.3	11.5	7.7	9.4	9.0
Gas Is Not Available .....	31.3	37.8	38.1	35.1	35.9	30.9	26.0	25.5	41.3	39.7
<b>Total Households in 2-or-More-Unit Buildings</b>										
.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	40.5	44.7	46.7	37.7	39.6	41.5	39.2	31.4	42.0	42.9
No/No Main Heating System .....	59.5	55.3	53.3	62.3	60.4	58.5	60.8	68.6	58.0	57.1
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	52.4	47.2	58.7	51.4	47.1	57.9	53.1	48.0	46.2	50.6
No/No Water-Heating Fuel .....	47.6	52.8	41.3	48.6	52.9	42.1	46.9	52.0	53.8	49.4
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>										
Yes .....	3.1	Q	Q	3.3	Q	Q	Q	Q	Q	3.0
No .....	54.3	36.2	48.0	54.3	52.0	66.3	64.4	64.5	35.8	36.6
No Air Conditioning .....	42.6	60.5	48.9	42.5	46.3	32.4	32.1	30.1	61.2	60.4

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 26. Fuel Use by Housing Structure and Ownership, as of November 1984  
(Million Households)**

Household Characteristics	Housing Structure by Ownership																	
	Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home					
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Households</b>	86.3	53.5	45.0	8.5	4.1	2.8	1.2	10.0	2.0	8.0	13.6	1.4	12.2	5.1	4.1	1.1		
<b>Fuels Used for Any Use (more than one fuel often used)</b>																		
Electricity	86.3	53.5	45.0	8.5	4.1	2.8	1.2	10.0	2.0	8.0	13.6	1.4	12.2	5.1	4.1	1.1		
Natural Gas	55.4	32.8	27.9	5.0	3.0	2.2	.9	8.5	1.8	6.7	9.5	.9	8.6	1.5	1.3	.2		
Wood	24.0	21.3	19.0	2.3	.6	.5	Q	.8	.3	.5	.6	.3	.3	.7	.5	Q		
Fuel Oil/Kerosene	17.5	11.1	9.4	1.6	.7	.6	Q	1.8	.6	1.2	2.7	.3	2.4	1.1	.8	.3		
Fuel Oil	12.2	7.2	6.3	.9	.7	.6	Q	1.5	.5	1.0	2.6	.3	2.3	.3	.2	Q		
Kerosene	6.4	4.8	3.8	1.0	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	.9	.7	.2	
LPG	7.8	5.6	4.3	1.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	1.9	1.5	.4	
Coal	1.2	1.0	.9	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	C	
Solar Collectors	.9	.7	.6	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Main Heating Fuel</b>																		
Natural Gas	47.8	29.8	25.2	4.6	2.5	1.7	.8	7.0	1.3	5.7	7.1	.6	6.5	1.4	1.2	.2		
Electricity	14.5	7.2	6.4	.9	.7	.4	.3	1.0	Q	1.0	4.2	.5	3.7	1.4	1.1	.3		
Fuel Oil	10.7	6.2	5.4	.8	.7	.6	Q	1.5	.5	.9	2.2	.3	1.9	.3	.2	Q		
Wood	6.5	5.8	4.9	.9	Q	Q	Q	.2	Q	Q	Q	Q	Q	.4	.4	Q		
LPG	3.9	2.6	1.9	.7	Q	Q	Q	Q	Q	Q	Q	Q	Q	1.2	.9	.3		
Kerosene	1.5	.8	.5	.3	Q	Q	Q	.2	Q	Q	Q	Q	Q	.4	.3	Q		
Other	.9	.8	.7	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
None	.6	.4	.2	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
<b>Use Secondary Heating Fuel (more than one may be used)</b>																		
Yes	35.5	28.4	24.9	3.6	1.1	.8	.3	2.1	.6	1.5	2.2	.4	1.8	1.6	1.3	.4		
Wood	17.4	15.3	14.0	1.3	.6	.5	Q	.6	.2	.4	.6	.3	.3	.3	.2	Q		
Electricity	12.1	9.2	7.8	1.4	.4	.2	Q	1.0	.2	.8	.9	Q	.8	.6	.5	Q		
Natural Gas	2.8	1.9	1.5	.4	Q	Q	Q	.4	.2	.2	.3	Q	.3	Q	Q	Q		
Fuel Oil/Kerosene	6.2	4.8	4.1	.7	Q	Q	Q	.2	Q	.2	.4	Q	.4	.5	.4	Q		
Fuel Oil	1.4	1.0	.9	Q	Q	Q	Q	Q	Q	Q	.3	Q	.3	Q	Q	Q		
Kerosene	4.9	4.0	3.3	.7	Q	Q	Q	.2	Q	Q	Q	Q	.5	.4	Q	Q		
LPG	1.3	1.0	.9	Q	Q	Q	Q	Q	Q	Q	Q	Q	.2	.2	Q	Q		
Other	.5	.5	.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
No	50.8	25.1	20.2	4.9	2.9	2.0	.9	7.9	1.4	6.6	11.4	1.0	10.4	3.5	2.8	.7		
<b>Fuel Combinations</b>																		
Use Natural Gas for Heating	47.8	29.8	25.2	4.6	2.5	1.7	.8	7.0	1.3	5.7	7.1	.6	6.5	1.4	1.2	.2		
Use Natural Gas To Heat Water and Have A/C	26.4	16.7	14.6	2.1	1.3	1.1	.2	3.1	.8	2.3	4.6	.4	4.2	.7	.5	Q		
and Lack A/C	16.3	9.3	7.4	1.9	.9	.6	.4	3.6	.5	3.1	2.3	.2	2.1	.2	.2	Q		
Use Electricity To Heat Water and Have A/C	2.9	2.4	2.0	.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	.3	.3	Q		
and Lack A/C	2.0	1.3	1.1	.2	Q	Q	Q	.2	Q	.2	Q	Q	.2	.2	.2	Q		
Other	.2	.2	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
Use Electricity for Heating	14.5	7.2	6.4	.9	.7	.4	.3	1.0	Q	1.0	4.2	.5	3.7	1.4	1.1	.3		
Use Electricity To Heat Water and Have A/C	10.4	5.2	4.7	.5	.6	.4	.3	.5	Q	.5	3.1	.4	2.7	1.0	.8	.2		
and Lack A/C	2.7	1.3	1.1	.2	Q	Q	Q	.4	Q	.4	.6	Q	.6	.3	.3	Q		
Other	1.4	.7	.6	Q	Q	Q	Q	Q	Q	.5	Q	.4	Q	Q	Q	Q		
Use Fuel Oil for Main Heat	10.7	6.2	5.4	.8	.7	.6	Q	1.5	.5	.9	2.2	.3	1.9	.3	.2	Q		
Use Fuel Oil To Heat Water and Have A/C	2.4	1.0	1.0	Q	Q	Q	Q	.4	.2	.2	.9	.3	.6	Q	Q	Q		
and Lack A/C	2.7	.9	.9	Q	Q	Q	Q	.6	.2	.4	1.1	Q	1.1	Q	Q	Q		
Use Electricity To Heat Water and Have A/C	1.9	1.6	1.3	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
and Lack A/C	1.7	1.6	1.3	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
Other	2.0	1.0	.9	Q	Q	Q	Q	.4	Q	.3	2	Q	.2	Q	Q	Q		
Use Wood for Main Heat	6.5	5.8	4.9	.9	Q	Q	Q	.2	Q	Q	Q	Q	Q	.4	.4	Q		
Use LPG for Main Heat	3.9	2.6	1.9	.7	Q	Q	Q	Q	Q	Q	Q	Q	Q	1.2	.9	.3		
Use Kerosene for Main Heat	1.5	.8	.5	.3	Q	Q	Q	.2	Q	Q	Q	Q	Q	.4	.3	Q		
Use Coal for Main Heat	.7	.7	.6	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
No Heating Fuel	.6	.4	.2	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
Other Fuel	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		

See footnotes at end of table.

**Table 26. Fuel Use by Housing Structure and Ownership, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	Housing Structure by Ownership														
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Water-Heating Fuel</b>																
Natural Gas	46.9	28.2	23.9	4.2	2.7	2.0	0.7	7.5	1.5	6.0	7.6	0.6	6.9	0.9	0.8	0.2
Electricity	28.9	19.1	16.0	3.1	1.1	.6	.5	1.4	Q	1.4	3.9	.5	3.4	3.3	2.6	.7
Fuel Oil or Kerosene	5.4	2.3	2.1	Q	.2	.2	Q	1.0	.3	.6	2.0	.3	1.7	Q	Q	Q
LPG	3.8	2.9	2.1	.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	.8	.6	.2
Other/None	1.2	1.0	.8	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Main Cooking Fuel</b>																
Electricity	47.3	32.3	27.9	4.4	1.8	1.1	.6	3.4	5	2.9	7.8	.9	6.9	2.1	1.7	.4
Natural Gas	33.3	17.5	14.2	3.3	2.3	1.7	.6	6.5	1.5	5.1	5.7	.5	5.2	1.3	1.1	.2
Other/None	5.7	3.7	2.9	.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	1.8	1.3	.4
<b>Clothes-Drying Fuel</b>																
With Clothes Dryer	53.1	42.1	37.2	4.8	2.6	2.0	.7	3.2	1.2	2.1	2.3	1.0	1.3	2.9	2.7	.3
Electricity	39.6	31.3	27.7	3.6	1.8	1.3	.5	2.2	7	1.5	1.7	.6	1.1	2.6	2.3	.3
Natural Gas	12.6	10.0	8.8	1.1	.8	.7	Q	1.0	.5	.5	.5	.4	Q	.3	.2	Q
LPG	1.1	1.0	.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Without Clothes Dryer	33.2	11.4	7.8	3.7	1.4	.9	.6	6.8	.8	6.0	11.3	.4	10.9	2.2	1.4	.8
<b>Air Conditioning</b>																
Yes	51.5	32.2	28.0	4.2	2.5	1.9	.7	4.5	1.1	3.3	9.1	1.1	7.9	3.2	2.6	.6
Central Unit	25.7	16.8	15.5	1.3	1.4	.9	.5	1.5	.3	1.2	4.6	.6	4.0	1.3	1.2	.2
Electric	25.1	16.5	15.2	1.2	1.4	.9	.5	1.5	.3	1.2	4.3	.6	3.7	1.3	1.2	.2
Individual Room Units	25.8	15.4	12.5	2.9	1.1	.9	Q	3.0	.8	2.1	4.5	.5	4.0	1.8	1.4	.4
One Unit	17.9	10.1	8.0	2.1	.6	.5	Q	2.0	.5	1.6	3.7	Q	3.5	1.5	1.1	.4
Two or More Units	7.9	5.3	4.5	.8	.5	.4	Q	.9	.4	.6	.9	.4	.5	.3	.3	Q
No	34.9	21.3	17.0	4.3	1.5	1.0	.6	5.5	.8	4.7	4.5	.3	4.3	1.9	1.5	.4
<b>Number of Rooms That Can Be Air Conditioned</b>																
All	34.0	21.3	19.1	2.2	1.6	1.1	.5	2.5	.5	2.0	6.3	.7	5.6	2.3	1.9	.3
Some	17.5	10.9	8.9	2.0	.9	.8	Q	2.0	.7	1.3	2.8	.4	2.4	.9	.7	.3
None	34.9	21.3	17.0	4.3	1.5	1.0	.6	5.5	.8	4.7	4.5	.3	4.3	1.9	1.5	.4
<b>Wood Burned in Past 12 Months</b>																
Yes	22.9	20.4	18.3	2.1	.6	.5	Q	.7	.3	.4	.6	.3	.3	.7	.5	Q
One-Third Cord or Less	7.2	5.9	5.2	.7	.4	.3	Q	.4	Q	.3	.4	.2	.2	Q	Q	Q
More than One-Third Cord	15.7	14.5	13.1	1.4	.2	.2	Q	.2	Q	Q	Q	Q	Q	.6	.5	Q
No	63.4	33.1	26.7	6.4	3.4	2.4	1.1	9.3	1.7	7.6	13.0	1.1	11.9	4.5	3.6	.9
<b>Household Owns or Has Regular Use of a Vehicle</b>																
Yes	75.3	50.1	42.8	7.3	3.3	2.3	1.0	7.6	1.7	5.9	9.8	1.1	8.6	4.5	3.6	.9
No	11.0	3.4	2.2	1.2	.8	.6	.2	2.4	.3	2.1	3.8	.2	3.6	.6	.5	.2
<b>Availability of Natural Gas in the Neighborhood</b>																
Uses Any Natural Gas	55.4	32.8	27.9	5.0	3.0	2.2	.9	8.5	1.8	6.7	9.5	.9	8.6	1.5	1.3	.2
Does Not Use Natural Gas	30.9	20.7	17.2	3.5	1.0	.7	.3	1.5	.2	1.3	4.1	.5	3.6	3.6	2.8	.8
Gas Is Available (percent)	8.8	4.9	4.2	.7	.3	.2	Q	.7	Q	.6	2.4	Q	2.3	.5	.5	Q
Gas Is Not Available (percent)	28.5	23.7	24.4	20.3	28.2	28.8	Q	46.9	Q	48.5	58.3	Q	63.1	14.5	18.3	Q
Total Households in 2-or-More-Unit Buildings	23.6	--	--	--	--	--	--	10.0	2.0	8.0	13.6	1.4	12.2	--	--	--
Central Main Heating System for the Building (2-or-more-unit buildings)	9.6	--	--	--	--	--	--	3.2	.7	2.4	6.4	.4	6.0	--	--	--
No/No Main Heating System	14.1	--	--	--	--	--	--	6.8	1.2	5.6	7.2	1.0	6.2	--	--	--

See footnotes at end of table.

**Table 26. Fuel Use by Housing Structure and Ownership, as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Housing Structure by Ownership														
	Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>															
Yes .....	12.4	--	--	--	--	--	3.7	0.8	2.9	8.6	0.6	8.0	--	--	--
No/No Water-Heating Fuel															
No Hot Running Water .....	11.2	--	--	--	--	--	6.3	1.2	5.1	5.0	.8	4.2	--	--	--
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>															
Yes .....	.7	--	--	--	--	--	Q	Q	Q	.7	.2	.5	--	--	--
No .....	12.8	--	--	--	--	--	4.4	1.1	3.3	8.4	1.0	7.4	--	--	--
No Air Conditioning .....	10.0	--	--	--	--	--	5.5	.8	4.7	4.5	.3	4.3	--	--	--

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 27. Fuel Use by Housing Structure and Ownership, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Housing Structure by Ownership																		
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home						
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Fuels Used for Any Use (more than one fuel often used)</b>																				
Electricity	99.9	99.9	99.9	99.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Natural Gas	64.2	61.4	61.9	58.7	74.8	76.1	71.9	84.8	89.8	83.6	70.1	65.8	70.6	29.5	31.4	22.2				
Wood	27.8	39.8	42.3	26.8	15.7	17.7	Q	7.6	14.5	5.9	4.5	21.2	2.6	13.0	12.8	Q				
Fuel Oil/Kerosene	20.2	20.7	21.0	19.2	18.4	22.9	Q	18.0	28.9	15.3	20.0	24.8	19.4	22.1	20.2	29.4				
Fuel Oil	14.1	13.4	14.0	10.1	16.1	19.8	Q	15.3	26.6	12.6	18.8	21.5	18.5	5.4	4.6	Q				
Kerosene	7.4	9.0	8.5	11.6	4.1	Q	Q	3.4	Q	3.6	1.2	Q	Q	17.9	17.1	21.1				
LPG	9.1	10.4	9.5	15.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	37.9	36.9	41.8				
Coal	1.4	1.9	2.1	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Solar Collectors	1.0	1.3	1.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Main Heating Fuel</b>																				
Natural Gas	55.4	55.7	55.9	54.7	61.7	60.7	63.9	70.3	65.9	71.4	51.9	42.9	52.9	28.1	29.7	22.2				
Electricity	16.8	13.5	14.1	10.3	17.8	14.4	25.4	10.2	Q	11.9	30.8	35.6	30.2	26.5	26.6	26.2				
Fuel Oil	12.4	11.5	12.0	9.0	16.1	19.8	Q	14.6	25.9	11.8	16.2	21.5	15.6	5.0	4.1	Q				
Wood	7.5	10.9	10.8	11.0	Q	Q	Q	1.8	Q	Q	Q	Q	Q	7.9	8.9	Q				
LPG	4.5	4.8	4.3	7.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	23.4	22.4	27.1				
Kerosene	1.7	1.5	1.1	3.8	Q	Q	Q	1.7	Q	Q	Q	Q	Q	8.1	8.1	Q				
Other	1.0	1.4	1.5	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
None	.7	.7	.4	2.1	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
<b>Use Secondary Heating Fuel (more than one may be used)</b>																				
Yes	41.1	53.1	55.2	42.1	28.2	29.9	24.2	21.1	31.4	18.5	16.1	30.3	14.5	31.9	31.3	34.2				
Wood	20.1	28.6	31.1	15.6	14.6	16.2	Q	5.7	10.6	4.5	4.5	21.2	2.6	5.0	4.2	Q				
Electricity	14.1	17.2	17.4	16.3	9.0	8.1	Q	10.3	12.4	9.8	6.4	Q	6.5	12.5	12.8	Q				
Natural Gas	3.2	3.5	3.4	4.2	Q	Q	Q	4.0	9.0	2.8	2.3	Q	2.6	Q	Q	Q				
Fuel Oil/Kerosene	7.1	9.0	9.1	8.3	Q	Q	Q	2.5	Q	2.5	3.1	Q	3.1	10.6	10.0	Q				
Fuel Oil	1.6	1.8	1.9	Q	Q	Q	Q	Q	Q	Q	2.3	Q	2.6	Q	Q	Q				
Kerosene	5.7	7.4	7.4	7.7	Q	Q	Q	1.8	Q	Q	Q	Q	Q	10.4	9.8	Q				
LPG	1.5	1.9	2.0	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	4.8	4.8	Q				
Other	.6	.9	1.0	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
No	58.9	46.9	44.8	57.9	71.8	70.1	75.8	78.9	68.6	81.5	83.9	69.7	85.5	68.1	68.7	65.8				
<b>Fuel Combinations</b>																				
Use Natural Gas for Heating	55.4	55.7	55.9	54.7	61.7	60.7	63.9	70.3	65.9	71.4	51.9	42.9	52.9	28.1	29.7	22.2				
Use Natural Gas To Heat Water																				
and Have A/C	30.6	31.2	32.3	24.8	33.0	39.1	19.1	31.4	41.3	29.0	33.7	30.0	34.1	13.0	13.4	Q				
and Lack A/C	18.9	17.4	16.3	22.7	23.3	20.5	29.6	35.8	24.7	38.5	16.7	12.8	17.1	4.6	5.0	Q				
Use Electricity To Heat Water																				
and Have A/C	3.4	4.4	4.4	4.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	6.4	6.6	Q				
and Lack A/C	2.3	2.5	2.4	2.5	Q	Q	Q	2.2	Q	2.7	Q	Q	Q	4.2	4.7	Q				
Other	.3	.3	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
Use Electricity for Heating	16.8	13.5	14.1	10.3	17.8	14.4	25.4	10.2	Q	11.9	30.8	35.6	30.2	26.5	26.6	26.2				
Use Electricity To Heat Water																				
and Have A/C	12.1	9.7	10.4	6.3	15.2	12.8	20.9	5.0	Q	5.8	22.7	30.8	21.8	19.4	19.2	19.9				
and Lack A/C	3.1	2.4	2.3	2.6	Q	Q	Q	3.8	Q	4.8	4.6	Q	4.9	6.6	7.2	Q				
Other	1.6	1.4	1.4	Q	Q	Q	Q	Q	Q	Q	3.4	Q	3.5	Q	Q	Q				
Use Fuel Oil for Main Heat	12.4	11.5	12.0	9.0	16.1	19.8	Q	14.6	25.9	11.8	16.2	21.5	15.6	5.0	4.1	Q				
Use Fuel Oil To Heat Water																				
and Have A/C	2.8	1.9	2.2	Q	Q	Q	Q	3.5	8.1	2.4	6.6	21.1	4.9	Q	Q	Q				
and Lack A/C	3.1	1.8	2.0	Q	Q	Q	Q	5.6	9.5	4.7	7.8	Q	8.6	Q	Q	Q				
Use Electricity To Heat Water																				
and Have A/C	2.2	3.0	2.9	3.5	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
and Lack A/C	2.0	2.9	2.9	3.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
Other	2.4	1.9	2.0	Q	7.4	9.3	Q	4.4	Q	3.7	1.8	Q	2.0	Q	Q	Q				
Use Wood for Main Heat	7.5	10.9	10.8	11.0	Q	Q	Q	1.8	Q	Q	Q	Q	Q	7.9	8.9	Q				
Use LPG for Main Heat	4.5	4.8	4.3	7.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	23.4	22.4	27.1				
Use Kerosene for Main Heat	1.7	1.5	1.1	3.8	Q	Q	Q	1.7	Q	Q	Q	Q	Q	8.1	8.1	Q				
Use Coal for Main Heat	.9	1.2	1.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
No Heating Fuel	.7	.7	.4	2.1	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				
Other Fuel	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q				

See footnotes at end of table.

**Table 27. Fuel Use by Housing Structure and Ownership, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Housing Structure by Ownership															
	Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home			
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	
<b>Water-Heating Fuel</b>																
Natural Gas	54.3	52.7	53.2	50.0	65.7	71.0	53.6	74.8	76.4	74.4	55.8	46.1	57.0	18.5	19.5	14.2
Electricity	33.5	35.7	35.5	36.7	27.5	21.2	42.1	14.4	Q	16.9	28.6	32.4	28.2	64.9	64.0	68.1
Fuel Oil or Kerosene	6.3	4.2	4.7	Q	5.9	7.0	Q	9.6	17.6	7.6	14.4	21.5	13.5	Q	Q	Q
LPG	4.5	5.4	4.7	9.1	Q	Q	Q	Q	Q	Q	Q	Q	Q	15.0	14.8	16.1
Other/None	1.4	1.8	1.7	2.7	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Main Cooking Fuel</b>																
Electricity	54.8	60.4	62.0	52.0	43.2	40.5	49.5	33.7	24.9	35.9	57.1	61.2	56.6	40.9	40.5	42.1
Natural Gas	38.6	32.7	31.6	38.6	56.1	59.0	49.5	65.1	73.6	63.0	42.2	38.8	42.6	24.8	26.9	16.8
Other/None	6.6	6.9	6.4	9.5	Q	Q	Q	Q	Q	Q	Q	Q	Q	34.3	32.6	41.1
<b>Clothes-Drying Fuel</b>																
With Clothes Dryer	61.5	78.6	82.7	56.9	64.7	69.5	53.5	32.2	58.5	25.8	16.6	72.3	10.3	57.1	65.0	26.4
Electricity	45.8	58.4	61.4	42.6	44.5	45.4	42.6	21.8	33.6	18.9	12.6	43.3	9.1	50.1	56.6	24.7
Natural Gas	14.6	18.6	19.6	13.2	20.1	24.1	Q	10.2	24.2	6.8	4.0	29.0	Q	4.9	5.7	Q
LPG	1.3	1.8	1.9	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Without Clothes Dryer	38.5	21.4	17.3	43.1	35.3	30.5	46.5	67.8	41.5	74.2	83.4	27.7	89.7	42.9	35.0	73.6
<b>Air Conditioning</b>																
Yes	59.6	60.1	62.1	49.4	62.0	65.9	52.9	44.7	57.1	41.7	66.8	81.9	65.1	62.2	63.2	58.5
Central Unit	29.7	31.4	34.5	14.8	35.4	32.5	42.1	15.2	14.3	15.5	33.7	44.5	32.5	26.3	28.5	17.6
Electric	29.1	30.8	33.8	14.5	35.4	32.5	42.1	14.9	14.3	15.0	32.0	44.5	30.5	26.3	28.5	17.6
Individual Room Units	29.9	28.8	27.7	34.6	26.6	33.5	Q	29.5	42.8	26.2	33.1	37.3	32.7	35.9	34.6	41.0
One Unit	20.8	18.8	17.7	24.8	15.3	17.9	Q	20.4	24.7	19.3	26.9	Q	28.9	30.1	27.7	39.5
Two or More Units	9.1	10.0	10.0	9.8	11.3	15.5	Q	9.1	18.1	6.9	6.3	28.3	3.7	5.8	6.9	Q
No	40.4	39.9	37.9	50.6	38.0	34.1	47.1	55.3	42.9	58.3	33.2	18.1	34.9	37.8	36.8	41.5
<b>Number of Rooms That Can Be Air Conditioned</b>																
All	39.3	39.8	42.4	26.2	38.8	37.5	41.6	25.1	23.7	25.4	46.5	52.1	45.8	43.9	46.8	32.9
Some	20.3	20.3	19.8	23.3	23.2	28.4	Q	19.6	33.4	16.3	20.4	29.7	19.3	18.3	16.4	25.6
None	40.4	39.9	37.9	50.6	38.0	34.1	47.1	55.3	42.9	58.3	33.2	18.1	34.9	37.8	36.8	41.5
<b>Wood Burned in Past 12 Months</b>																
Yes	26.6	38.1	40.6	24.7	15.1	16.9	Q	6.8	14.0	5.0	4.2	19.7	2.4	13.0	12.8	Q
One-Third Cord or Less	8.4	11.0	11.5	8.2	9.0	10.6	Q	4.4	Q	3.6	3.3	14.0	2.0	Q	Q	Q
More than One-Third Cord	18.2	27.1	29.1	16.5	6.0	6.3	Q	2.5	Q	Q	Q	Q	Q	11.3	11.4	Q
No	73.4	61.9	59.4	75.3	84.9	83.1	89.0	93.2	86.0	95.0	95.8	80.3	97.6	87.0	87.2	86.2
<b>Household Owns or Has Regular Use of a Vehicle</b>																
Yes	87.2	93.6	95.0	86.1	80.9	80.3	82.1	76.3	86.5	73.8	71.9	82.5	70.7	87.7	88.9	83.0
No	12.8	6.4	5.0	13.9	19.1	19.7	17.9	23.7	13.5	26.2	28.1	17.5	29.3	12.3	11.1	17.0
<b>Availability of Natural Gas in the Neighborhood</b>																
Uses Any Natural Gas	64.2	61.4	61.9	58.7	74.8	76.1	71.9	84.8	89.8	83.6	70.1	65.8	70.6	29.5	31.4	22.2
Does Not Use Natural Gas	35.8	38.6	38.1	41.3	25.2	23.9	28.1	15.2	10.2	16.4	29.9	34.2	29.4	70.5	68.6	77.8
Gas Is Available	10.2	9.2	9.3	8.4	7.1	6.9	Q	7.1	Q	8.0	17.4	Q	18.6	10.2	12.6	Q
Gas Is Not Available	25.6	29.5	28.8	32.9	18.1	17.0	20.5	8.1	Q	8.5	12.5	26.5	10.9	60.3	56.0	76.6
<b>Total Households in 2-or-More-Unit Buildings</b>	100.0	--	--	--	--	--	--	100.0	100.0	100.0	100.0	100.0	100.0	--	--	--
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>																
Yes	40.5	--	--	--	--	--	--	31.8	37.3	30.4	46.9	27.8	49.1	--	--	--
No/No Main Heating System	59.5	--	--	--	--	--	--	68.2	62.7	69.6	53.1	72.2	50.9	--	--	--

See footnotes at end of table.

**Table 27. Fuel Use by Housing Structure and Ownership, as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Total	Housing Structure by Ownership														
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>																
Yes .....	52.4	--	--	--	--	--	--	37.4	40.3	36.7	63.4	42.2	65.8	--	--	--
No/No Water-Heating Fuel																
No Hot Running Water .....	47.6	--	--	--	--	--	--	62.6	59.7	63.3	36.6	57.8	34.2	--	--	--
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>																
Yes .....	3.1	--	--	--	--	--	--	Q	Q	Q	4.9	11.3	4.1	--	--	--
No .....	54.3	--	--	--	--	--	--	44.0	56.3	40.9	62.0	70.6	61.0	--	--	--
No Air Conditioning .....	42.6	--	--	--	--	--	--	55.3	42.9	58.3	33.2	18.1	34.9	--	--	--

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 28. Fuel Use by Average Square Feet per Housing Unit, as of November 1984**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Total Households</b>	86.3	1,672	1,440	1,434	1,225	1,711	914	819	534	
<b>Fuels Used for Any Use (more than one fuel often used)</b>										
Electricity	86.3	1,672	1,440	1,434	1,225	1,711	914	819	534	
Natural Gas	55.4	1,681	1,470	1,450	1,248	1,765	929	900	543	
Wood	24.0	2,271	1,918	2,139	1,784	1,981	1,356	995	628	
Fuel Oil/Kerosene	17.5	1,832	1,537	1,620	1,326	1,864	879	758	567	
Fuel Oil	12.2	1,911	1,585	1,782	1,365	1,983	881	714	611	
Kerosene	6.4	1,761	1,487	1,496	1,305	1,679	901	767	501	
LPG	7.8	1,530	1,252	1,224	1,047	1,451	905	713	459	
Coal	1.2	2,117	1,799	2,114	1,771	1,853	Q	Q	557	
Solar Collectors	.9	1,887	1,556	1,838	1,571	1,701	Q	Q	572	
<b>Main Heating Fuel and Equipment</b>										
Natural Gas	47.8	1,703	1,492	1,500	1,280	1,753	955	898	548	
Central Warm-Air Furnace	29.3	1,960	1,708	1,825	1,554	1,908	1,110	907	601	
Steam or Hot-Water System	8.7	1,458	1,312	990	958	2,098	889	Q	537	
Floor, Wall, or Pipeless Furnace	5.6	1,150	1,010	1,086	933	1,132	753	Q	391	
Room Heater/Other	4.2	1,163	1,012	1,020	960	1,082	816	Q	378	
Electricity	14.5	1,452	1,271	1,200	1,118	1,620	849	848	510	
Built-In Electric Units	5.4	1,323	1,145	1,152	1,018	1,431	852	793	475	
Central Warm-Air Furnace	5.2	1,447	1,298	1,162	1,106	1,753	849	938	516	
Heat Pump	3.1	1,739	1,514	1,500	1,320	1,771	838	822	582	
Other	.8	1,267	1,018	952	812	1,280	862	487	417	
Fuel Oil	10.7	1,902	1,586	1,728	1,350	1,994	888	712	625	
Steam or Hot-Water System	6.3	1,781	1,516	1,508	1,242	2,224	877	Q	591	
Central Warm-Air Furnace	4.0	2,162	1,756	1,960	1,564	1,907	991	725	586	
Other	.4	1,166	978	988	847	996	Q	Q	529	
Wood	6.5	1,880	1,539	1,657	1,360	1,587	1,156	1,025	485	
Heating Stove	5.7	1,809	1,469	1,594	1,296	1,507	Q	1,027	463	
Other	.8	2,388	2,044	2,160	1,704	2,189	Q	Q	640	
LPG	3.9	1,339	1,139	1,088	985	1,342	Q	709	442	
Central Warm-Air Furnace	2.3	1,444	1,260	1,129	1,029	1,698	Q	738	470	
Room Heater	1.0	1,108	891	1,064	864	920	Q	Q	374	
Other	.6	1,336	1,103	1,040	986	1,242	Q	Q	439	
Kerosene	1.5	1,140	990	910	840	1,178	822	696	385	
Other	.9	2,136	1,885	2,061	1,812	1,969	Q	Q	553	
None	.6	963	--	800	--	--	--	--	--	
<b>Use Secondary Heating Fuel (more than one may be used)</b>										
Yes	35.5	2,050	1,745	1,920	1,578	1,893	1,053	892	595	
Wood	17.4	2,419	2,060	2,250	1,900	2,127	1,392	987	684	
Electricity	12.1	1,871	1,593	1,680	1,370	1,770	948	850	574	
Natural Gas	2.8	1,686	1,492	1,541	1,364	1,655	1,076	Q	485	
Fuel Oil/Kerosene	6.2	1,916	1,602	1,768	1,452	1,786	873	825	521	
Fuel Oil	1.4	1,922	1,526	2,035	1,410	1,826	803	Q	478	
Kerosene	4.9	1,930	1,624	1,724	1,456	1,772	988	827	530	
LPG	1.3	1,770	1,411	1,540	1,290	1,526	Q	970	536	
Other	.5	2,318	1,871	2,300	1,788	1,858	Q	Q	646	
No	50.8	1,408	1,226	1,152	1,034	1,518	883	785	485	

See footnotes at end of table.

**Table 28. Fuel Use by Average Square Feet per Housing Unit, as of November 1984 (Continued)**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Use Secondary Heating Equipment (more than one may be used)</b>										
Yes .....	35.5	2,050	1,745	1,920	1,578	1,893	1,053	892	595	
Fireplace .....	13.3	2,487	2,122	2,310	1,969	2,196	1,383	Q	700	
Portable Electric Heater .....	8.2	1,763	1,489	1,584	1,287	1,662	932	755	541	
Heating Stove .....	4.5	2,311	1,949	2,154	1,825	2,004	Q	954	669	
Built-In Electric Units .....	3.5	2,157	1,863	1,920	1,587	2,021	1,029	Q	648	
Portable Kerosene Heater .....	4.7	1,953	1,639	1,728	1,460	1,787	997	812	536	
Central Warm-Air Furnace .....	2.0	1,981	1,635	1,918	1,500	1,772	Q	1,092	511	
Oil or Gas Room Heater .....	1.8	1,837	1,623	1,632	1,511	1,672	1,411	Q	601	
Cooking Stove .....	1.4	1,334	1,040	1,120	957	1,201	785	Q	332	
Heat Pump, Steam or Water System, Pipeless Furnace, or Other .....	2.8	1,997	1,712	1,941	1,456	1,947	1,000	Q	575	
No .....	50.8	1,408	1,226	1,152	1,034	1,518	883	785	485	
<b>Fuel Combinations</b>										
Use Natural Gas for Heating .....	47.8	1,703	1,492	1,500	1,280	1,753	955	898	548	
Use Natural Gas To Heat Water and Have A/C .....	26.4	1,790	1,582	1,589	1,361	1,856	995	983	595	
and Lack A/C .....	16.3	1,533	1,322	1,314	1,136	1,569	907	898	468	
Use Electricity To Heat Water and Have A/C .....	2.9	1,856	1,632	1,708	1,443	1,786	877	848	588	
and Lack A/C .....	2.0	1,723	1,494	1,334	1,254	1,714	975	716	554	
Other .....	.2	1,710	1,478	Q	Q	1,792	Q	Q	600	
Use Electricity for Heating .....	14.5	1,452	1,271	1,200	1,118	1,620	849	848	510	
Use Electricity To Heat Water and Have A/C .....	10.4	1,501	1,336	1,250	1,191	1,695	895	819	541	
and Lack A/C .....	2.7	1,373	1,108	1,137	990	1,398	779	931	438	
Other .....	1.4	1,243	1,101	900	858	1,437	696	Q	427	
Use Fuel Oil for Main Heat .....	10.7	1,902	1,586	1,728	1,350	1,994	888	712	625	
Use Fuel Oil To Heat Water and Have A/C .....	2.4	1,818	1,520	1,782	1,276	2,099	974	Q	617	
and Lack A/C .....	2.7	1,619	1,375	1,258	1,061	2,279	794	Q	529	
Use Electricity To Heat Water and Have A/C .....	1.9	1,997	1,656	1,720	1,491	1,750	Q	Q	673	
and Lack A/C .....	1.7	2,129	1,733	1,920	1,568	1,814	Q	Q	723	
Other .....	2.0	2,089	1,752	1,873	1,422	2,206	934	Q	641	
Use Wood for Main Heat .....	6.5	1,880	1,539	1,657	1,360	1,587	1,156	1,025	485	
Use LPG for Main Heat .....	3.9	1,339	1,139	1,088	985	1,342	Q	709	442	
Use Kerosene for Main Heat .....	1.5	1,140	990	910	840	1,178	822	696	385	
Use Coal for Main Heat .....	.7	2,030	1,765	2,000	1,702	1,854	Q	Q	523	
No Heating Fuel .....	.6	963	--	800	--	--	--	--	--	
Other Fuel .....	.1	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Water-Heating Fuel</b>										
Natural Gas .....	46.9	1,698	1,480	1,494	1,260	1,762	935	964	543	
Electricity .....	28.9	1,638	1,400	1,380	1,200	1,636	878	799	526	
Fuel Oil or Kerosene .....	5.4	1,742	1,461	1,482	1,191	2,160	873	Q	566	
LPG .....	3.8	1,524	1,234	1,338	1,105	1,386	829	742	457	
Wood .....	.3	1,621	1,441	Q	Q	1,473	Q	Q	542	
Coal .....	.2	1,717	1,379	Q	Q	1,388	Q	Q	505	
Solar .....	.5	1,703	1,364	1,659	1,476	1,552	Q	Q	520	
None .....	.2	1,025	863	Q	Q	825	Q	Q	231	
<b>Main Cooking Fuel</b>										
Electricity .....	47.3	1,803	1,540	1,600	1,332	1,801	874	850	574	
Natural Gas .....	33.3	1,540	1,354	1,292	1,134	1,629	953	927	496	
LPG .....	5.2	1,361	1,105	1,079	928	1,311	Q	704	420	
Wood .....	.2	1,501	927	Q	Q	899	Q	Q	482	
Other/None .....	.3	1,347	1,230	Q	Q	Q	Q	Q	632	

See footnotes at end of table.

**Table 28. Fuel Use by Average Square Feet per Housing Unit, as of November 1984 (Continued)**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Clothes-Drying Fuel</b>										
With Clothes Dryer .....	53.1	2,044	1,747	1,904	1,573	1,850	1,335	952	591	
Electricity .....	39.6	2,017	1,718	1,838	1,512	1,839	1,203	939	592	
Natural Gas .....	12.6	2,133	1,852	2,061	1,750	1,900	1,658	1,037	596	
LPG .....	1.1	2,039	1,660	1,736	1,458	1,729	Q	Q	522	
Without Clothes Dryer .....	33.2	1,078	948	863	810	1,227	786	643	417	
<b>Air Conditioning</b>										
Yes .....	51.5	1,731	1,517	1,500	1,300	1,798	955	841	576	
Central Unit .....	25.7	1,905	1,683	1,708	1,484	1,977	970	928	621	
Electric .....	25.1	1,910	1,686	1,711	1,484	1,976	973	928	627	
Individual Room Units .....	25.8	1,558	1,351	1,310	1,131	1,600	943	777	528	
One Unit .....	17.9	1,413	1,218	1,161	1,024	1,490	837	743	495	
Two or More Units .....	7.9	1,889	1,655	1,672	1,452	1,803	1,287	950	595	
No .....	34.9	1,585	1,326	1,322	1,133	1,578	858	783	476	
<b>Number of Rooms That Can Be Air Conditioned</b>										
All .....	34.0	1,717	1,519	1,482	1,308	1,821	906	863	580	
Some .....	17.5	1,759	1,511	1,554	1,290	1,754	1,047	788	568	
None .....	34.9	1,585	1,326	1,322	1,133	1,578	858	783	476	
<b>Wood Burned in Past 12 Months</b>										
Yes .....	22.9	2,272	1,920	2,142	1,788	1,981	1,386	995	628	
One-Third Cord or Less .....	7.2	2,392	2,051	2,195	1,838	2,158	1,403	Q	687	
More than One-Third Cord .....	15.7	2,218	1,860	2,106	1,754	1,906	1,344	1,005	601	
No .....	63.4	1,455	1,266	1,207	1,072	1,555	887	792	494	
<b>Household Owns or Has Regular Use of a Vehicle</b>										
Yes .....	75.3	1,764	1,515	1,543	1,308	1,749	971	843	542	
No .....	11.0	1,042	923	840	789	1,218	752	650	462	
<b>Total Single-Family Units and Mobile Homes</b>										
.....	62.7	1,940	1,638	1,788	1,456	1,711	--	819	569	
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>										
Uses Any Natural Gas .....	37.4	2,019	1,730	1,894	1,573	1,765	--	900	592	
Does Not Use Any Natural Gas .....	25.3	1,823	1,501	1,594	1,323	1,620	--	785	535	
Gas Is Available .....	5.7	1,944	1,577	1,814	1,378	1,662	--	733	587	
Gas Is Not Available .....	19.6	1,787	1,479	1,536	1,305	1,607	--	794	520	
<b>Total Households in 2-or-More-Unit Buildings</b>										
.....	23.6	962	914	810	800	--	914	--	413	
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	9.6	861	837	734	724	--	837	--	400	
No/No Main Heating System .....	14.1	1,030	966	882	850	--	966	--	422	
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>										
Yes .....	12.4	861	829	744	740	--	829	--	398	
No/No Water-Heating Fuel .....	11.2	1,072	1,007	912	868	--	1,007	--	428	

See footnotes at end of table.

**Table 28. Fuel Use by Average Square Feet per Housing Unit, as of November 1984 (Continued)**

Household Characteristics	Total Households (millions)	Average Number of Square Feet per Housing Unit				Mean Number of Heated Square Feet per Housing Unit			Mean Number of Heated Square Feet per Household Member	
		Mean		Median		Single-Family	Multi-Family	Mobile Home		
		Heated and Unheated	Heated	Heated and Unheated	Heated					
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>										
Yes .....	0.7	866	847	823	823	--	847	--	443	
No .....	12.8	1,005	961	839	814	--	961	--	476	
No Air Conditioning .....	10.0	913	858	772	750	--	858	--	346	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 29. Total Square Footage by Fuel Use, as of November 1984**

Household Characteristics	Total Households		Total Square Footage			
	(millions)	(percent)	Total Heated and Unheated		Total Heated	
			(billions)	(percent)	(billions)	(percent)
<b>Total Households</b>	86.3	100.0	144.4	100.0	124.3	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>						
Electricity	86.3	99.9	144.3	99.9	124.2	99.9
Natural Gas	55.4	64.2	93.2	64.5	81.4	65.5
Wood	24.0	27.8	54.5	37.7	46.0	37.0
Fuel Oil/Kerosene	17.5	20.2	32.0	22.2	26.8	21.6
Fuel Oil	12.2	14.1	23.3	16.2	19.3	15.6
Kerosene	6.4	7.4	11.3	7.8	9.5	7.6
LPG	7.8	9.1	12.0	8.3	9.8	7.9
Coal	1.2	1.4	2.5	1.7	2.1	1.7
Solar Collectors	.9	1.0	1.7	1.2	1.4	1.1
<b>Main Heating Fuel and Equipment</b>						
Natural Gas	47.8	55.4	81.5	56.5	71.4	57.4
Central Warm-Air Furnace	29.3	33.9	57.4	39.8	50.0	40.2
Steam or Hot-Water System	8.7	10.1	12.7	8.8	11.4	9.2
Floor, Wall, or Pipeless Furnace	5.6	6.5	6.5	4.5	5.7	4.6
Room Heater/Other	4.2	4.9	4.9	3.4	4.3	3.4
Electricity	14.5	16.8	21.1	14.6	18.4	14.8
Built-In Electric Units	5.4	6.3	7.2	5.0	6.2	5.0
Central Warm-Air Furnace	5.2	6.0	7.5	5.2	6.8	5.4
Heat Pump	3.1	3.6	5.3	3.7	4.6	3.7
Other	.8	.9	1.0	.7	.8	.7
Fuel Oil	10.7	12.4	20.4	14.1	17.0	13.7
Steam or Hot-Water System	6.3	7.3	11.2	7.8	9.5	7.7
Central Warm-Air Furnace	4.0	4.7	8.7	6.0	7.1	5.7
Other	.4	.5	.5	.3	.4	.3
Wood	6.5	7.5	12.1	8.4	9.9	8.0
Heating Stove	5.7	6.6	10.2	7.1	8.3	6.7
Other	.8	.9	1.9	1.3	1.6	1.3
LPG	3.9	4.5	5.2	3.6	4.4	3.6
Central Warm-Air Furnace	2.3	2.7	3.3	2.3	2.9	2.3
Room Heater	1.0	1.2	1.2	.8	.9	.7
Other	.6	.7	.8	.5	.6	.5
Kerosene	1.5	1.7	1.7	1.2	1.5	1.2
Other	.9	1.0	1.8	1.3	1.6	1.3
None	.6	.7	.5	.4	--	--
<b>Use Secondary Heating Fuel (more than one may be used)</b>						
Yes	35.5	41.1	72.8	50.4	62.0	49.9
Wood	17.4	20.1	42.0	29.1	35.8	28.8
Electricity	12.1	14.1	22.7	15.7	19.3	15.6
Natural Gas	2.8	3.2	4.7	3.2	4.1	3.3
Fuel Oil/Kerosene	6.2	7.1	11.8	8.2	9.9	7.9
Fuel Oil	1.4	1.6	2.6	1.8	2.1	1.7
Kerosene	4.9	5.7	9.5	6.6	8.0	6.4
LPG	1.3	1.5	2.3	1.6	1.9	1.5
Other	.5	.6	1.2	.9	1.0	.8
No	50.8	58.9	71.6	49.6	62.3	50.1
<b>Use Secondary Heating Equipment (more than one may be used)</b>						
Yes	35.5	41.1	72.8	50.4	62.0	49.9
Fireplace	13.3	15.4	33.1	22.9	28.2	22.7
Portable Electric Heater	8.2	9.5	14.4	10.0	12.2	9.8
Heating Stove	4.5	5.3	10.5	7.3	8.9	7.1
Built-In Electric Units	3.5	4.0	7.5	5.2	6.5	5.2
Portable Kerosene Heater	4.7	5.4	9.1	6.3	7.6	6.1
Central Warm-Air Furnace	2.0	2.3	4.0	2.7	3.3	2.6
Oil or Gas Room Heater	1.8	2.1	3.4	2.3	3.0	2.4
Cooking Stove	1.4	1.7	1.9	1.3	1.5	1.2
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	2.8	3.3	5.7	3.9	4.9	3.9
No	50.8	58.9	71.6	49.6	62.3	50.1

See footnotes at end of table.

**Table 29. Total Square Footage by Fuel Use, as of November 1984 (Continued)**

Household Characteristics	Total Households		Total Square Footage			
	(millions)	(percent)	Total Heated and Unheated		Total Heated	
			(billions)	(percent)	(billions)	(percent)
<b>Fuel Combinations</b>						
Use Natural Gas for Heating .....	47.8	55.4	81.5	56.5	71.4	57.4
Use Natural Gas To Heat Water						
and Have A/C .....	26.4	30.6	47.3	32.8	41.8	33.6
and Lack A/C .....	16.3	18.9	25.0	17.3	21.6	17.4
Use Electricity To Heat Water						
and Have A/C .....	2.9	3.4	5.4	3.8	4.8	3.8
and Lack A/C .....	2.0	2.3	3.4	2.3	2.9	2.3
Other .....	.2	.3	.4	.3	.3	.3
Use Electricity for Heating .....	14.5	16.8	21.1	14.6	18.4	14.8
Use Electricity To Heat Water						
and Have A/C .....	10.4	12.1	15.6	10.8	13.9	11.2
and Lack A/C .....	2.7	3.1	3.7	2.6	3.0	2.4
Other .....	1.4	1.6	1.7	1.2	1.5	1.2
Use Fuel Oil for Main Heat .....	10.7	12.4	20.4	14.1	17.0	13.7
Use Fuel Oil To Heat Water						
and Have A/C .....	2.4	2.8	4.4	3.0	3.7	3.0
and Lack A/C .....	2.7	3.1	4.3	3.0	3.7	2.9
Use Electricity To Heat Water						
and Have A/C .....	1.9	2.2	3.7	2.6	3.1	2.5
and Lack A/C .....	1.7	2.0	3.7	2.6	3.0	2.4
Other .....	2.0	2.4	4.3	2.9	3.6	2.9
Use Wood for Main Heat .....	6.5	7.5	12.1	8.4	9.9	8.0
Use LPG for Main Heat .....	3.9	4.5	5.2	3.6	4.4	3.6
Use Kerosene for Main Heat .....	1.5	1.7	1.7	1.2	1.5	1.2
Use Coal for Main Heat .....	.7	.9	1.5	1.0	1.3	1.0
No Heating Fuel .....	.6	.7	.5	.4	..	..
Other Fuel .....	.1	.1	.3	.2	.3	.3
<b>Water-Heating Fuel</b>						
Natural Gas .....	46.9	54.3	79.6	55.1	69.4	55.8
Electricity .....	28.9	33.5	47.3	32.8	40.4	32.5
Fuel Oil or Kerosene .....	5.4	6.3	9.5	6.6	7.9	6.4
LPG .....	3.8	4.5	5.9	4.1	4.7	3.8
Wood .....	.3	.3	.5	.3	.4	.3
Coal .....	.2	.2	.3	.2	.2	.2
Solar .....	.5	.6	.8	.6	.7	.5
None .....	.2	.3	.2	.2	.2	.2
<b>Main Cooking Fuel</b>						
Electricity .....	47.3	54.8	85.3	59.1	72.9	58.6
Natural Gas .....	33.3	38.6	51.3	35.5	45.1	36.3
LPG .....	5.2	6.1	7.1	4.9	5.8	4.7
Wood .....	.2	.2	.3	.2	.2	.1
Other/None .....	.3	.3	.4	.2	.3	.3
<b>Clothes-Drying Fuel</b>						
With Clothes Dryer .....	53.1	61.5	108.6	75.2	92.8	74.7
Electricity .....	39.6	45.8	79.8	55.3	67.9	54.7
Natural Gas .....	12.6	14.6	26.9	18.6	23.3	18.8
LPG .....	1.1	1.3	2.3	1.6	1.8	1.5
Without Clothes Dryer .....	33.2	38.5	35.8	24.8	31.5	25.3
<b>Air Conditioning</b>						
Yes .....	51.5	59.6	89.1	61.7	78.0	62.8
Central Unit .....	25.7	29.7	48.9	33.9	43.2	34.8
Electric .....	25.1	29.1	47.9	33.2	42.3	34.0
Individual Room Units .....	25.8	29.9	40.2	27.8	34.8	28.0
One Unit .....	17.9	20.8	25.3	17.5	21.8	17.6
Two or More Units .....	7.9	9.1	14.8	10.3	13.0	10.5
No .....	34.9	40.4	55.3	38.3	46.2	37.2
<b>Number of Rooms That Can Be Air Conditioned</b>						
All .....	34.0	39.3	58.3	40.4	51.6	41.5
Some .....	17.5	20.3	30.8	21.3	26.5	21.3
None .....	34.9	40.4	55.3	38.3	46.2	37.2

See footnotes at end of table.

**Table 29. Total Square Footage by Fuel Use, as of November 1984 (Continued)**

Household Characteristics	Total Households		Total Square Footage			
	(millions)	(percent)	Total Heated and Unheated		Total Heated	
			(billions)	(percent)	(billions)	(percent)
<b>Wood Burned in Past 12 Months</b>						
Yes .....	22.9	26.6	52.1	36.1	44.0	35.4
One-Third Cord or Less .....	7.2	8.4	17.3	12.0	14.8	11.9
More than One-Third Cord .....	15.7	18.2	34.8	24.1	29.2	23.5
No .....	63.4	73.4	92.3	63.9	80.3	64.6
<b>Household Owns or Has Regular Use of a Vehicle</b>						
Yes .....	75.3	87.2	132.9	92.1	114.1	91.8
No .....	11.0	12.8	11.5	7.9	10.2	8.2
<b>Total Single-Family Units and Mobile Homes</b>						
	62.7	100.0	121.7	100.0	102.7	100.0
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>						
Uses Any Natural Gas .....	37.4	59.6	75.5	62.1	64.7	63.0
Does Not Use Any Natural Gas .....	25.3	40.4	46.2	37.9	38.0	37.0
Gas Is Available .....	5.7	9.1	11.1	9.1	9.0	8.8
Gas Is Not Available .....	19.6	31.3	36.0	28.8	29.0	28.2
<b>Total Households in 2-or-More-Unit Buildings</b>						
	23.6	100.0	22.7	100.0	21.6	100.0
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>						
Yes .....	9.6	40.5	8.2	36.2	8.0	37.1
No/No Main Heating System .....	14.1	59.5	14.5	63.8	13.6	62.9
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>						
Yes .....	12.4	52.4	10.6	46.9	10.2	47.5
No/No Water-Heating Fuel .....	11.2	47.6	12.1	53.1	11.3	52.5
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>						
Yes .....	.7	3.1	.6	2.8	.6	2.9
No .....	12.8	54.3	12.9	56.8	12.3	57.2
No Air Conditioning .....	10.0	42.6	9.2	40.4	8.6	39.9

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 30. Fuel Use by Main Heating Fuel, as of November 1984  
(Million Households)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Total Households</b>	86.3	47.8	14.5	12.2	6.5	3.9	1.4
<b>Fuels Used for Any Use (more than one fuel often used)</b>							
Electricity	86.3	47.8	14.5	12.2	6.4	3.9	1.4
Natural Gas	55.4	47.8	1.2	4.8	1.2	Q	.3
Wood	24.0	9.5	3.9	2.8	6.5	.8	.5
Fuel Oil/Kerosene	17.5	2.0	1.2	12.2	1.6	.3	.2
Fuel Oil	12.2	.4	Q	10.8	1.0	Q	Q
Kerosene	6.4	1.6	1.2	2.4	.8	.3	Q
LPG	7.8	Q	.5	1.3	1.7	3.9	.3
Coal	1.2	Q	Q	Q	Q	Q	.7
Solar Collectors	.9	.4	.3	Q	Q	Q	Q
<b>Main Heating Equipment</b>							
Central Warm-Air Furnace	41.8	29.3	5.2	4.4	.4	2.3	.2
Forced Air	40.7	28.4	5.2	4.3	.4	2.3	.2
Gravity	1.1	.9	Q	Q	Q	Q	Q
Steam or Hot-Water System	15.2	8.7	Q	6.3	Q	Q	Q
Heat Pump	3.1	--	3.1	--	--	--	--
Built-In Electric Units	5.4	--	5.4	--	--	--	--
Floor, Wall, or Pipeless Furnace	6.5	5.6	Q	.3	Q	.5	Q
Oil or Gas Room Heater	5.5	3.9	--	.5	--	1.0	Q
Wood or Coal Heating Stove	6.1	--	--	--	5.7	--	.4
Fireplace	.4	Q	Q	Q	.3	Q	Q
Portable Electric Heater	.7	--	.7	--	--	--	--
Portable Kerosene Heater	.6	--	--	.6	--	--	--
Cooking Stove	.4	.3	Q	Q	Q	Q	Q
Other	Q	Q	Q	Q	Q	Q	Q
None	.6	--	--	--	--	--	.6
<b>Use Secondary Heating Fuel (more than one may be used)</b>							
Yes	35.5	17.1	5.9	5.6	4.7	1.8	.5
Wood	17.4	9.5	3.9	2.7	Q	.8	.3
Electricity	12.1	6.5	.9	2.0	1.9	.6	.2
Natural Gas	2.8	1.5	.3	.2	.8	Q	Q
Fuel Oil/Kerosene	6.2	1.6	1.2	1.5	1.5	.3	Q
Fuel Oil	1.4	Q	Q	.4	.9	Q	Q
Kerosene	4.9	1.6	1.1	1.1	.7	.3	Q
LPG	1.3	Q	Q	Q	.9	.2	Q
Other	.5	.3	Q	Q	Q	Q	Q
No	50.8	30.7	8.7	6.6	1.7	2.1	1.0
<b>Use Secondary Heating Equipment (more than one may be used)</b>							
Yes	35.5	17.1	5.9	5.6	4.7	1.8	.5
Fireplace	13.3	8.3	3.0	1.5	Q	.3	Q
Portable Electric Heater	8.2	4.8	.8	1.4	.6	.5	Q
Heating Stove	4.5	1.5	1.0	1.4	Q	.6	Q
Built-In Electric Units	3.5	1.8	.2	.6	.7	.2	Q
Portable Kerosene Heater	4.7	1.5	1.0	1.0	.7	.3	Q
Central Warm-Air Furnace	2.0	Q	Q	Q	1.7	Q	Q
Oil or Gas Room Heater	1.8	1.0	.2	.2	.3	Q	Q
Cooking Stove	1.4	.7	.2	.2	.2	.2	Q
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	2.8	.7	.6	.6	.9	Q	Q
No	50.8	30.7	8.7	6.6	1.7	2.1	1.0
<b>Water-Heating Fuel</b>							
Natural Gas	46.9	42.7	1.0	1.8	1.0	Q	.3
Electricity	28.9	4.9	13.1	4.7	3.7	1.9	.6
Fuel Oil or Kerosene	5.4	Q	Q	5.2	.2	Q	Q
LPG	3.8	Q	.2	.5	1.1	1.9	Q
Wood	.3	Q	Q	Q	.3	Q	Q
Coal	.2	Q	Q	Q	Q	Q	.2
Solar	.5	.2	.2	Q	Q	Q	Q
None	.2	Q	Q	Q	Q	Q	Q

See footnotes at end of table.

**Table 30. Fuel Use by Main Heating Fuel, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Main Cooking Fuel</b>							
Electricity .....	47.3	20.0	13.7	6.6	4.5	1.6	0.9
Natural Gas .....	33.3	27.8	.4	4.4	.6	Q	.2
LPG .....	5.2	Q	.4	1.1	1.2	2.3	.2
Wood .....	.2	Q	Q	Q	.2	Q	Q
Other/None .....	.3	Q	Q	Q	Q	Q	Q
<b>Clothes-Drying Fuel</b>							
With Clothes Dryer .....	53.1	30.0	8.7	6.9	4.7	2.2	.6
Electricity .....	39.6	18.8	8.7	5.8	4.0	1.8	.5
Natural Gas .....	12.6	11.2	Q	1.0	.4	Q	Q
LPG .....	1.1	Q	Q	.2	.3	.4	Q
Without Clothes Dryer .....	33.2	17.8	5.8	5.3	1.8	1.7	.8
<b>Air Conditioning</b>							
Yes .....	51.5	29.4	11.4	6.0	2.3	2.1	.3
Central Unit .....	25.7	14.9	8.1	1.1	.7	.8	Q
Electric .....	25.1	14.3	8.1	1.1	.7	.8	Q
Individual Room Units .....	25.8	14.5	3.3	4.8	1.6	1.3	.3
One Unit .....	17.9	10.1	2.3	3.1	1.2	.9	.2
Two or More Units .....	7.9	4.4	.9	1.7	.4	.4	Q
No .....	34.9	18.4	3.2	6.2	4.1	1.8	1.1
<b>Number of Rooms That Can Be Air Conditioned</b>							
All .....	34.0	19.4	9.6	2.3	1.3	1.3	Q
Some .....	17.5	10.0	1.8	3.7	1.0	.8	.2
None .....	34.9	18.4	3.2	6.2	4.1	1.8	1.1
<b>Wood Burned in Past 12 Months</b>							
Yes .....	22.9	9.1	3.6	2.6	6.4	.7	.5
One-Third Cord or Less .....	7.2	4.2	1.5	1.0	.3	Q	.2
More than One-Third Cord .....	15.7	4.9	2.1	1.6	6.2	.6	.3
No .....	63.4	38.8	10.9	9.6	Q	3.2	.9
<b>Household Owns or Has Regular Use of a Vehicle</b>							
Yes .....	75.3	41.4	13.2	9.8	6.2	3.4	1.3
No .....	11.0	6.4	1.3	2.4	.3	.5	.2
<b>Total Single-Family Units and Mobile Homes</b>							
Homes .....	62.7	33.8	9.3	8.3	6.3	3.8	1.2
<b>Availability of Natural Gas in the Neighborhood</b>							
(single-family units and mobile homes)							
Uses Any Natural Gas .....	37.4	33.8	.6	1.8	1.1	Q	.2
Does Not Use Natural Gas .....	25.3	--	8.7	6.5	5.2	3.8	1.1
Gas Is Available .....	5.7	--	2.6	2.0	.6	.5	Q
(percent) .....	22.6	--	29.4	30.0	11.8	12.5	Q
Gas Is Not Available .....	19.6	--	6.2	4.6	4.6	3.4	1.0
(percent) .....	77.4	--	70.6	70.0	88.2	87.5	89.8
<b>Total Households in 2-or-More-Unit Buildings</b>							
.....	23.6	14.1	5.2	3.9	.2	Q	.2
<b>Central Main Heating System for the Building</b>							
(2-or-more-unit buildings)							
Yes .....	9.6	6.3	Q	3.1	Q	Q	Q
No/No Main Heating System .....	14.1	7.8	5.1	.8	Q	Q	.2

See footnotes at end of table.

**Table 30. Fuel Use by Main Heating Fuel, as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>							
Yes .....	12.4	8.2	1.0	3.0	Q	Q	Q
No/No Water-Heating Fuel .....	11.2	5.9	4.2	.9	Q	Q	Q
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>							
Yes .....	.7	.4	Q	.2	Q	Q	Q
No .....	12.8	7.5	3.8	1.4	Q	Q	Q
No Air Conditioning .....	10.0	6.2	1.3	2.2	Q	Q	Q

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 31. Fuel Use by Main Heating Fuel, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>							
Electricity	99.9	100.0	100.0	100.0	99.3	100.0	98.9
Natural Gas	64.2	100.0	8.5	39.4	18.8	Q	22.6
Wood	27.8	19.9	26.6	22.9	100.0	20.9	37.1
Fuel Oil/Kerosene	20.2	4.1	8.2	100.0	24.7	8.9	11.5
Fuel Oil	14.1	.8	Q	88.1	14.9	Q	Q
Kerosene	7.4	3.4	8.1	19.9	12.0	8.1	Q
LPG	9.1	Q	3.5	10.8	26.8	100.0	18.6
Coal	1.4	Q	Q	Q	Q	Q	51.9
Solar Collectors	1.0	.8	2.2	Q	Q	Q	Q
<b>Main Heating Equipment</b>							
Central Warm-Air Furnace	48.4	61.2	35.8	36.1	6.2	58.9	16.2
Forced Air	47.1	59.3	35.7	35.1	5.5	58.7	12.8
Gravity	1.3	1.9	Q	Q	Q	Q	Q
Steam or Hot-Water System	17.7	18.2	Q	51.6	Q	Q	Q
Heat Pump	3.6	--	21.1	--	--	--	--
Built-In Electric Units	6.3	--	37.4	--	--	--	--
Floor, Wall, or Pipeless Furnace	7.5	11.8	Q	2.9	Q	12.9	Q
Oil or Gas Room Heater	6.4	8.1	--	4.4	--	26.7	Q
Wood or Coal Heating Stove	7.1	--	--	--	87.8	--	30.9
Fireplace	.4	Q	Q	Q	5.3	Q	Q
Portable Electric Heater	.8	--	4.8	--	--	--	--
Portable Kerosene Heater	.7	--	--	5.0	--	--	--
Cooking Stove	.4	.7	Q	Q	Q	Q	Q
Other	Q	Q	Q	Q	Q	Q	Q
None	.7	--	--	--	--	--	39.7
<b>Use Secondary Heating Fuel (more than one may be used)</b>							
Yes	41.1	35.8	40.4	45.8	73.0	45.1	32.6
Wood	20.1	19.9	26.6	22.5	Q	20.9	21.1
Electricity	14.1	13.7	5.9	16.2	29.6	16.0	16.1
Natural Gas	3.2	3.0	2.1	1.4	12.3	Q	Q
Fuel Oil/Kerosene	7.1	3.3	7.9	12.2	22.6	8.1	Q
Fuel Oil	1.6	Q	Q	3.4	13.4	Q	Q
Kerosene	5.7	3.3	7.9	8.8	11.3	8.1	Q
LPG	1.5	Q	Q	Q	13.2	5.2	Q
Other	.6	.5	Q	Q	Q	Q	Q
No	58.9	64.2	59.6	54.2	27.0	54.9	67.4
<b>Use Secondary Heating Equipment (more than one may be used)</b>							
Yes	41.1	35.8	40.4	45.8	73.0	45.1	32.6
Fireplace	15.4	17.2	21.0	12.5	Q	6.7	Q
Portable Electric Heater	9.5	9.9	5.7	11.2	10.0	12.4	Q
Heating Stove	5.3	3.2	6.6	11.2	Q	15.2	Q
Built-In Electric Units	4.0	3.7	1.3	4.5	11.4	4.2	Q
Portable Kerosene Heater	5.4	3.2	7.2	8.6	10.4	7.3	Q
Central Warm-Air Furnace	2.3	Q	Q	Q	25.6	Q	Q
Oil or Gas Room Heater	2.1	2.2	1.2	1.3	5.4	Q	Q
Cooking Stove	1.7	1.5	1.2	1.3	3.0	4.6	Q
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	3.3	1.4	4.2	4.5	14.6	Q	Q
No	58.9	64.2	59.6	54.2	27.0	54.9	67.4
<b>Water-Heating Fuel</b>							
Natural Gas	54.3	89.3	7.2	14.9	15.6	Q	19.8
Electricity	33.5	10.2	90.3	38.2	57.9	49.0	41.4
Fuel Oil or Kerosene	6.3	Q	Q	42.3	3.7	Q	Q
LPG	4.5	Q	1.2	4.2	16.7	48.7	Q
Wood	.3	Q	Q	Q	4.0	Q	Q
Coal	.2	Q	Q	Q	Q	Q	11.9
Solar	.6	.4	1.2	Q	Q	Q	Q
None	.3	Q	Q	Q	Q	Q	Q

See footnotes at end of table.

**Table 31. Fuel Use by Main Heating Fuel, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Main Cooking Fuel</b>							
Electricity	54.8	41.8	94.5	54.5	69.6	40.0	64.3
Natural Gas	38.6	58.0	2.7	36.1	8.7	Q	14.1
LPG	6.1	Q	2.7	8.8	19.2	59.3	15.9
Wood	.2	Q	Q	Q	2.4	Q	Q
Other/None	.3	Q	Q	Q	Q	Q	Q
<b>Clothes-Drying Fuel</b>							
With Clothes Dryer	61.5	62.7	60.3	56.2	72.5	56.8	43.2
Electricity	45.8	39.4	59.6	47.2	61.9	46.0	36.2
Natural Gas	14.6	23.5	Q	7.8	5.5	Q	Q
LPG	1.3	Q	Q	1.4	5.2	10.9	Q
Without Clothes Dryer	38.5	37.3	39.7	43.8	27.5	43.2	56.8
<b>Air Conditioning</b>							
Yes	59.6	61.5	78.3	48.9	36.1	53.0	23.2
Central Unit	29.7	31.1	55.8	9.3	11.1	20.3	Q
Electric	29.1	29.9	55.8	9.3	10.8	20.3	Q
Individual Room Units	29.9	30.3	22.5	39.5	25.0	32.7	20.3
One Unit	20.8	21.1	16.2	25.8	18.2	23.6	16.6
Two or More Units	9.1	9.2	6.3	13.8	6.8	9.0	Q
No	40.4	38.5	21.7	51.1	63.9	47.0	76.8
<b>Number of Rooms That Can Be Air Conditioned</b>							
All	39.3	40.5	66.1	18.6	20.6	32.9	Q
Some	20.3	20.9	12.2	30.3	15.6	20.1	17.0
None	40.4	38.5	21.7	51.1	63.9	47.0	76.8
<b>Wood Burned in Past 12 Months</b>							
Yes	26.6	18.9	24.8	21.4	99.4	18.8	35.9
One-Third Cord or Less	8.4	8.8	10.7	7.9	4.0	Q	11.7
More than One-Third Cord	18.2	10.2	14.2	13.5	95.4	16.6	24.2
No	73.4	81.1	75.2	78.6	Q	81.2	64.1
<b>Household Owns or Has Regular Use of a Vehicle</b>							
Yes	87.2	86.6	91.2	80.1	95.9	87.8	89.1
No	12.8	13.4	8.8	19.9	4.1	12.2	10.9
<b>Total Single-Family Units and Mobile Homes</b>							
Homes	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>							
Uses Any Natural Gas	59.6	100.0	6.1	21.7	17.7	Q	12.9
Does Not Use Natural Gas	40.4	--	93.9	78.3	82.3	100.0	87.1
Gas Is Available	9.1	--	27.6	23.5	9.7	12.5	Q
Gas Is Not Available	31.3	--	66.3	54.8	72.6	87.5	78.2
<b>Total Households in 2-or-More-Unit Buildings</b>							
100.0	100.0	100.0	100.0	100.0	100.0	Q	100.0
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>							
Yes	40.5	44.5	Q	79.9	Q	Q	Q
No/No Main Heating System	59.5	55.5	97.5	20.1	Q	Q	95.9
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>							
Yes	52.4	57.9	18.4	77.3	Q	Q	Q
No/No Water-Heating Fuel							
No Hot Running Water	47.6	42.1	81.6	22.7	Q	Q	Q

See footnotes at end of table.

**Table 31. Fuel Use by Main Heating Fuel, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Electricity	Fuel Oil or Kerosene	Wood	Liquefied Petroleum Gas	Other/None
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>							
Yes .....	3.1	2.8	Q	5.1	Q	Q	Q
No .....	54.3	53.2	72.4	37.0	Q	Q	Q
No Air Conditioning .....	42.6	44.0	25.1	57.9	Q	Q	Q

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 32. Fuel Use by Weather Zone and Census Regions  
as of November 1984  
(Million Households)**

Household Characteristics	Total	Weather Zone													
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	More than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	More than 2,000 CDD	2,000 CDD or More	Fewer than 4,000 HDD	
<b>Total Households</b>	86.3	9.0	21.5	22.5	20.0	13.3	9.9	8.4	21.6	17.1	12.2	6.7	10.4		
<b>Fuels Used for Any Use (more than one fuel often used)</b>															
Electricity	86.3	9.0	21.5	22.5	19.9	13.3	9.9	8.4	21.6	17.1	12.2	6.6	10.4		
Natural Gas	55.4	5.2	16.0	14.6	13.3	6.4	5.3	6.4	16.9	8.4	5.9	3.9	8.6		
Wood	24.0	3.0	5.4	6.9	6.3	2.5	3.3	1.3	4.8	6.3	2.4	3.1	2.8		
Fuel Oil/Kerosene	17.5	2.1	4.9	7.4	2.0	1.0	4.5	5.0	2.6	3.6	1.0	.6	Q		
Fuel Oil	12.2	1.8	3.7	6.0	.5	.2	3.9	4.5	1.5	1.6	.2	.5	Q		
Kerosene	6.4	.5	1.7	1.8	1.7	.8	1.1	.7	1.2	2.3	.8	.2	Q		
LPG	7.8	1.5	1.1	1.6	1.8	1.8	1.1	.3	1.9	2.0	1.7	.3	.6		
Coal	1.2	Q	.3	.6	Q	Q	.3	.2	Q	.5	Q	Q	Q		
Solar Collectors	.9	Q	.2	Q	.3	.3	Q	Q	Q	Q	Q	Q	.5		
<b>Main Heating Fuel and Equipment</b>															
Natural Gas	47.8	4.8	14.4	10.8	12.0	5.9	4.0	3.2	16.4	7.7	5.4	3.5	7.6		
Central Warm-Air Furnace	29.3	3.3	9.7	6.4	6.4	3.4	2.1	1.0	11.8	4.7	3.1	2.6	3.8		
Steam or Hot-Water System	8.7	1.3	4.0	3.0	.3	.2	1.6	2.1	3.4	.6	Q	.5	.3		
Floor, Wall, or Pipeless Furnace	5.6	.2	.2	.7	3.9	.6	Q	Q	.4	1.4	.5	.3	2.9		
Room Heater/Other	4.2	Q	.5	.7	1.3	1.7	.2	Q	.6	1.0	1.7	Q	.6		
Electricity	14.5	.7	1.8	3.2	3.9	5.0	.9	.5	1.3	3.8	4.7	1.8	1.6		
Built-In Electric Units	5.4	.4	1.0	1.8	1.5	.7	.7	.4	.4	1.2	.7	1.2	.7		
Central Warm-Air Furnace	5.2	Q	.5	.8	1.3	2.5	Q	Q	.6	1.6	2.3	.4	.3		
Heat Pump	3.1	Q	.3	.4	.8	1.6	Q	Q	.2	.8	1.4	Q	.4		
Other	.8	Q	Q	Q	.3	.3	Q	Q	Q	Q	.3	Q	Q		
Fuel Oil	10.7	1.3	3.3	5.5	.4	.2	3.4	4.4	1.1	1.1	.2	.4	Q		
Steam or Hot-Water System	6.3	.4	2.0	3.8	Q	Q	2.2	3.6	.2	.3	Q	Q	Q		
Central Warm-Air Furnace	4.0	.7	1.3	1.5	.3	Q	1.1	.9	.9	.7	Q	.3	Q		
Other	.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
Wood	6.5	1.4	1.0	1.8	1.8	.4	1.0	Q	1.4	2.4	.4	.7	.4		
Heating Stove	5.7	1.1	.9	1.6	1.6	.4	.8	Q	1.1	2.3	.4	.7	.2		
Other	.8	.3	Q	.2	.2	Q	.2	Q	.2	Q	Q	Q	Q		
LPG	3.9	.7	.4	.6	1.1	1.1	.2	Q	1.3	1.0	1.0	.2	.3		
Central Warm-Air Furnace	2.3	.6	.4	.3	.6	.4	Q	Q	1.0	.5	.4	Q	Q		
Room Heater	1.0	Q	Q	Q	.3	.5	Q	Q	Q	.3	.5	Q	Q		
Other	.6	Q	Q	Q	.2	Q	Q	Q	.2	.2	Q	Q	Q		
Kerosene	1.5	Q	.2	.3	.6	.3	.4	Q	Q	.8	.3	Q	Q		
Other	.9	Q	.3	.4	Q	Q	.2	Q	Q	.4	Q	Q	Q		
None	.6	Q	Q	Q	.2	.4	Q	Q	Q	Q	Q	Q	.5		
<b>Use Secondary Heating Fuel (more than one may be used)</b>															
Yes	35.5	3.4	8.1	9.7	9.2	5.1	4.3	2.9	7.2	8.3	5.0	3.4	4.5		
Wood	17.4	1.6	4.3	5.0	4.5	2.0	2.3	1.1	3.4	3.9	1.9	2.3	2.4		
Electricity	12.1	1.0	2.5	2.9	3.5	2.3	1.2	.7	2.2	2.7	2.2	1.1	2.0		
Natural Gas	2.8	.2	.6	.6	.7	.6	.3	.3	.5	.6	.6	.2	.4		
Fuel Oil/Kerosene	6.2	.6	1.7	2.2	1.2	.5	1.0	1.2	1.4	1.8	.5	.2	Q		
Fuel Oil	1.4	.3	.3	.7	Q	Q	.4	.5	.2	.2	Q	Q	Q		
Kerosene	4.9	.3	1.4	1.6	1.1	.5	.7	.7	1.2	1.6	.5	Q	Q		
LPG	1.3	.3	Q	.3	.3	.3	Q	Q	.4	.4	.3	Q	Q		
Other	.5	Q	.2	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q		
No	50.8	5.6	13.5	12.8	10.7	8.2	5.6	5.5	14.5	8.8	7.2	3.3	5.9		

See footnotes at end of table.

**Table 32. Fuel Use by Weather Zone and Census Regions as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Total	Weather Zone													
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
								Northeast		North Central	South		West		
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD			5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD	
<b>Use Secondary Heating Equipment (more than one may be used)</b>															
Yes .....	35.5	3.4	8.1	9.7	9.2	5.1	4.3	2.9	7.2	8.3	5.0	3.4	4.5		
Fireplace .....	13.3	.9	3.2	3.5	3.9	1.8	1.5	.9	2.6	2.7	1.8	1.6	2.2		
Portable Electric Heater .....	8.2	.6	1.7	1.9	2.3	1.7	.8	.6	1.5	1.7	1.6	.7	1.4		
Heating Stove .....	4.5	.8	1.2	1.6	.8	.2	.9	.3	1.0	1.2	.2	.8	.2		
Built-In Electric Units .....	3.5	.4	.7	.9	.9	.6	.5	.2	.7	.7	.6	.4	.6		
Portable Kerosene Heater .....	4.7	.2	1.4	1.5	1.1	.4	.7	.6	1.2	1.6	.4	Q	Q		
Central Warm-Air Furnace .....	2.0	.5	.4	.5	.5	Q	.3	Q	.5	.5	Q	.2	Q		
Oil or Gas Room Heater .....	1.8	Q	.3	.4	.4	.7	.2	.2	Q	.3	.5	.7	Q	Q	
Cooking Stove .....	1.4	Q	.3	.2	.4	.5	.2	Q	.2	.3	.5	.5	Q	.2	
Heat Pump, Steam or Water System, Pipeless Furnace, or Other .....	2.8	.2	.6	1.1	.7	.2	.4	.7	.4	.7	.2	.2	.2	.2	
No .....	50.8	5.6	13.5	12.8	10.7	8.2	5.6	5.5	14.5	8.8	7.2	3.3	5.9		
<b>Fuel Combinations</b>															
Use Natural Gas for Heating .....	47.8	4.8	14.4	10.8	12.0	5.9	4.0	3.2	16.4	7.7	5.4	3.5	7.6		
Use Natural Gas To Heat Water and Have A/C .....	26.4	1.7	8.1	7.0	5.4	4.3	1.8	2.1	9.7	4.6	3.9	1.2	3.0		
and Lack A/C .....	16.3	2.3	5.4	2.7	5.1	.9	1.9	.9	5.1	1.5	.7	1.8	4.3		
Use Electricity To Heat Water and Have A/C .....	2.9	.3	.3	.6	1.0	.7	Q	Q	.7	1.2	.7	Q	Q		
and Lack A/C .....	2.0	.5	.5	.5	.4	Q	.2	Q	.8	.4	Q	.4	Q		
Other .....	.2	Q	Q	Q	.2	Q	Q	Q	Q	Q	Q	Q	Q		
Use Electricity for Heating .....	14.5	.7	1.8	3.2	3.9	5.0	.9	.5	1.3	3.8	4.7	1.8	1.6		
Use Electricity To Heat Water and Have A/C .....	10.4	.2	1.3	1.7	3.0	4.3	.4	.4	1.0	3.3	4.0	.4	.9		
and Lack A/C .....	2.7	.4	.5	1.3	.3	.2	.4	Q	.2	.3	.2	1.3	Q		
Other .....	1.4	Q	Q	.2	.5	.6	Q	Q	Q	Q	.5	Q	.5		
Use Fuel Oil for Main Heat .....	10.7	1.3	3.3	5.5	.4	.2	3.4	4.4	1.1	1.1	.2	.4	Q		
Use Fuel Oil To Heat Water and Have A/C .....	2.4	Q	.7	1.5	Q	Q	.7	1.5	Q	Q	Q	Q	Q		
and Lack A/C .....	2.7	.3	.8	1.6	Q	Q	1.1	1.5	Q	Q	Q	Q	Q		
Use Electricity To Heat Water and Have A/C .....	1.9	.2	.4	.7	.4	.2	.3	.4	.3	.6	.2	Q	.3	Q	
and Lack A/C .....	1.7	.6	.5	.6	Q	Q	.5	.2	.6	.2	Q	.3	Q		
Other .....	2.0	Q	.8	1.1	Q	Q	.8	.9	Q	.2	Q	Q	Q		
Use Wood for Main Heat .....	6.5	1.4	1.0	1.8	1.8	.4	1.0	Q	1.4	2.4	.4	.7	.4		
Use LPG for Main Heat .....	3.9	.7	.4	.6	1.1	1.1	.2	Q	1.3	1.0	1.0	.2	.5		
Use Kerosene for Main Heat .....	1.5	Q	.2	.3	.6	.3	.4	Q	Q	.8	.3	Q	Q		
Use Coal for Main Heat .....	.7	Q	.2	.4	Q	Q	.2	Q	Q	.4	Q	Q	Q		
No Heating Fuel .....	.6	Q	Q	Q	.2	.4	Q	Q	Q	Q	Q	Q	Q	.5	
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Water-Heating Fuel</b>															
Natural Gas .....	46.9	4.3	14.5	11.1	11.5	5.6	4.5	3.9	15.2	6.6	5.1	3.3	8.2		
Electricity .....	28.9	3.4	4.5	7.1	7.2	6.7	2.8	1.2	5.0	9.1	6.3	3.1	1.4		
Fuel Oil or Kerosene .....	5.4	.5	1.7	3.2	Q	Q	2.1	3.0	Q	.2	Q	Q	Q		
LPG .....	3.8	.7	.6	.9	.9	.7	.4	Q	1.2	.9	.6	.2	.5		
Wood .....	.3	Q	Q	Q	Q	Q	Q	Q	Q	.2	Q	Q	Q		
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
Solar .....	.5	Q	Q	Q	.2	.2	Q	Q	Q	Q	Q	Q	Q	.3	
None .....	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	

See footnotes at end of table.

**Table 32. Fuel Use by Weather Zone and Census Regions as of November 1984 (Continued) (Million Households)**

Household Characteristics	Total	Weather Zone												
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast	North Central	South	West				
<b>Main Cooking Fuel</b>														
Electricity	47.3	6.5	10.8	11.0	11.0	8.1	5.5	2.3	11.5	11.0	7.4	5.4	4.3	
Natural Gas	33.3	1.5	9.8	10.4	7.8	3.8	3.4	5.8	9.0	4.8	3.5	1.1	5.7	
LPG	5.2	1.0	.8	1.0	1.1	1.3	.9	.2	1.1	1.2	1.2	Q	.5	
Wood	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Other/None	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Clothes-Drying Fuel</b>														
With Clothes Dryer	53.1	5.9	13.9	14.2	11.5	7.7	6.6	4.1	14.2	10.7	7.1	4.7	5.8	
Electricity	39.6	4.8	9.4	10.9	8.3	6.2	5.0	2.6	9.6	8.9	5.8	4.4	3.3	
Natural Gas	12.6	.9	4.3	3.1	3.0	1.3	1.4	1.5	4.2	1.6	1.2	.3	2.4	
LPG	1.1	.2	.2	.3	.3	.2	Q	Q	.4	.2	Q	Q	.2	
Without Clothes Dryer	33.2	3.1	7.7	8.3	8.5	5.7	3.4	4.3	7.5	6.5	5.1	2.0	4.6	
<b>Air Conditioning</b>														
Yes	51.5	2.9	12.1	13.4	11.9	11.2	4.2	5.1	12.9	12.2	10.4	2.0	4.7	
Central Unit	25.7	1.1	4.4	5.8	6.8	7.7	.8	1.1	5.9	6.8	7.0	1.1	2.8	
Electric	25.1	1.1	4.2	5.7	6.8	7.4	.8	1.1	5.8	6.8	6.8	.9	2.8	
Individual Room Units	25.8	1.8	7.7	7.6	5.1	3.5	3.3	4.0	7.0	5.3	3.4	.8	1.8	
One Unit	17.9	1.6	5.9	4.4	3.9	2.2	2.3	2.0	5.7	3.7	2.1	.7	1.3	
Two or More Units	7.9	.2	1.8	3.2	1.3	1.3	1.1	1.9	1.3	1.6	1.3	Q	.5	
No	34.9	6.2	9.4	9.1	8.0	2.1	5.8	3.3	8.7	5.0	1.7	4.7	5.7	
<b>Number of Rooms That Can Be Air Conditioned</b>														
All	34.0	1.7	6.2	8.1	8.6	9.3	1.4	2.1	8.2	9.2	8.6	1.5	3.0	
Some	17.5	1.1	5.9	5.3	3.3	1.9	2.7	3.0	4.8	3.0	1.8	.5	1.7	
None	34.9	6.2	9.4	9.1	8.0	2.1	5.8	3.3	8.7	5.0	1.7	4.7	5.7	
<b>Wood Burned in Past 12 Months</b>														
Yes	22.9	3.0	5.1	6.6	5.9	2.3	3.2	1.2	4.7	6.0	2.3	3.0	2.5	
One-Third Cord or Less	7.2	.6	1.5	2.2	2.2	.7	.8	.6	1.2	1.5	.7	1.0	1.3	
More than One-Third Cord	15.7	2.4	3.6	4.4	3.7	1.6	2.4	.6	3.5	4.5	1.5	2.0	1.2	
No	63.4	6.0	16.4	15.9	14.1	11.0	6.7	7.2	16.9	11.1	9.9	3.7	7.9	
<b>Household Owns or Has Regular Use of a Vehicle</b>														
Yes	75.3	8.3	18.6	18.7	17.7	12.0	8.7	6.1	18.9	14.9	10.9	6.3	9.5	
No	11.0	.7	2.9	3.8	2.3	1.3	1.2	2.3	2.7	2.2	1.2	.4	.9	
<b>Total Single-Family Units and Mobile Homes</b>														
62.7	6.9	14.6	16.1	14.4	10.7	6.9	4.6	15.7	14.3	9.8	4.9	6.5		
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>														
Uses Any Natural Gas	37.4	3.7	9.9	9.3	9.0	5.6	3.3	3.0	11.4	6.5	5.3	2.8	5.2	
Does Not Use Natural Gas	25.3	3.2	4.7	6.8	5.4	5.2	3.7	1.6	4.4	7.8	4.5	2.1	1.3	
Gas Is Available (percent)	5.7	.5	1.3	1.7	1.1	1.1	.7	.7	1.0	1.1	1.0	.9	.2	
Gas Is Not Available (percent)	22.6	14.7	28.4	25.5	20.2	20.8	19.5	46.8	22.8	14.2	22.8	44.7	15.6	
Gas Is Available (percent)	19.6	2.8	3.4	5.1	4.3	4.1	2.9	.8	3.4	6.7	3.5	1.1	1.1	
Gas Is Not Available (percent)	77.4	85.3	71.6	74.5	79.8	79.2	80.5	53.2	77.2	85.8	77.2	55.3	84.4	

See footnotes at end of table.

**Table 32. Fuel Use by Weather Zone and Census Regions as of November 1984 (Continued) (Million Households)**

Household Characteristics	Total	Weather Zone												
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast		North Central	South		West		
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD	
<b>Total Households in 2-or-More-Unit Buildings</b>	23.6	2.1	6.9	6.4	5.6	2.6	3.0	3.8	5.9	2.8	2.4	1.8	3.8	
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>														
Yes	9.6	1.2	3.8	4.1	.3	.2	1.3	3.4	3.5	.5	Q	.4	.3	
No/No Main Heating System	14.1	.9	3.1	2.4	5.3	2.4	1.7	.4	2.4	2.3	2.3	1.4	3.6	
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>														
Yes	12.4	1.4	4.3	4.4	1.8	.6	1.4	3.3	4.0	.9	.5	.7	1.6	
No/No Water-Heating Fuel														
No Hot Running Water	11.2	.7	2.6	2.1	3.8	2.0	1.6	.5	1.9	2.0	1.9	1.1	2.3	
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>														
Yes	.7	Q	.2	.3	Q	.2	Q	.2	Q	Q	.2	.2	Q	
No	12.8	.8	3.9	3.0	3.0	2.2	1.2	1.8	3.6	2.0	2.1	.4	1.7	
No Air Conditioning	10.0	1.3	2.8	3.1	2.6	.2	1.8	1.8	2.3	.7	Q	1.2	2.1	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 33. Fuel Use by Weather Zone and Census Regions  
as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Weather Zone											
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions						
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast	North Central	South	West			
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>													
Electricity	99.9	99.8	99.9	100.0	99.9	99.9	100.0	100.0	100.0	100.0	99.9	99.4	99.8
Natural Gas	64.2	57.2	74.3	64.8	66.4	48.2	53.7	76.6	78.0	49.0	48.7	58.5	82.3
Wood	27.8	33.6	24.9	30.5	31.5	18.5	33.7	15.0	22.3	37.0	19.6	46.0	26.6
Fuel Oil/Kerosene	20.2	23.4	23.0	32.8	10.1	7.5	45.6	59.6	12.1	21.2	8.2	9.1	Q
Fuel Oil	14.1	19.6	17.1	26.8	2.4	1.8	39.0	54.2	6.9	9.1	1.9	7.2	Q
Kerosene	7.4	5.0	7.9	7.9	8.3	6.0	10.8	8.6	5.8	13.5	6.6	2.4	Q
LPG	9.1	16.7	5.3	7.0	9.0	13.7	10.8	3.3	8.9	11.8	13.6	4.4	5.7
Coal	1.4	Q	1.5	2.6	Q	Q	3.2	2.0	Q	3.0	Q	Q	Q
Solar Collectors	1.0	Q	.8	Q	1.7	1.9	Q	Q	Q	Q	Q	Q	4.6
<b>Main Heating Fuel and Equipment</b>													
Natural Gas	55.4	53.3	67.0	47.9	59.9	44.3	40.1	38.2	75.8	44.9	44.6	52.9	73.3
Central Warm-Air Furnace	33.9	37.1	45.2	28.6	32.0	25.5	21.3	12.4	54.8	27.7	25.3	39.1	36.9
Steam or Hot-Water System	10.1	14.1	18.4	13.2	1.7	1.3	16.2	25.5	15.9	3.5	Q	7.1	2.9
Floor, Wall, or Pipeless Furnace	6.5	1.7	1.1	3.1	19.8	4.5	Q	Q	2.1	8.0	4.3	5.0	28.1
Room Heater/Other	4.9	Q	2.2	3.0	6.5	12.9	2.4	Q	3.0	5.7	13.9	Q	5.3
Electricity	16.8	7.2	8.5	14.0	19.4	37.7	8.8	5.9	6.2	22.0	38.2	26.8	15.3
Built-In Electric Units	6.3	5.0	4.7	8.2	7.4	5.0	7.3	4.8	2.1	7.2	5.4	18.4	7.1
Central Warm-Air Furnace	6.0	Q	2.1	3.7	6.5	18.5	Q	Q	2.7	9.2	19.0	6.2	2.7
Heat Pump	3.6	Q	1.5	1.6	4.1	11.7	Q	Q	1.0	4.8	11.1	Q	4.1
Other	.9	Q	Q	Q	1.4	2.4	Q	Q	Q	2.7	Q	Q	Q
Fuel Oil	12.4	14.0	15.4	24.4	2.1	1.8	33.8	53.0	5.3	6.5	1.9	6.0	Q
Steam or Hot-Water System	7.3	4.9	9.1	17.0	Q	Q	22.5	42.8	.8	1.6	Q	Q	Q
Central Warm-Air Furnace	4.7	8.2	6.2	6.8	1.5	Q	11.2	10.2	4.2	4.1	Q	4.9	Q
Other	.5	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Wood	7.5	15.1	4.7	8.1	9.0	3.3	9.8	Q	6.3	14.0	3.6	11.1	3.8
Heating Stove	6.6	12.1	4.3	7.3	8.0	3.0	8.1	Q	5.2	13.3	3.2	10.6	2.4
Other	.9	3.0	Q	.8	1.1	Q	1.7	Q	1.1	Q	Q	Q	1.5
LPG	4.5	8.1	2.1	2.5	5.5	8.0	1.6	Q	5.8	6.0	8.6	2.4	2.5
Central Warm-Air Furnace	2.7	6.4	1.7	1.3	3.2	3.2	Q	Q	4.5	3.2	3.5	Q	Q
Room Heater	1.2	Q	Q	Q	1.5	3.8	Q	Q	Q	1.9	4.2	Q	Q
Other	.7	Q	Q	Q	.9	Q	Q	Q	.8	.9	Q	Q	Q
Kerosene	1.7	Q	1.1	1.2	2.8	2.1	3.5	Q	Q	4.4	2.2	Q	Q
Other	1.0	Q	1.2	1.9	Q	Q	2.3	Q	Q	2.3	Q	Q	Q
None	.7	Q	Q	Q	1.0	2.8	Q	Q	Q	Q	Q	Q	4.6
<b>Use Secondary Heating Fuel (more than one may be used)</b>													
Yes	41.1	37.6	37.4	43.2	46.2	38.5	43.2	34.6	33.1	48.4	40.7	51.0	43.2
Wood	20.1	18.0	19.8	22.0	22.5	15.1	23.1	13.5	15.9	22.5	16.0	34.9	22.7
Electricity	14.1	11.0	11.6	13.0	17.4	16.9	12.4	8.3	10.4	15.5	18.0	16.3	19.4
Natural Gas	3.2	2.2	2.7	2.9	3.5	4.8	2.6	3.5	2.1	3.2	4.8	2.8	4.0
Fuel Oil/Kerosene	7.1	6.1	7.9	10.0	5.8	3.7	10.5	13.8	6.5	10.7	4.0	2.3	Q
Fuel Oil	1.6	3.1	1.5	3.1	Q	Q	4.0	5.9	.9	1.3	Q	Q	Q
Kerosene	5.7	3.2	6.7	7.0	5.6	3.7	7.2	8.1	5.7	9.5	4.0	Q	Q
LPG	1.5	3.7	Q	1.2	1.5	2.1	Q	Q	1.9	2.2	2.3	Q	Q
Other	.6	Q	.9	.9	Q	Q	Q	Q	Q	Q	Q	Q	Q
No	58.9	62.4	62.6	56.8	53.8	61.5	56.8	65.4	66.9	51.6	59.3	49.0	56.8

See footnotes at end of table.

**Table 33. Fuel Use by Weather Zone and Census Regions as of November 1984 (Continued) (Percent of Households)**

Household Characteristics	Total	Weather Zone													
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Northeast			North Central		Census Regions		
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	5,500 HDD or More		Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD		
<b>Use Secondary Heating Equipment (more than one may be used)</b>															
Yes .....	41.1	37.6	37.4	43.2	46.2	38.5	43.2	34.6	33.1	48.4	40.7	51.0	43.2		
Fireplace .....	15.4	9.9	15.0	15.4	19.4	13.8	14.9	10.3	12.2	15.6	14.7	24.2	21.5		
Portable Electric Heater .....	9.5	6.4	7.9	8.6	11.5	12.5	8.0	6.7	6.8	9.7	13.2	10.0	13.6		
Heating Stove .....	5.3	8.5	5.7	7.0	3.9	1.5	9.1	3.6	4.5	6.7	1.5	12.3	2.1		
Built-In Electric Units .....	4.0	4.1	3.4	4.2	4.3	4.3	4.7	1.9	3.1	3.8	4.7	6.0	5.4		
Portable Kerosene Heater .....	5.4	2.7	6.5	6.8	5.5	3.1	6.6	7.4	5.5	9.4	3.4	Q	Q		
Central Warm-Air Furnace .....	2.3	5.5	1.8	2.1	2.6	Q	3.0	Q	2.5	3.1	Q	3.1	Q		
Oil or Gas Room Heater .....	2.1	Q	1.4	1.7	1.9	4.9	1.6	1.8	1.4	3.0	5.4	Q	Q		
Cooking Stove .....	1.7	Q	1.2	.8	1.8	4.0	1.9	Q	.8	1.5	4.1	Q	2.2		
Heat Pump, Steam or Water System, Pipeless Furnace, or Other .....	3.3	2.6	2.9	4.7	3.6	1.6	3.7	7.8	2.1	4.3	1.6	3.4	2.2		
No .....	58.9	62.4	62.6	56.8	53.8	61.5	56.8	65.4	66.9	51.6	59.3	49.0	56.8		
<b>Fuel Combinations</b>															
Use Natural Gas for Heating .....	55.4	53.3	67.0	47.9	59.9	44.3	40.1	38.2	75.8	44.9	44.6	52.9	73.3		
Use Natural Gas To Heat Water and Have A/C .....	30.6	19.3	37.5	31.0	26.8	32.1	18.6	25.4	45.1	26.6	32.2	17.6	29.2		
and Lack A/C .....	18.9	25.3	25.1	12.0	25.5	6.4	18.7	11.0	23.6	8.9	6.1	27.3	41.8		
Use Electricity To Heat Water and Have A/C .....	3.4	3.7	1.6	2.5	5.0	5.3	Q	Q	3.3	7.2	5.7	Q	Q		
and Lack A/C .....	2.3	5.1	2.5	2.4	1.8	Q	2.1	Q	3.7	2.1	Q	6.5	Q		
Other .....	3	Q	Q	Q	.8	Q	Q	Q	Q	Q	Q	Q	Q		
Use Electricity for Heating .....	16.8	7.2	8.5	14.0	19.4	37.7	8.8	5.9	6.2	22.0	38.2	26.8	15.3		
Use Electricity To Heat Water and Have A/C .....	12.1	1.8	5.9	7.5	15.2	32.0	4.4	4.6	4.7	19.2	32.7	5.6	9.0		
and Lack A/C .....	3.1	4.7	2.2	5.7	1.5	1.5	4.0	Q	1.2	2.0	1.6	19.3	Q		
Other .....	1.6	Q	Q	.8	2.7	4.2	Q	Q	Q	Q	3.9	Q	5.2		
Use Fuel Oil for Main Heat .....	12.4	14.0	15.4	24.4	2.1	1.8	33.8	53.0	5.3	6.5	1.9	6.0	Q		
Use Fuel Oil To Heat Water and Have A/C .....	2.8	Q	3.4	6.8	Q	Q	7.5	17.6	Q	Q	Q	Q	Q		
and Lack A/C .....	3.1	3.1	3.7	7.0	Q	Q	10.7	18.2	Q	Q	Q	Q	Q		
Use Electricity To Heat Water and Have A/C .....	2.2	2.1	2.1	3.0	1.8	1.4	3.0	4.4	1.5	3.4	1.5	Q	Q		
and Lack A/C .....	2.0	6.3	2.5	2.7	Q	Q	4.5	1.9	2.8	1.3	Q	4.4	Q		
Other .....	2.4	Q	3.7	4.8	Q	Q	8.0	10.9	Q	1.1	Q	Q	Q		
Use Wood for Main Heat .....	7.5	15.1	4.7	8.1	9.0	3.3	9.8	Q	6.3	14.0	3.6	11.1	3.8		
Use LPG for Main Heat .....	4.5	8.1	2.1	2.5	5.5	8.0	1.6	Q	5.8	6.0	8.6	2.4	2.5		
Use Kerosene for Main Heat .....	1.7	Q	1.1	1.2	2.8	2.1	3.5	Q	Q	4.4	2.2	Q	Q		
Use Coal for Main Heat .....	.9	Q	1.0	1.8	Q	Q	2.3	Q	Q	2.3	Q	Q	Q		
No Heating Fuel .....	.7	Q	Q	Q	1.0	2.8	Q	Q	Q	Q	Q	Q	4.6		
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
<b>Water-Heating Fuel</b>															
Natural Gas .....	54.3	47.5	67.2	49.2	57.5	41.9	45.6	47.0	70.4	38.4	41.9	49.3	79.1		
Electricity .....	33.5	37.6	21.0	31.5	35.8	50.4	27.9	14.8	23.1	53.0	51.9	46.9	13.0		
Fuel Oil or Kerosene .....	6.3	5.5	7.9	14.2	Q	Q	21.0	36.2	Q	1.0	Q	Q	C		
LPG .....	4.5	8.2	2.9	4.1	4.3	5.3	3.9	Q	5.4	5.5	4.7	2.6	4.4		
Wood .....	.3	Q	Q	Q	Q	Q	Q	Q	Q	.9	Q	Q	C		
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	C		
Solar .....	.6	Q	Q	Q	1.1	1.3	Q	Q	Q	Q	Q	Q	3.2		
None .....	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		

See footnotes at end of table.

**Table 33. Fuel Use by Weather Zone and Census Regions  
as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Total	Weather Zone												
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Northeast			North Central	South		West
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD		
<b>Main Cooking Fuel</b>														
Electricity	54.8	72.5	50.1	48.8	54.9	60.5	55.3	28.0	53.0	64.1	60.6	80.5	41.3	
Natural Gas	38.6	16.3	45.7	46.1	39.2	28.8	34.6	69.8	41.5	27.9	28.9	16.8	54.3	
LPG	6.1	11.0	3.6	4.6	5.5	10.1	9.4	2.1	5.1	7.2	9.9	Q	4.4	
Wood	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Other/None	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Clothes-Drying Fuel</b>														
With Clothes Dryer	61.5	65.4	64.4	63.1	57.5	57.6	66.1	49.2	65.5	62.4	58.0	70.3	56.1	
Electricity	45.8	52.9	43.5	48.5	41.4	46.8	50.4	30.9	44.2	52.1	47.8	65.5	31.5	
Natural Gas	14.6	10.2	20.2	13.6	14.9	9.9	14.4	17.7	19.5	9.0	9.8	4.7	23.1	
LPG	1.3	2.5	.9	1.1	1.4	1.2	Q	Q	1.8	1.4	Q	Q	2.0	
Without Clothes Dryer	38.5	34.6	35.6	36.9	42.5	42.4	33.9	50.8	34.5	37.6	42.0	29.7	43.9	
<b>Air Conditioning</b>														
Yes	59.6	31.7	56.1	59.5	59.7	84.0	42.0	61.2	59.8	71.0	85.8	29.3	44.8	
Central Unit	29.7	11.7	20.5	25.6	34.0	57.6	8.5	13.7	27.2	40.0	57.7	16.6	27.3	
Electric	29.1	11.7	19.4	25.2	33.9	55.7	8.5	13.7	27.0	39.5	55.6	13.4	27.3	
Individual Room Units	29.9	20.0	35.7	33.9	25.8	26.4	33.6	47.5	32.6	31.1	28.1	12.7	17.6	
One Unit	20.8	17.6	27.4	19.6	19.3	16.3	22.9	24.4	26.4	21.9	17.3	11.1	12.7	
Two or More Units	9.1	2.4	8.3	14.3	6.5	10.1	10.7	23.1	6.2	9.2	10.8	Q	4.9	
No	40.4	68.3	43.9	40.5	40.3	16.0	58.0	38.8	40.2	29.0	14.2	70.7	55.2	
<b>Number of Rooms That Can Be Air Conditioned</b>														
All	39.3	19.3	28.7	35.9	43.3	69.8	14.5	25.0	37.8	53.7	70.6	21.8	28.7	
Some	20.3	12.4	27.4	23.6	16.4	14.2	27.5	36.2	22.0	17.4	15.1	7.4	16.2	
None	40.4	68.3	43.9	40.5	40.3	16.0	58.0	38.8	40.2	29.0	14.2	70.7	55.2	
<b>Wood Burned in Past 12 Months</b>														
Yes	26.6	33.4	23.9	29.3	29.5	17.2	32.3	14.6	21.7	35.2	18.7	45.2	23.9	
One-Third Cord or Less	8.4	6.5	7.1	9.7	11.0	5.6	8.2	7.2	5.6	8.8	6.0	15.7	12.6	
More than One-Third Cord	18.2	26.9	16.8	19.6	18.6	11.7	24.1	7.4	16.1	26.3	12.7	29.5	11.3	
No	73.4	66.6	76.1	70.7	70.5	82.8	67.7	85.4	78.3	64.8	81.3	54.8	76.1	
<b>Household Owns or Has Regular Use of a Vehicle</b>														
Yes	87.2	91.9	86.4	83.2	88.6	90.3	87.5	72.4	87.6	87.1	89.8	93.8	91.5	
No	12.8	8.1	13.6	16.8	11.4	9.7	12.5	27.6	12.4	12.9	10.2	6.2	8.5	
<b>Total Single-Family Units and Mobile Homes</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>														
Uses Any Natural Gas	59.6	53.4	67.7	57.7	62.4	51.8	47.3	65.2	72.3	45.4	53.6	57.8	80.1	
Does Not Use Natural Gas	40.4	46.6	32.3	42.3	37.6	48.2	52.7	34.8	27.7	54.6	46.4	42.2	19.9	
Gas Is Available	9.1	6.9	9.2	10.8	7.6	10.0	10.3	16.3	6.3	7.8	10.6	18.8	3.1	
Gas Is Not Available	31.3	39.7	23.1	31.5	30.0	38.2	42.4	18.5	21.4	46.9	35.8	23.3	16.8	

See footnotes at end of table.

**Table 33. Fuel Use by Weather Zone and Census Regions  
as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Total	Weather Zone													
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		Northeast		North Central		South			West						
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	4,000 HDD or More	Fewer than 4,000 HDD		
<b>Total Households in 2-or-More-Unit Buildings</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>															
Yes	40.5	58.5	54.6	63.3	5.7	7.0	43.3	89.1	58.6	19.0	Q	24.4	7.9		
No/No Main Heating System	59.5	41.5	45.4	36.7	94.3	93.0	56.7	10.9	41.4	81.0	94.6	75.6	92.1		
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>															
Yes	52.4	65.5	62.2	67.8	31.3	22.9	47.0	85.7	67.8	30.5	22.4	39.4	40.8		
No/No Water-Heating Fuel															
No Hot Running Water	47.6	34.5	37.8	32.2	68.7	77.1	53.0	14.3	32.2	69.5	77.6	60.6	59.2		
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>															
Yes	3.1	Q	2.7	5.3	Q	7.9	Q	5.1	Q	Q	6.8	9.0	Q		
No	54.3	37.8	56.4	46.5	52.9	84.6	40.1	48.0	61.0	69.6	87.7	24.6	43.6		
No Air Conditioning	42.6	62.2	40.9	48.2	47.1	7.5	59.0	46.9	38.8	26.7	Q	66.4	55.2		

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 34. Fuel Use by Year of Construction, as of November 1984  
(Million Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	86.3	5.0	10.1	10.7	8.2	7.5	12.6	7.0	25.2
<b>Fuels Used for Any Use (more than one fuel often used)</b>									
Electricity	86.3	5.0	10.1	10.7	8.2	7.5	12.6	7.0	25.2
Natural Gas	55.4	2.2	4.3	5.6	5.3	5.1	9.1	5.1	18.8
Wood	24.0	1.8	3.8	3.3	2.6	2.0	3.3	1.7	5.5
Fuel Oil/Kerosene	17.5	.5	1.6	1.3	1.2	1.4	2.8	1.7	7.1
Fuel Oil	12.2	.2	.8	.4	.7	.9	2.1	1.2	5.7
Kerosene	6.4	.3	.9	.9	.6	.5	1.0	.5	1.8
LPG	7.8	.4	.7	1.3	.8	.7	1.0	.4	2.4
Coal	1.2	Q	Q	Q	Q	Q	Q	Q	.5
Solar Collectors	.9	Q	.4	Q	Q	Q	Q	Q	.2
<b>Main Heating Fuel and Equipment</b>									
Natural Gas	47.8	2.1	3.9	5.1	4.7	4.3	8.3	4.4	15.0
Central Warm-Air Furnace	29.3	1.6	2.9	3.9	3.3	3.3	5.3	2.1	7.0
Steam or Hot-Water System	8.7	.4	.9	.9	.8	.3	.9	.8	3.6
Floor, Wall, or Pipeless Furnace	5.6	Q	Q	.2	.5	.6	1.5	1.0	1.8
Room Heater/Other	4.2	Q	Q	Q	Q	Q	.6	.6	2.6
Electricity	14.5	2.0	4.1	3.2	1.7	1.0	1.1	.7	1.0
Built-In Electric Units	5.4	.5	1.3	1.2	.9	.5	.3	.2	.5
Central Warm-Air Furnace	5.2	1.0	1.5	1.2	.5	.3	.2	.2	.2
Heat Pump	3.1	.4	1.1	.6	.2	.2	.3	Q	Q
Other	.8	Q	Q	Q	Q	Q	.3	.2	.2
Fuel Oil	10.7	.2	.6	.4	.5	.9	1.7	1.1	5.2
Steam or Hot-Water System	6.3	Q	.3	Q	.2	.7	.8	.6	3.5
Central Warm-Air Furnace	4.0	Q	.3	.2	.3	.2	.9	.4	1.5
Other	.4	Q	Q	Q	Q	Q	Q	Q	.2
Wood	6.5	.4	.7	.9	.7	.6	.7	.5	2.0
Heating Stove	5.7	.3	.6	.8	.6	.4	.6	.4	1.8
Other	.8	Q	Q	Q	Q	Q	Q	Q	.2
LPG	3.9	.2	.4	.7	.3	.4	.4	.2	1.2
Central Warm-Air Furnace	2.3	.2	.4	.6	.2	.2	Q	Q	.5
Room Heater	1.0	Q	Q	Q	Q	Q	.3	Q	.6
Other	.6	Q	Q	.2	Q	Q	Q	Q	Q
Kerosene	1.5	Q	Q	.2	.2	.2	.2	Q	.4
Other	.9	Q	Q	Q	Q	Q	Q	Q	.4
None	.6	Q	.2	Q	Q	Q	Q	Q	Q
<b>Use Secondary Heating Fuel (more than one may be used)</b>									
Yes	35.5	2.1	4.5	4.2	3.5	3.1	5.4	2.8	10.0
Wood	17.4	1.4	3.0	2.4	1.9	1.5	2.5	1.2	3.4
Electricity	12.1	.5	.8	1.3	1.1	1.3	2.3	1.1	3.9
Natural Gas	2.8	Q	.2	.2	.3	.3	.3	.4	1.1
Fuel Oil/Kerosene	6.2	.2	.8	.6	.5	.3	.9	.5	2.2
Fuel Oil	1.4	Q	Q	Q	Q	Q	.2	Q	.8
Kerosene	4.9	.2	.7	.6	.4	.3	.8	.4	1.5
LPG	1.3	Q	Q	.2	Q	Q	.2	Q	.4
Other	.5	Q	Q	Q	Q	Q	Q	Q	.2
No	50.8	2.9	5.7	6.4	4.8	4.4	7.2	4.2	15.2
<b>Use Secondary Heating Equipment (more than one may be used)</b>									
Yes	35.5	2.1	4.5	4.2	3.5	3.1	5.4	2.8	10.0
Fireplace	13.3	1.0	2.4	1.7	1.6	1.1	2.0	1.0	2.5
Portable Electric Heater	8.2	.3	.4	.5	.8	.8	1.6	.8	3.0
Heating Stove	4.5	.4	.8	.7	.3	.4	.7	.2	1.1
Built-In Electric Units	3.5	Q	.2	.6	.3	.3	.7	.3	.9
Portable Kerosene Heater	4.7	.2	.7	.6	.4	.3	.7	.4	1.4
Central Warm-Air Furnace	2.0	Q	.3	.3	.3	.2	.2	.2	.4
Oil or Gas Room Heater	1.8	Q	Q	Q	Q	.3	.3	.3	.6
Cooking Stove	1.4	Q	Q	.2	Q	Q	Q	Q	.9
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	2.8	.2	.4	.2	.2	.2	.2	.2	1.2
No	50.8	2.9	5.7	6.4	4.8	4.4	7.2	4.2	15.2

See footnotes at end of table.

**Table 34. Fuel Use by Year of Construction, as of November 1984 (Continued)**  
 (Million Households)

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Fuel Combinations</b>									
Use Natural Gas for Heating .....	47.8	2.1	3.9	5.1	4.7	4.3	8.3	4.4	15.0
Use Natural Gas To Heat Water and Have A/C .....	26.4	1.2	2.7	3.5	3.3	2.7	4.5	2.2	6.3
and Lack A/C .....	16.3	.7	.9	1.0	1.0	.9	2.9	1.6	7.3
Use Electricity To Heat Water and Have A/C .....	2.9	Q	.3	.5	.2	.5	.6	.3	.4
and Lack A/C .....	2.0	Q	Q	.3	Q	Q	.3	.2	.9
Other .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
Use Electricity for Heating .....	14.5	2.0	4.1	3.2	1.7	1.0	1.1	.7	1.0
Use Electricity To Heat Water and Have A/C .....	10.4	1.4	3.1	2.5	1.2	.7	.6	.5	.4
and Lack A/C .....	2.7	.4	.7	.4	.3	.2	.3	Q	.3
Other .....	1.4	Q	.2	.3	Q	Q	.2	Q	.2
Use Fuel Oil for Main Heat .....	10.7	.2	.6	.4	.5	.9	1.7	1.1	5.2
Use Fuel Oil To Heat Water and Have A/C .....	2.4	Q	.3	Q	.3	.4	.4	.2	.9
and Lack A/C .....	2.7	Q	Q	Q	Q	.2	.3	.4	1.4
Use Electricity To Heat Water and Have A/C .....	1.9	Q	.2	.2	Q	Q	.4	.3	.5
and Lack A/C .....	1.7	Q	Q	Q	Q	Q	.4	.2	.7
Other .....	2.0	Q	Q	Q	Q	Q	.2	Q	1.6
Use Wood for Main Heat .....	6.5	.4	.7	.9	.7	.6	.7	.5	2.0
Use LPG for Main Heat .....	3.9	.2	.4	.7	.3	.4	.4	.2	1.2
Use Kerosene for Main Heat .....	1.5	Q	Q	.2	.2	.2	.2	Q	.4
Use Coal for Main Heat .....	.7	Q	Q	Q	Q	Q	Q	Q	.3
No Heating Fuel .....	.6	Q	.2	Q	Q	Q	Q	Q	Q
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Water-Heating Fuel</b>									
Natural Gas .....	46.9	2.1	3.9	4.8	4.6	3.9	7.9	4.0	15.7
Electricity .....	28.9	2.5	5.2	5.0	2.7	2.5	3.4	2.2	5.4
Fuel Oil or Kerosene .....	5.4	Q	.4	Q	.4	.6	.7	.6	2.5
LPG .....	3.8	.3	.4	.7	.3	.3	.4	.2	1.2
Wood .....	.3	Q	Q	Q	Q	Q	Q	Q	Q
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
Solar .....	.5	Q	.2	Q	Q	Q	Q	Q	Q
None .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
<b>Main Cooking Fuel</b>									
Electricity .....	47.3	4.0	8.0	7.2	4.6	4.1	7.1	3.4	9.0
Natural Gas .....	33.3	.6	1.6	2.5	3.0	2.9	4.8	3.4	14.4
LPG .....	5.2	.4	.5	.9	.6	.5	.6	.2	1.5
Wood .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
Other/None .....	.3	Q	Q	Q	Q	Q	Q	Q	.2
<b>Clothes-Drying Fuel</b>									
With Clothes Dryer .....	53.1	3.3	6.9	6.5	5.2	4.9	8.6	4.1	13.6
Electricity .....	39.6	2.9	5.9	5.3	4.0	3.6	6.0	3.0	8.8
Natural Gas .....	12.6	.3	.9	1.0	1.1	1.2	2.4	1.1	4.6
LPG .....	1.1	Q	Q	.2	Q	.2	Q	Q	.3
Without Clothes Dryer .....	33.2	1.7	3.2	4.2	3.0	2.6	4.1	3.0	11.6
<b>Air Conditioning</b>									
Yes .....	51.5	3.2	7.4	7.8	5.9	5.1	7.5	4.0	10.7
Central Unit .....	25.7	2.2	5.2	5.2	3.4	2.8	3.4	1.4	2.1
Electric .....	25.1	2.2	5.2	5.0	3.2	2.7	3.4	1.3	2.1
Individual Room Units .....	25.8	.9	2.2	2.6	2.5	2.3	4.1	2.5	8.6
One Unit .....	17.9	.9	1.6	2.1	1.8	1.7	2.9	1.5	5.4
Two or More Units .....	7.9	Q	.6	.5	.7	.6	1.2	1.0	3.2
No .....	34.9	1.9	2.7	2.9	2.3	2.4	5.1	3.0	14.5
<b>Number of Rooms That Can Be Air Conditioned</b>									
All .....	34.0	2.7	6.2	6.1	4.3	3.5	4.4	2.2	4.7
Some .....	17.5	.5	1.3	1.7	1.7	1.6	3.1	1.8	6.0
None .....	34.9	1.9	2.7	2.9	2.3	2.4	5.1	3.0	14.5

See footnotes at end of table.

**Table 34. Fuel Use by Year of Construction, as of November 1984 (Continued)**  
**(Million Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Wood Burned in Past 12 Months</b>									
Yes .....	22.9	1.6	3.6	3.2	2.5	1.9	3.1	1.5	5.4
One-Third Cord or Less .....	7.2	.5	1.0	1.0	.9	.6	1.0	.4	1.8
More than One-Third Cord .....	15.7	1.2	2.6	2.2	1.6	1.4	2.1	1.1	3.5
No .....	63.4	3.4	6.5	7.4	5.8	5.5	9.5	5.5	19.8
<b>Household Owns or Has Regular Use of a Vehicle</b>									
Yes .....	75.3	4.8	9.4	9.7	7.1	6.6	11.4	6.0	20.3
No .....	11.0	.2	.8	.9	1.1	.9	1.2	1.0	4.8
<b>Total Single-Family Units and Mobile Homes</b>									
Homes .....	62.7	3.3	6.8	7.3	6.1	5.4	10.6	5.4	17.7
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>									
Uses Any Natural Gas .....	37.4	1.2	2.3	3.6	3.7	3.4	7.4	3.6	12.1
Does Not Use Natural Gas .....	25.3	2.1	4.5	3.7	2.4	1.9	3.3	1.8	5.6
Gas Is Available .....	5.7	.4	.9	.6	.6	.5	.9	.6	1.3
(percent) .....	22.6	19.1	20.7	15.3	24.0	23.9	27.0	32.7	23.4
Gas Is Not Available .....	19.6	1.7	3.6	3.2	1.8	1.5	2.4	1.2	4.3
(percent) .....	77.4	80.9	79.3	84.7	76.0	76.1	73.0	67.3	76.6
<b>Total Households in 2-or-More-Unit Buildings</b>									
.....	23.6	1.7	3.3	3.3	2.2	2.1	2.0	1.6	7.5
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>									
Yes .....	9.6	.3	1.0	.9	1.0	.9	.7	.9	3.9
No/No Main Heating System .....	14.1	1.4	2.3	2.4	1.2	1.2	1.3	.7	3.6
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>									
Yes .....	12.4	.5	1.5	1.6	1.2	1.3	1.0	.9	4.4
No/No Water-Heating Fuel .....	11.2	1.1	1.8	1.7	1.0	.8	.9	.7	3.1
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>									
Yes .....	.7	Q	Q	.2	.4	Q	Q	Q	Q
No .....	12.8	1.2	2.5	2.5	1.2	1.2	.8	.7	2.6
No Air Conditioning .....	10.0	.5	.8	.6	.6	.8	1.2	.8	4.9

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 35. Fuel Use by Year of Construction, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Fuels Used for Any Use (more than one fuel often used)</b>									
Electricity	99.9	99.7	100.0	99.9	100.0	100.0	100.0	99.7	99.9
Natural Gas	64.2	44.5	42.1	52.7	64.1	67.9	71.7	72.2	74.8
Wood	27.8	35.9	37.4	31.0	31.2	27.3	26.2	23.7	21.9
Fuel Oil/Kerosene	20.2	10.0	15.5	12.0	14.8	18.7	21.9	23.8	28.0
Fuel Oil	14.1	4.9	8.0	4.2	8.8	12.7	16.3	17.6	22.8
Kerosene	7.4	5.2	8.5	8.1	7.0	7.3	7.6	7.6	7.1
LPG	9.1	8.7	7.3	11.7	10.1	10.0	7.9	5.9	9.6
Coal	1.4	Q	Q	Q	Q	Q	Q	Q	1.9
Solar Collectors	1.0	Q	3.5	Q	Q	Q	Q	Q	.6
<b>Main Heating Fuel and Equipment</b>									
Natural Gas	55.4	41.7	38.9	48.3	57.1	57.7	66.0	62.3	59.4
Central Warm-Air Furnace	33.9	31.6	28.6	36.8	39.5	43.8	42.2	29.5	27.6
Steam or Hot-Water System	10.1	8.5	9.2	8.7	9.9	4.7	7.1	10.7	14.4
Floor, Wall, or Pipeless Furnace	6.5	Q	Q	1.7	6.3	7.5	11.7	14.1	7.1
Room Heater/Other	4.9	Q	Q	Q	Q	Q	5.0	8.0	10.3
Electricity	16.8	39.3	40.1	29.6	20.1	13.4	8.3	9.5	3.8
Built-In Electric Units	6.3	10.0	13.1	11.5	10.6	6.3	2.3	2.9	2.1
Central Warm-Air Furnace	6.0	20.5	15.1	11.5	6.3	4.2	1.4	3.4	.7
Heat Pump	3.6	8.1	11.3	5.8	2.8	2.7	2.7	Q	Q
Other	.9	Q	Q	Q	Q	Q	2.0	2.2	.8
Fuel Oil	12.4	4.5	6.1	3.4	6.6	11.9	13.6	16.3	20.7
Steam or Hot-Water System	7.3	Q	2.8	Q	2.8	8.7	6.2	9.0	13.8
Central Warm-Air Furnace	4.7	Q	3.2	2.3	3.8	2.9	6.8	6.4	6.1
Other	.5	Q	Q	Q	Q	Q	Q	Q	.8
Wood	7.5	7.3	7.0	8.7	8.2	7.6	5.7	6.7	8.0
Heating Stove	6.6	5.9	6.2	7.5	7.7	5.9	5.0	5.7	7.2
Other	.9	Q	Q	Q	Q	Q	Q	Q	.7
LPG	4.5	4.5	4.3	7.0	4.2	5.4	3.2	2.5	4.6
Central Warm-Air Furnace	2.7	4.3	4.1	5.4	2.4	3.2	Q	Q	1.8
Room Heater	1.2	Q	Q	Q	Q	Q	2.1	Q	2.3
Other	.7	Q	Q	1.4	Q	Q	Q	Q	Q
Kerosene	1.7	Q	Q	2.2	1.8	3.1	1.7	Q	1.6
Other	1.0	Q	Q	Q	Q	Q	Q	Q	1.6
None	.7	Q	1.8	Q	Q	Q	Q	Q	Q
<b>Use Secondary Heating Fuel (more than one may be used)</b>									
Yes	41.1	42.0	44.1	39.7	42.1	41.4	42.6	40.0	39.6
Wood	20.1	28.3	30.1	22.3	22.7	19.8	20.2	17.1	13.6
Electricity	14.1	9.4	7.8	12.0	13.0	16.9	17.9	15.3	15.6
Natural Gas	3.2	Q	1.6	1.9	3.2	4.1	2.4	5.1	4.5
Fuel Oil/Kerosene	7.1	4.5	8.0	6.0	6.5	4.5	7.3	6.8	8.8
Fuel Oil	1.6	Q	Q	Q	Q	Q	1.3	Q	3.2
Kerosene	5.7	4.2	7.4	5.4	5.2	4.3	6.0	5.6	5.9
LPG	1.5	Q	Q	2.1	Q	Q	1.3	Q	1.7
Other	.6	Q	Q	Q	Q	Q	Q	Q	.8
No	58.9	58.0	55.9	60.3	57.9	58.6	57.4	60.0	60.4
<b>Use Secondary Heating Equipment (more than one may be used)</b>									
Yes	41.1	42.0	44.1	39.7	42.1	41.4	42.6	40.0	39.6
Fireplace	15.4	20.3	24.0	16.1	19.3	15.2	15.6	14.0	9.7
Portable Electric Heater	9.5	5.1	3.7	4.8	10.1	10.8	12.5	11.5	12.0
Heating Stove	5.3	8.1	7.8	6.3	3.9	5.0	5.4	3.0	4.3
Built-In Electric Units	4.0	Q	2.4	5.4	3.2	4.4	5.4	4.7	3.7
Portable Kerosene Heater	5.4	4.2	6.8	5.5	5.1	4.3	5.4	5.2	5.6
Central Warm-Air Furnace	2.3	Q	3.0	3.0	3.5	2.5	1.6	2.6	1.6
Oil or Gas Room Heater	2.1	Q	Q	Q	Q	3.6	2.5	4.6	2.5
Cooking Stove	1.7	Q	Q	1.4	Q	Q	Q	Q	3.5
Heat Pump, Steam or Water System, Pipeless Furnace, or Other	3.3	3.7	4.4	1.9	2.1	3.3	1.7	2.8	4.6
No	58.9	58.0	55.9	60.3	57.9	58.6	57.4	60.0	60.4

See footnotes at end of table.

**Table 35. Fuel Use by Year of Construction, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Fuel Combinations</b>									
Use Natural Gas for Heating .....	55.4	41.7	38.9	48.3	57.1	57.7	66.0	62.3	59.4
Use Natural Gas To Heat Water and Have A/C .....	30.6	24.2	26.9	32.7	40.4	36.7	35.5	31.2	24.8
and Lack A/C/C .....	18.9	13.9	8.5	8.9	12.2	12.4	23.3	22.8	29.1
Use Electricity To Heat Water and Have A/C .....	3.4	Q	2.6	4.2	3.0	6.5	4.8	5.0	1.7
and Lack A/C .....	2.3	Q	Q	2.4	Q	Q	2.1	2.8	3.5
Other .....	3	Q	Q	Q	Q	Q	Q	Q	Q
Use Electricity for Heating .....	16.8	39.3	40.1	29.6	20.1	13.4	8.3	9.5	3.8
Use Electricity To Heat Water and Have A/C .....	12.1	28.3	30.6	23.3	14.5	9.0	4.8	7.6	1.6
and Lack A/C .....	3.1	8.2	7.2	3.6	3.8	3.1	2.2	Q	1.2
Other .....	1.6	Q	2.4	2.7	Q	Q	1.3	Q	1.0
Use Fuel Oil for Main Heat .....	12.4	4.5	6.1	3.4	6.6	11.9	13.6	16.3	20.7
Use Fuel Oil To Heat Water and Have A/C .....	2.8	Q	2.5	Q	3.2	4.9	3.1	3.0	3.4
and Lack A/C .....	3.1	Q	Q	Q	Q	2.7	2.4	5.3	5.7
Use Electricity To Heat Water and Have A/C .....	2.2	Q	1.8	1.7	Q	Q	3.2	4.0	2.2
and Lack A/C .....	2.0	Q	Q	Q	Q	Q	3.4	2.8	2.9
Other .....	2.4	Q	Q	Q	Q	Q	1.5	Q	6.5
Use Wood for Main Heat .....	7.5	7.3	7.0	8.7	8.2	7.6	5.7	6.7	8.0
Use LPG for Main Heat .....	4.5	4.5	4.3	7.0	4.2	5.4	3.2	2.5	4.6
Use Kerosene for Main Heat .....	1.7	Q	Q	2.2	1.8	3.1	1.7	Q	1.6
Use Coal for Main Heat .....	.9	Q	Q	Q	Q	Q	Q	Q	1.3
No Heating Fuel .....	.7	Q	1.8	Q	Q	Q	Q	Q	Q
Other Fuel .....	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Water-Heating Fuel</b>									
Natural Gas .....	54.3	40.9	38.3	44.9	56.3	52.8	62.6	57.1	62.3
Electricity .....	33.5	49.8	51.7	46.8	33.3	33.1	26.8	31.3	21.3
Fuel Oil or Kerosene .....	6.3	Q	3.7	Q	5.1	8.4	5.8	8.3	9.8
LPG .....	4.5	6.0	4.0	6.8	3.8	4.3	3.2	2.2	4.8
Wood .....	.3	Q	Q	Q	Q	Q	Q	Q	Q
Coal .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
Solar .....	.6	Q	1.8	Q	Q	Q	Q	Q	Q
None .....	.3	Q	Q	Q	Q	Q	Q	Q	Q
<b>Main Cooking Fuel</b>									
Electricity .....	54.8	80.0	78.6	67.3	56.4	54.6	55.9	47.9	35.8
Natural Gas .....	38.6	12.8	16.0	23.3	36.5	39.1	38.3	48.8	57.3
LPG .....	6.1	7.3	5.4	8.9	7.1	6.3	4.9	2.8	6.0
Wood .....	.2	Q	Q	Q	Q	Q	Q	Q	Q
Other/None .....	.3	Q	Q	Q	Q	Q	Q	Q	.7
<b>Clothes-Drying Fuel</b>									
With Clothes Dryer .....	61.5	66.5	68.6	60.8	63.3	65.8	67.8	57.9	54.1
Electricity .....	45.8	57.9	58.4	49.6	49.0	48.6	47.7	42.5	34.8
Natural Gas .....	14.6	6.4	9.1	9.7	13.3	15.5	19.3	15.1	18.2
LPG .....	1.3	Q	Q	1.5	Q	2.3	Q	Q	1.2
Without Clothes Dryer .....	38.5	33.5	31.4	39.2	36.7	34.2	32.2	42.1	45.9
<b>Air Conditioning</b>									
Yes .....	59.6	62.8	73.4	72.9	71.9	67.8	59.2	56.6	42.4
Central Unit .....	29.7	44.4	51.5	48.6	41.3	37.2	26.8	20.3	8.3
Electric .....	29.1	44.4	51.2	47.0	38.6	36.1	26.8	19.2	8.2
Individual Room Units .....	29.9	18.4	22.0	24.3	30.6	30.6	32.5	36.4	34.1
One Unit .....	20.8	17.9	16.1	19.3	22.2	22.3	23.1	21.5	21.5
Two or More Units .....	9.1	Q	5.9	5.0	8.5	8.2	9.3	14.8	12.6
No .....	40.4	37.2	26.6	27.1	28.1	32.2	40.8	43.4	57.6
<b>Number of Rooms That Can Be Air Conditioned</b>									
All .....	39.3	53.2	61.1	57.3	51.9	46.5	34.5	31.5	18.6
Some .....	20.3	9.6	12.4	15.6	20.0	21.3	24.7	25.1	23.8
None .....	40.4	37.2	26.6	27.1	28.1	32.2	40.8	43.4	57.6

See footnotes at end of table.

**Table 35. Fuel Use by Year of Construction, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Wood Burned in Past 12 Months</b>									
Yes .....	26.6	32.6	35.7	30.3	29.8	26.0	24.9	21.9	21.3
One-Third Cord or Less .....	8.4	9.6	10.0	9.6	10.9	7.5	7.9	6.1	7.2
More than One-Third Cord .....	18.2	23.1	25.8	20.7	18.8	18.5	16.9	15.9	14.1
No .....	73.4	67.4	64.3	69.7	70.2	74.0	75.1	78.1	78.7
<b>Household Owns or Has Regular Use of a Vehicle</b>									
Yes .....	87.2	95.4	92.6	91.2	86.5	88.2	90.4	85.1	80.8
No .....	12.8	4.6	7.4	8.8	13.5	11.8	9.6	14.9	19.2
<b>Total Single-Family Units and Mobile Homes</b>									
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Availability of Natural Gas in the Neighborhood (single-family units and mobile homes)</b>									
Uses Any Natural Gas .....	59.6	36.2	33.9	49.1	61.4	63.9	69.2	66.8	68.4
Does Not Use Natural Gas .....	40.4	63.8	66.1	50.9	38.6	36.1	30.8	33.2	31.6
Gas Is Available .....	9.1	12.2	13.7	7.8	9.3	8.6	8.3	10.8	7.4
Gas Is Not Available .....	31.3	51.6	52.4	43.1	29.3	27.5	22.5	22.4	24.2
<b>Total Households in 2-or-More-Unit Buildings</b>									
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Central Main Heating System for the Building (2-or-more-unit buildings)</b>									
Yes .....	40.5	19.7	30.8	27.5	44.3	42.2	33.9	56.4	52.1
No/No Main Heating System .....	59.5	80.3	69.2	72.5	55.7	57.8	66.1	43.6	47.9
<b>Central Water-Heating System for the Building (2-or-more-unit buildings)</b>									
Yes .....	52.4	32.5	45.4	47.9	55.0	60.8	52.4	55.1	58.2
No/No Water-Heating Fuel .....									
No Hot Running Water .....	47.6	67.5	54.6	52.1	45.0	39.2	47.6	44.9	41.8
<b>Central Air Conditioning System for the Building (2-or-more-unit buildings)</b>									
Yes .....	3.1	Q	Q	6.3	17.5	Q	Q	Q	Q
No .....	54.3	71.0	75.6	76.1	56.4	59.7	40.8	46.6	34.6
No Air Conditioning .....	42.6	29.0	23.0	17.6	26.1	37.7	59.2	51.5	65.2

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 36. Appliance Use by Census Region and Metropolitan Status, as of November 1984  
(Million Households)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan			Non- Metropolitan
						Total	Central City	Outside Central City	
<b>Total Households</b>	86.3	18.3	21.6	29.3	17.1	65.7	30.6	35.1	20.6
<b>Type of Appliances Used</b>									
Electric Appliances Used									
Television Set (color)	75.9	16.3	19.3	25.1	15.2	58.2	26.3	31.9	17.7
Clothes Washer (automatic)	61.1	13.0	15.2	21.1	11.8	45.5	18.3	27.2	15.6
Range (stove-top or burners)	46.5	7.7	11.2	18.2	9.4	33.4	12.8	20.6	13.1
Furnace Fan	42.6	5.9	14.5	14.4	7.9	32.7	14.1	18.6	9.9
Electric Oven	42.4	7.2	10.0	15.8	9.4	30.4	11.7	18.7	12.0
Clothes Dryer	39.6	7.6	9.6	14.7	7.7	28.2	10.3	17.9	11.3
Television Set (b/w)	37.3	9.0	9.0	13.3	6.0	29.1	13.3	15.8	8.3
Dishwasher	32.5	6.4	6.6	11.5	7.9	27.1	10.5	16.6	5.4
Window or Ceiling Fan	30.6	6.0	7.9	13.8	3.0	22.6	10.0	12.6	8.1
Microwave Oven	29.6	4.0	8.6	10.1	7.0	22.4	8.2	14.2	7.2
Wafer Heater (for one household's use only)	27.9	3.9	4.8	15.0	4.3	17.8	6.5	11.2	10.1
Air Conditioner (room)	26.8	7.5	7.2	9.3	2.8	20.1	9.4	10.8	6.7
Electric Blanket	25.4	4.4	6.4	9.4	5.2	18.1	7.1	11.0	7.3
Air Conditioner (central- for one household's use only)	24.6	1.8	5.8	13.3	3.7	20.3	8.3	12.0	4.2
Freezer (not frost-free)	21.3	3.8	6.7	7.5	3.3	13.2	4.6	8.6	8.1
Humidifier	11.3	2.8	6.2	1.6	.8	8.2	3.3	4.8	3.1
Freezer (frost-free)	11.2	1.6	2.7	4.4	2.5	7.8	2.8	5.1	3.4
Portable Electric Heater	8.9	1.4	1.5	3.7	2.3	6.8	3.2	3.6	2.1
Waterbed Heater	8.4	.8	2.8	1.9	3.0	6.4	2.7	3.7	2.0
Dehumidifier	7.5	2.8	3.6	1.1	Q	5.6	1.8	3.8	1.9
Whole-House Cooling Fan	6.7	1.3	1.7	3.1	.7	5.3	1.6	3.7	1.4
Evaporative Cooler	3.2	Q	Q	.5	2.6	2.5	1.2	1.3	.8
Clothes Washer (wringer)	2.7	.6	.8	1.0	.3	1.5	.7	.8	1.2
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.3	Q	Q	.2	Q	.2	Q	Q	Q
Gas Appliances Used									
Water Heater (for one household's use only)	41.3	7.0	12.5	11.8	10.0	32.8	15.2	17.5	8.5
Range (stove-top or burners)	39.0	10.4	10.2	10.9	7.6	31.7	17.4	14.3	7.3
Gas Oven	35.9	9.7	9.8	9.7	6.7	29.1	16.0	13.1	6.8
Clothes Dryer	13.7	3.1	4.6	3.0	2.9	11.8	4.8	6.9	1.9
Outdoor LPG Gas Grill	8.6	3.0	1.9	2.5	1.3	6.9	1.8	5.1	1.7
Outdoor Piped-Gas Grill	2.9	.6	.7	1.0	.6	2.7	.9	1.7	.3
Outdoor Gas Light	1.2	.2	.5	.5	Q	.9	.4	.5	.3
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.7	Q	Q	Q	.6	.7	.3	.4	Q
Oil Appliances Used									
Portable Kerosene Heater	5.3	1.3	1.2	2.5	.2	3.5	1.0	2.5	1.8
Water Heater (for one household's use only)	2.8	2.6	Q	.2	Q	2.6	.6	2.0	.2
<b>Number of Refrigerators Used</b>									
1	75.8	15.6	18.3	26.6	15.4	57.6	27.9	29.8	18.2
2 or More	10.3	2.6	3.3	2.7	1.7	7.9	2.6	5.3	2.4
None	.2	Q	Q	Q	Q	.2	Q	Q	Q
<b>Most-Used Refrigerator</b>									
Electric	86.1	18.2	21.5	29.3	17.1	65.5	30.5	35.0	20.6
Frost-Free	53.9	9.5	12.8	19.8	11.8	41.1	16.9	24.2	12.8
Not Frost-Free/No Freezer	32.2	8.7	8.8	9.5	5.2	24.4	13.6	10.8	7.8
No Refrigerator	.2	Q	Q	Q	Q	.2	Q	Q	Q
<b>Second-Used Refrigerator</b>									
Electric	10.3	2.6	3.3	2.7	1.7	7.9	2.6	5.3	2.4
Frost-Free	3.2	.8	.7	1.1	.7	2.5	.8	1.7	.7
Not Frost-Free/No Freezer	7.1	1.8	2.6	1.6	1.0	5.4	1.8	3.6	1.7
None	76.0	15.7	18.4	26.6	15.4	57.8	28.0	29.8	18.3

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 37. Appliance Use by Census Region and Metropolitan Status, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status				
		Northeast	North Central	South	West	Metropolitan		Central City	Outside Central City	Non-Metropolitan
						Total	Central City			
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Type of Appliances Used</b>										
Electric Appliances Used										
Television Set (color)	88.0	89.2	89.3	85.5	89.2	88.7	86.0	90.9	85.7	
Clothes Washer (automatic)	70.7	70.8	70.4	72.1	68.8	69.3	59.9	77.5	75.4	
Range (stove-top or burners)	53.9	41.9	51.6	62.2	55.3	50.8	41.7	58.7	63.7	
Furnace Fan	49.4	32.0	66.9	49.0	46.4	49.8	46.1	53.0	48.1	
Electric Oven	49.1	39.4	46.4	53.9	54.9	46.3	38.2	53.4	58.0	
Clothes Dryer	45.8	41.5	44.2	50.3	44.8	43.0	33.7	51.1	54.8	
Television Set (b/w)	43.2	49.2	41.8	45.3	35.2	44.3	43.5	44.9	40.0	
Dishwasher	37.6	35.2	30.6	39.2	46.2	41.3	34.2	47.4	25.9	
Window or Ceiling Fan	35.5	32.6	36.6	46.9	17.4	34.3	32.6	35.9	39.0	
Microwave Oven	34.3	21.6	39.8	34.3	40.8	34.1	26.7	40.6	34.9	
Water Heater (for one household's use only)	32.3	21.1	22.0	51.1	25.1	27.0	21.4	32.0	49.1	
Air Conditioner (room)	31.0	40.9	33.5	31.7	16.1	30.6	30.6	30.7	32.2	
Electric Blanket	29.4	24.1	29.7	32.0	30.3	27.5	23.2	31.3	35.4	
Air Conditioner (central-for one household's use only)	28.5	9.7	26.9	45.4	21.5	31.0	27.3	34.2	20.5	
Freezer (not frost-free)	24.7	20.8	30.9	25.7	19.2	20.1	15.2	24.4	39.1	
Humidifier	13.1	15.2	28.5	5.6	4.4	12.5	10.9	13.8	15.2	
Freezer (frost-free)	13.0	8.8	12.6	15.0	14.5	11.9	9.0	14.5	16.4	
Portable Electric Heater	10.3	7.4	7.1	12.7	13.4	10.3	10.5	10.2	10.2	
Waterbed Heater	9.8	4.4	12.8	6.5	17.3	9.8	8.8	10.7	9.7	
Dehumidifier	8.7	15.3	16.5	3.7	Q	8.6	5.8	10.9	9.3	
Whole-House Cooling Fan	7.8	6.9	7.7	10.6	4.0	8.1	5.2	10.6	6.8	
Evaporative Cooler	3.8	Q	Q	1.8	15.3	3.7	3.9	3.6	3.8	
Clothes Washer (wringer)	3.1	3.4	3.6	3.6	1.5	2.2	2.3	2.2	6.0	
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.4	Q	Q	.5	Q	.3	Q	Q	Q	
Gas Appliances Used										
Water Heater (for one household's use only)	47.8	38.1	57.9	40.1	58.6	49.9	49.7	50.0	41.2	
Range (stove-top or burners)	45.2	56.6	47.2	37.0	44.8	48.3	56.9	40.7	35.6	
Gas Oven	41.5	52.8	45.4	33.0	39.2	44.3	52.4	37.2	32.7	
Clothes Dryer	15.9	17.0	21.4	10.4	17.1	17.9	15.8	19.8	9.3	
Outdoor LPG Gas Grill	10.0	16.6	8.6	8.5	7.4	10.5	5.8	14.6	8.5	
Outdoor Piped-Gas Grill	3.4	3.4	3.4	3.5	3.3	4.1	3.1	4.9	1.3	
Outdoor Gas Light	1.4	.9	2.3	1.7	Q	1.4	1.2	1.5	1.3	
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.9	Q	Q	Q	3.2	1.1	1.0	1.2	Q	
Oil Appliances Used										
Portable Kerosene Heater	6.1	7.4	5.7	8.5	1.2	5.3	3.2	7.1	8.8	
Water Heater (for one household's use only)	3.2	14.1	Q	.5	Q	3.9	1.9	5.7	1.0	
Number of Refrigerators Used										
1	87.8	85.0	84.6	90.6	90.0	87.7	91.1	84.8	88.1	
2 or More	11.9	14.4	15.1	9.3	9.8	12.0	8.5	15.1	11.5	
None	.3	Q	Q	Q	Q	.2	Q	Q	Q	
Most-Used Refrigerator										
Electric	99.7	99.4	99.7	99.9	99.8	99.8	99.6	99.9	99.6	
Frost-Free	62.4	51.9	59.0	67.4	69.3	62.5	55.2	69.0	61.9	
Not Frost-Free/No Freezer	37.3	47.6	40.6	32.5	30.5	37.2	44.5	30.9	37.7	
No Refrigerator	.3	Q	Q	Q	Q	.2	Q	Q	Q	
Second-Used Refrigerator										
Electric	11.9	14.4	15.1	9.3	9.8	12.0	8.5	15.1	11.5	
Frost-Free	3.7	4.4	3.1	3.7	3.8	3.8	2.7	4.8	3.4	
Not Frost-Free/No Freezer	8.2	10.0	12.0	5.5	5.9	8.2	5.9	10.3	8.1	
None	88.1	85.6	84.9	90.7	90.2	88.0	91.5	84.9	88.5	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 38. Appliance Use by Family Income as of November 1984  
(Million Households)**

Household Characteristics	Total	1984 Family Income								Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More			
<b>Total Households</b>	86.3	7.9	14.0	13.1	9.0	8.4	15.3	18.7	13.7	19.6	
<b>Type of Appliances Used</b>											
Electric Appliances Used											
Television Set (color)	75.9	5.3	11.1	11.3	7.9	7.7	14.4	18.2	9.9	14.6	
Clothes Washer (automatic)	61.1	3.7	7.8	7.9	6.4	5.9	12.3	17.2	7.1	10.7	
Range (stove-top or burners)	46.5	3.3	6.5	6.4	4.7	4.5	9.0	12.1	5.9	8.6	
Furnace Fan	42.6	2.6	6.0	5.7	4.3	4.3	8.3	11.4	4.7	7.3	
Electric Oven	42.4	2.8	5.8	5.8	4.3	4.2	8.2	11.2	5.1	7.5	
Clothes Dryer	39.6	1.6	4.7	5.0	4.0	4.1	8.8	11.3	3.6	5.8	
Television Set (b/w)	37.3	3.9	5.6	5.1	3.9	3.2	6.7	8.8	6.5	9.0	
Dishwasher	32.5	.5	2.2	3.4	2.4	3.3	7.5	13.2	1.5	2.3	
Window or Ceiling Fan	30.6	2.3	4.4	4.5	3.4	3.1	6.1	6.9	4.2	6.2	
Microwave Oven	29.6	.5	2.3	3.1	2.7	3.2	7.4	10.4	1.7	2.8	
Water Heater (for one household's use only)	27.9	2.7	4.7	4.0	3.1	2.7	4.7	6.0	4.7	6.6	
Air Conditioner (room)	26.8	2.1	4.2	4.4	3.0	3.0	5.2	4.9	3.5	5.1	
Electric Blanket	25.4	1.5	3.5	4.2	2.7	2.0	4.7	6.9	2.5	3.9	
Air Conditioner (central-for one household's use only)	24.6	.9	2.7	3.0	2.2	2.2	5.1	8.4	1.9	2.9	
Freezer (not frost-free)	21.3	1.5	3.0	2.9	2.1	2.2	4.1	5.5	2.8	4.2	
Humidifier	11.3	.2	1.1	1.2	1.0	1.0	2.6	4.3	.7	1.2	
Freezer (frost-free)	11.2	.6	1.3	1.3	.9	.8	2.3	3.9	1.3	1.9	
Portable Electric Heater	8.9	1.0	1.4	1.2	1.1	.6	1.9	1.6	1.6	2.2	
Waterbed Heater	8.4	Q	.8	.9	.9	.9	2.1	2.7	.6	1.0	
Dehumidifier	7.5	Q	.5	.4	.6	.9	2.1	2.9	.3	.5	
Whole-House Cooling Fan	6.7	.2	.4	.6	.4	.9	1.7	2.5	.4	.7	
Evaporative Cooler	3.2	.2	.5	.6	.4	.2	.6	.6	.5	.7	
Clothes Washer (wringer)	2.7	.5	.9	.5	.3	Q	.2	.2	1.0	1.3	
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.3	Q	Q	Q	Q	Q	Q	.2	Q	Q	
Gas Appliances Used											
Water Heater (for one household's use only)	41.3	3.1	5.6	6.1	4.3	3.8	8.0	10.5	5.6	8.1	
Range (stove-top or burners)	39.0	4.4	7.2	6.7	4.3	3.8	6.1	6.7	7.5	10.6	
Gas Oven	35.9	3.9	6.5	6.1	3.9	3.5	5.9	6.1	6.7	9.5	
Clothes Dryer	13.7	.6	1.3	1.5	1.3	1.2	2.8	5.0	1.3	1.9	
Outdoor LPG Gas Grill	8.6	Q	.4	.6	.7	.7	2.2	4.0	.2	.3	
Outdoor Piped-Gas Grill	2.9	Q	.2	.2	Q	.2	.7	1.5	Q	.2	
Outdoor Gas Light	1.2	Q	Q	Q	.2	Q	.2	.4	Q	.2	
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.7	Q	Q	Q	Q	Q	Q	.6	Q	Q	
Oil Appliances Used											
Portable Kerosene Heater	5.3	.4	.6	.7	.6	.7	1.0	1.4	.7	.9	
Water Heater (for one household's use only)	2.8	Q	.4	.3	.2	.3	.6	.7	.2	.3	
<b>Number of Refrigerators Used</b>											
1	75.8	7.7	13.1	12.0	8.0	7.3	12.8	14.9	13.1	18.6	
2 or More	10.3	.2	.8	1.0	.9	1.0	2.4	3.9	.5	.9	
None	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Most-Used Refrigerator</b>											
Electric	86.1	7.9	13.9	13.1	9.0	8.4	15.2	18.7	13.6	19.5	
Frost-Free	53.9	3.1	7.1	6.9	5.1	5.5	10.8	15.3	5.8	8.9	
Not Frost-Free/No Freezer	32.2	4.7	6.7	6.2	3.9	2.8	4.5	3.4	7.8	10.6	
No Refrigerator	.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Second-Used Refrigerator</b>											
Electric	10.3	.2	.8	1.0	.9	1.0	2.4	3.9	.5	.9	
Frost-Free	3.2	Q	Q	.4	.2	.3	.9	1.3	Q	Q	
Not Frost-Free/No Freezer	7.1	.2	.7	.7	.8	.7	1.6	2.5	.5	.7	
None	76.0	7.7	13.2	12.1	8.1	7.3	12.8	14.9	13.1	18.7	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 39. Appliance Use by Family Income as of November 1984  
(Percent of Households)**

Household Characteristics	Total	1984 Family Income							Below 100% of Poverty	Below 125% of Poverty
		Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 or More		
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Type of Appliances Used</b>										
Electric Appliances Used										
Television Set (color)	88.0	67.4	79.6	86.2	87.6	92.2	94.0	97.5	72.2	74.7
Clothes Washer (automatic)	70.7	46.4	55.6	60.6	70.8	70.5	80.3	91.7	52.0	54.6
Range (stove-top or burners)	53.9	41.6	46.9	48.7	51.6	54.3	58.9	64.6	42.8	43.9
Furnace Fan	49.4	32.3	42.9	43.8	47.6	51.8	54.5	60.9	34.3	37.2
Electric Oven	49.1	35.3	41.8	44.4	48.2	50.4	53.9	59.7	37.5	38.2
Clothes Dryer	45.8	20.5	33.4	38.1	44.3	49.5	57.6	60.7	26.6	29.5
Television Set (b/w)	43.2	48.9	39.9	39.3	43.7	38.8	44.0	47.2	47.6	46.1
Dishwasher	37.6	6.4	15.5	26.1	26.5	39.4	48.8	70.7	10.7	11.9
Window or Ceiling Fan	35.5	28.6	31.5	34.4	37.9	37.0	39.7	36.7	30.7	31.8
Microwave Oven	34.3	6.6	16.8	23.5	30.2	38.0	48.1	55.5	12.5	14.3
Water Heater (for one household's use only)	32.3	34.6	33.6	30.8	34.1	31.9	30.8	31.9	34.3	33.8
Air Conditioner (room)	31.0	26.8	30.1	33.4	33.3	36.4	33.9	25.9	25.7	26.2
Electric Blanket	29.4	19.5	24.8	32.1	29.6	23.7	30.5	36.7	18.1	19.8
Air Conditioner (central--for one household's use only)	28.5	11.6	19.3	23.2	24.9	26.3	33.0	45.0	13.9	15.0
Freezer (not frost-free)	24.7	18.8	21.8	22.0	23.0	26.6	27.0	29.2	20.8	21.5
Humidifier	13.1	2.5	7.8	9.1	11.2	11.9	16.9	22.8	5.4	6.3
Freezer (frost-free)	13.0	8.1	9.4	10.0	9.9	10.0	14.9	21.0	9.5	9.7
Portable Electric Heater	10.3	12.4	10.1	9.5	12.6	7.3	12.6	8.5	11.7	11.0
Waterbed Heater	9.8	Q	5.6	6.7	10.2	11.0	13.7	14.7	4.3	5.3
Dehumidifier	8.7	Q	3.8	3.4	6.2	10.4	14.0	15.3	2.0	2.5
Whole-House Cooling Fan	7.8	3.1	2.7	4.7	4.6	10.9	10.8	13.3	2.9	3.6
Evaporative Cooler	3.8	3.0	3.5	4.8	4.4	2.5	4.2	3.4	3.6	3.5
Clothes Washer (wringer)	3.1	6.6	6.8	4.0	3.3	Q	1.0	.8	7.4	6.6
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.4	Q	Q	Q	Q	Q	Q	1.0	Q	Q
Gas Appliances Used										
Water Heater (for one household's use only)	47.8	39.1	39.9	46.2	48.0	45.0	52.1	56.2	40.6	41.2
Range (stove-top or burners)	45.2	55.4	51.5	50.9	47.2	45.2	40.1	35.6	54.9	54.2
Gas Oven	41.5	48.8	46.6	46.4	43.7	42.4	38.5	32.4	49.0	48.5
Clothes Dryer	15.9	7.6	9.6	11.3	14.0	14.7	18.5	26.5	9.2	9.6
Outdoor LPG Gas Grill	10.0	Q	2.7	5.0	7.3	8.3	14.2	21.5	1.4	1.8
Outdoor Piped-Gas Grill	3.4	Q	1.1	1.6	Q	2.1	4.4	8.2	Q	1.0
Outdoor Gas Light	1.4	Q	Q	Q	1.8	Q	1.4	2.4	Q	.9
Swimming-Pool/Jacuzzi/ Hot-Tub Heater	.9	Q	Q	Q	Q	Q	Q	3.5	Q	Q
Oil Appliances Used										
Portable Kerosene Heater	6.1	4.7	4.0	5.5	6.6	7.9	6.4	7.5	5.3	4.8
Water Heater (for one household's use only)	3.2	Q	3.1	2.6	2.4	4.1	4.2	3.9	1.6	1.7
<b>Number of Refrigerators Used</b>										
1	87.8	97.1	93.6	91.8	89.3	87.7	83.7	79.4	95.4	95.0
2 or More	11.9	2.3	5.8	7.8	10.4	12.3	16.0	20.6	3.9	4.5
None	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Most-Used Refrigerator</b>										
Electric	99.7	99.4	99.4	99.7	99.7	100.0	99.7	100.0	99.3	99.4
Frost-Free	62.4	39.3	51.1	52.6	56.7	66.2	70.4	81.9	42.7	45.3
Not Frost-Free/No Freezer	37.3	60.1	48.3	47.1	43.0	33.8	29.3	18.1	56.7	54.1
No Refrigerator	.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Second-Used Refrigerator</b>										
Electric	11.9	2.3	5.8	7.8	10.4	12.3	16.0	20.6	3.9	4.5
Frost-Free	3.7	Q	Q	2.9	1.9	4.0	5.7	7.0	Q	Q
Not Frost-Free/No Freezer	8.2	2.2	4.8	5.0	8.5	8.3	10.3	13.6	3.4	3.8
None	88.1	97.7	94.2	92.2	89.6	87.7	84.0	79.4	96.1	95.5

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 40. Thermal Characteristics by Census Region and Metropolitan Status,  
as of November 1984  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan			Non- Metropolitan
						Total	Central City	Outside Central City	
<b>Total Households</b>	86.3	18.3	21.6	29.3	17.1	65.7	30.6	35.1	20.6
<b>Number of Windows</b>									
1 to 6	16.8	3.2	3.4	5.0	5.3	14.6	8.3	6.3	2.2
7 to 12	37.3	6.1	9.4	14.2	7.5	26.5	12.3	14.2	10.8
13 to 18	21.1	5.4	5.4	7.3	3.0	15.4	6.3	9.1	5.7
19 or More	11.1	3.6	3.4	2.9	1.3	9.1	3.6	5.5	2.0
None	Q	Q	Q	Q	Q	Q	Q	Q	Q
Average Number of Windows	11.8	13.4	12.4	11.4	10.2	11.8	11.1	12.4	11.8
<b>Number of Storm Windows</b>									
1 to 6	10.6	2.4	4.2	2.4	1.6	7.7	3.8	4.0	2.9
7 to 12	22.2	5.3	8.5	6.4	1.9	15.3	6.7	8.7	6.9
13 to 18	12.6	4.7	4.6	2.7	.6	9.2	3.7	5.5	3.3
19 or More	6.7	2.7	2.8	.9	.4	5.4	1.9	3.5	1.3
None/No Windows	34.2	3.2	1.6	16.8	12.6	28.0	14.5	13.4	6.2
Average Number of Storm Windows	7.0	10.9	10.7	4.5	2.4	6.8	5.9	7.6	7.6
<b>Percent of Windows with Storm Windows</b>									
100 Percent	37.3	10.6	15.1	8.6	3.0	26.8	11.3	15.6	10.5
76 to 99 Percent	6.8	2.7	2.2	1.5	.4	5.2	2.1	3.1	1.7
51 to 75 Percent	3.9	.8	1.9	.9	.4	2.9	1.3	1.6	1.0
1 to 50 Percent	4.1	1.0	.9	1.5	.7	2.8	1.4	1.4	1.3
None/No Windows	34.2	3.2	1.6	16.8	12.6	28.0	14.5	13.4	6.2
<b>Number of Outside Doors</b>									
1	9.7	2.6	2.7	2.3	2.2	8.6	5.4	3.1	1.2
2	38.5	7.0	10.0	14.6	7.0	27.8	13.2	14.6	10.7
3	23.1	4.9	5.3	8.2	4.8	17.3	6.8	10.5	5.8
4 or More	11.4	2.1	2.4	4.2	2.7	8.9	2.8	6.1	2.5
None	3.6	1.7	1.3	.2	.4	3.0	2.3	.8	.5
Average Number of Doors	2.4	2.2	2.3	2.5	2.5	2.4	2.1	2.6	2.4
<b>Type and Number of Outside Doors</b>									
<b>Standard Doors</b>									
1	15.3	3.3	2.7	4.7	4.7	13.7	7.5	6.2	1.5
2	42.2	7.6	11.2	15.2	8.2	30.4	13.3	17.1	11.8
3	17.7	4.1	4.0	7.0	2.6	12.9	5.2	7.7	4.8
4 or More	6.1	1.5	1.4	2.3	.9	4.5	1.8	2.6	1.7
None/No Doors	5.0	1.8	2.4	.2	.7	4.1	2.7	1.4	.8
Average Number of Standard Doors	2.1	2.0	2.0	2.2	1.9	2.0	1.9	2.1	2.3
<b>Sliding Glass Doors</b>									
1	18.1	2.4	4.1	5.5	6.0	15.0	5.2	9.9	3.0
2 or More	3.8	.4	.7	1.2	1.5	3.4	.8	2.5	.4
None/No Doors	64.5	15.6	16.8	22.6	9.5	47.3	24.6	22.7	17.3
Average Number of Sliding Glass Doors	.3	.2	.3	.3	.6	.4	.2	.5	.2
<b>Number of Storm Doors</b>									
1	14.5	2.5	5.1	4.9	2.0	10.5	5.0	5.5	4.0
2	23.7	6.5	8.4	7.2	1.7	16.6	6.4	10.2	7.2
3	8.2	2.6	2.7	2.4	.5	5.8	1.8	4.0	2.3
4 or More	2.8	.8	1.0	.7	.3	2.1	.6	1.5	.7
None	33.6	4.2	3.2	13.9	12.3	27.6	14.5	13.1	6.0
No Outside Doors	3.6	1.7	1.3	.2	.4	3.0	2.3	.8	.5
Average Number of Storm Doors	1.1	1.5	1.6	1.0	.5	1.1	.9	1.3	1.4
Average Number of Standard Storm Doors	1.0	1.3	1.4	.9	.3	.9	.8	1.1	1.2
Average Number of Sliding Glass Storm Doors	.1	.1	.2	.1	.1	.2	.1	.2	.1

See footnotes at end of table.

**Table 40. Thermal Characteristics by Census Region and Metropolitan Status,  
as of November 1984 (Continued)  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan		Central City	Outside Central City
						Total	Central City		
<b>Percent of Outside Doors with Storm Doors</b>									
100 Percent	27.3	7.6	10.8	7.3	1.6	19.4	7.3	12.1	8.0
51 to 99 Percent	8.2	2.3	2.6	2.6	.8	5.9	2.0	3.9	2.3
1 to 50 Percent	13.6	2.5	3.7	5.4	2.0	9.8	4.5	5.2	3.9
None/No Doors	37.1	5.9	4.5	14.1	12.7	30.7	16.8	13.9	6.5
<b>Total Single-Family Units</b>	<b>57.6</b>	<b>10.9</b>	<b>14.6</b>	<b>21.8</b>	<b>10.4</b>	<b>41.6</b>	<b>16.3</b>	<b>25.3</b>	<b>16.0</b>
<b>Have Caulking or Weatherstripping (single-family units)</b>									
Yes	39.9	8.3	11.0	13.6	7.0	29.6	11.1	18.6	10.3
Caulking	33.8	7.2	9.6	11.7	5.2	24.9	8.9	16.0	8.9
Weatherstripping	32.6	6.9	8.7	10.9	6.1	24.5	9.2	15.3	8.1
No/Don't Know/Not Reported	17.7	2.5	3.6	8.2	3.3	11.9	5.2	6.7	5.7
<b>Have Roof or Ceiling Insulation (single-family units)</b>									
Yes	45.2	8.4	12.4	16.4	8.1	32.8	11.8	21.0	12.4
All Insulated	36.5	6.7	10.2	13.2	6.4	26.7	9.6	17.1	9.8
Part Insulated	4.8	1.0	1.0	1.8	1.0	3.6	1.4	2.2	1.2
None, Very Little Insulated	.9	.2	.2	.3	Q	.8	.3	.5	Q
Don't Know Amount/Not Reported	3.1	.6	.9	1.1	.6	1.7	.6	1.2	1.3
No	8.2	1.9	1.1	3.7	1.5	5.6	2.9	2.7	2.6
Don't Know/Not Reported	4.1	.5	1.1	1.7	.8	3.1	1.6	1.6	1.0
<b>Type of Insulation</b>									
Batts Only	21.4	5.6	4.9	7.8	3.0	14.8	4.4	10.4	6.5
Average Number of Inches	5.4	5.7	5.8	5.1	5.1	5.4	4.9	5.6	5.6
Loose Fill Only	13.2	1.3	3.8	5.0	3.1	10.1	4.4	5.7	3.1
Average Number of Inches	6.8	7.5	7.1	6.5	6.6	6.6	6.6	6.7	7.5
Batts and Loose Fill Only	5.1	.7	2.1	1.7	.6	3.6	1.3	2.3	1.5
Average Number of Inches	10.6	9.7	11.2	10.2	10.0	10.8	10.7	10.8	10.0
Other/Combination	3.0	.5	.9	.9	.5	2.3	.9	1.4	.7
Don't Know Type/Not Reported	2.6	.3	.6	.9	.8	2.0	.8	1.2	.6
No Insulation									
Don't Know/Not Reported	12.4	2.4	2.2	5.4	2.3	8.7	4.5	4.3	3.6
<b>Have Wall Insulation (single-family units)</b>									
Yes	30.8	6.4	9.4	10.6	4.4	21.2	6.7	14.4	9.6
All Walls	25.1	5.1	7.8	8.7	3.5	17.1	5.1	12.0	8.0
Some Walls	5.7	1.3	1.6	1.9	.9	4.1	1.7	2.4	1.6
No	15.7	2.8	2.7	6.4	3.7	11.2	5.4	5.9	4.5
Don't Know/Not Reported	11.1	1.7	2.5	4.7	2.3	9.2	4.2	5.0	2.0
<b>Floor Insulation (single-family units)</b>									
Basement/Crawl Space	45.2	10.0	13.2	15.1	6.9	31.4	12.4	19.0	13.8
Heated	15.5	4.9	6.8	2.6	1.2	12.0	4.8	7.2	3.5
None or Part Heated	29.7	5.2	6.4	12.5	5.7	19.4	7.6	11.8	10.3
Floor Insulated	5.5	1.2	1.1	2.5	.7	3.8	1.0	2.7	1.7
All Parts Insulated	3.8	.7	.6	1.9	.5	2.4	.6	1.8	1.3
Some Parts Insulated	1.7	.5	.4	.6	.2	1.3	.4	.9	.4
Floor Not Insulated	16.0	2.4	3.4	6.9	3.3	9.9	4.2	5.8	6.1
Don't Know/Not Reported	8.2	1.5	1.9	3.1	1.7	5.7	2.4	3.3	2.5
No Basement/Crawl Space	12.3	.8	1.4	6.7	3.5	10.1	3.9	6.2	2.2

See footnotes at end of table.

**Table 40. Thermal Characteristics by Census Region and Metropolitan Status,  
as of November 1984 (Continued)  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Census Region				Metropolitan Status				Non- Metropolitan	
		Northeast	North Central	South	West	Metropolitan					
						Total	Central City	Outside Central City			
<b>Insulation Characteristics (single-family units)</b>											
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation .....	29.6	7.8	11.0	8.5	2.4	20.8	7.1	13.8	8.7		
Units with One or More of These Types of Insulation .....	51.8	10.6	14.3	18.5	8.3	37.5	14.4	23.2	14.3		
Units with None of These Types of Insulation .....	5.8	.2	.2	3.3	2.0	4.0	1.9	2.1	1.7		

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 41. Thermal Characteristics by Census Region and Metropolitan Status,  
as of November 1984  
(Percent of Households)**

Household Characteristics	Census Region					Metropolitan Status			
	Total	Northeast	North Central	South	West	Metropolitan			Non- Metropolitan
						Total	Central City	Outside Central City	
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of Windows</b>									
1 to 6	19.5	17.4	15.6	17.0	30.9	22.3	27.2	18.0	10.5
7 to 12	43.2	33.5	43.7	48.4	43.9	40.4	40.3	40.4	52.2
13 to 18	24.4	29.5	25.1	24.8	17.3	23.4	20.4	26.0	27.6
19 or More	12.9	19.5	15.6	9.7	7.6	13.9	11.9	15.6	9.7
None	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Number of Storm Windows</b>									
1 to 6	12.3	13.0	19.5	8.3	9.3	11.8	12.3	11.3	14.1
7 to 12	25.7	29.1	39.3	22.0	11.4	23.3	21.8	24.7	33.4
13 to 18	14.5	25.7	21.2	9.3	3.2	14.1	12.2	15.7	16.1
19 or More	7.8	14.9	12.7	3.0	2.3	8.2	6.2	10.0	6.4
None/No Windows	39.6	17.3	7.3	57.4	73.8	42.6	47.6	38.3	30.1
<b>Percent of Windows with Storm Windows</b>									
100 Percent	43.3	58.2	69.9	29.3	17.4	40.9	36.8	44.4	50.9
76 to 99 Percent	7.9	15.0	10.0	5.1	2.3	7.8	6.8	8.8	8.1
51 to 75 Percent	4.5	4.1	8.7	3.0	2.2	4.4	4.3	4.5	4.7
1 to 50 Percent	4.8	5.4	4.0	5.1	4.3	4.3	4.5	4.1	6.3
None/No Windows	39.6	17.3	7.3	57.4	73.8	42.6	47.6	38.3	30.1
<b>Number of Outside Doors</b>									
1	11.3	14.1	12.4	7.7	13.0	13.0	17.8	8.9	5.7
2	44.7	38.4	46.2	49.7	40.8	42.4	43.3	41.6	51.9
3	26.8	26.7	24.3	27.8	28.1	26.4	22.3	30.0	27.9
4 or More	13.2	11.6	10.9	14.2	15.9	13.5	9.2	17.3	12.0
None	4.1	9.2	6.2	.6	2.2	4.6	7.4	2.2	2.5
<b>Type and Number of Outside Doors</b>									
Standard Doors									
1	17.7	17.9	12.3	16.0	27.2	20.9	24.5	17.8	7.5
2	48.9	41.8	51.9	51.7	48.1	46.3	43.5	48.7	57.3
3	20.6	22.6	18.4	23.9	15.4	19.7	17.1	22.0	23.2
4 or More	7.1	8.1	6.6	7.8	5.5	6.8	6.0	7.4	8.0
None/No Doors	5.7	9.6	10.9	.7	3.8	6.3	8.9	4.1	3.9
Sliding Glass Doors									
1	20.9	12.9	19.0	18.9	35.3	22.9	17.0	28.1	14.6
2 or More	4.4	2.0	3.1	4.0	9.1	5.1	2.7	7.2	1.9
None/No Doors	74.7	85.1	77.9	77.1	55.7	72.0	80.3	64.7	83.6
<b>Number of Storm Doors</b>									
1	16.8	13.8	23.5	16.7	11.7	16.0	16.4	15.7	19.2
2	27.5	35.4	38.8	24.6	9.8	25.2	20.8	29.1	34.8
3	9.5	14.2	12.3	8.2	2.8	8.9	5.9	11.5	11.3
4 or More	3.2	4.5	4.6	2.5	1.5	3.2	2.1	4.2	3.2
None	38.9	23.0	14.6	47.4	72.0	42.0	47.4	37.3	28.9
No Outside Doors	4.1	9.2	6.2	.6	2.2	4.6	7.4	2.2	2.5
<b>Percent of Outside Doors with Storm Doors</b>									
100 Percent	31.6	41.4	50.1	24.8	9.6	29.5	23.8	34.5	38.6
51 to 99 Percent	9.5	12.5	12.0	8.8	4.4	9.0	6.6	11.0	11.3
1 to 50 Percent	15.8	13.9	17.1	18.4	11.7	14.9	14.8	15.0	18.7
None/No Doors	43.0	32.2	20.8	48.0	74.2	46.7	54.8	39.5	31.4

See footnotes at end of table.

**Table 41. Thermal Characteristics by Census Region and Metropolitan Status, as of November 1984 (Continued) (Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan			Non-Metropolitan
						Total	Central City	Outside Central City	
<b>Total Single-Family Units</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Have Caulking or Weatherstripping (single-family units)									
Yes	69.3	76.8	75.2	62.4	68.0	71.3	67.8	73.5	64.2
Caulking	58.7	66.4	66.1	53.8	50.3	60.0	54.8	63.3	55.3
Weatherstripping	56.7	63.7	59.7	49.9	59.2	59.0	56.4	60.7	50.5
No/Don't Know/Not Reported	30.7	23.2	24.8	37.6	32.0	28.7	32.2	26.5	35.8
Have Roof or Ceiling Insulation (single-family units)									
Yes	78.5	77.6	84.8	75.2	77.8	79.0	72.7	83.1	77.3
All Insulated	63.4	61.3	70.1	60.5	62.3	64.3	59.0	67.8	60.9
Part Insulated	8.3	9.1	7.1	8.3	9.2	8.7	8.5	8.8	7.3
None, Very Little Insulated	1.6	2.1	1.7	1.5	Q	1.8	1.8	1.9	Q
Don't Know Amount/Not Reported	5.3	5.1	5.9	4.9	5.5	4.2	3.4	4.6	8.3
No	14.3	17.8	7.7	16.8	14.6	13.4	17.7	10.7	16.5
Don't Know/Not Reported	7.2	4.6	7.5	8.0	7.6	7.5	9.6	6.2	6.2
Type of Insulation									
Batts Only	37.1	51.8	34.0	35.9	28.6	35.7	27.1	41.3	40.7
Loose Fill Only	22.9	12.2	26.0	22.7	30.2	24.3	27.0	22.5	19.4
Batts and Loose Fill Only	8.9	6.1	14.5	7.9	5.9	8.8	8.0	9.2	9.2
Other/Combination	5.1	5.0	6.4	4.3	5.3	5.5	5.7	5.5	4.1
Don't Know Type/Not Reported	4.5	2.4	3.9	4.3	7.8	4.7	4.9	4.6	3.8
No Insulation/Don't Know/Not Reported	21.5	22.4	15.2	24.8	22.2	21.0	27.3	16.9	22.7
Have Wall Insulation (single-family units)									
Yes	53.4	58.9	64.4	48.7	42.2	51.0	41.3	57.2	59.9
All Walls	43.6	47.3	53.6	39.9	33.4	41.1	31.2	47.6	50.0
Some Walls	9.8	11.7	10.8	8.8	8.8	9.8	10.2	9.6	9.9
No	27.2	25.8	18.6	29.6	35.9	27.0	32.8	23.2	27.8
Don't Know/Not Reported	19.3	15.2	17.0	21.8	21.9	22.1	25.8	19.6	12.3
Floor Insulation (single-family units)									
Basement/Crawl Space	78.6	92.5	90.4	69.4	66.7	75.6	75.9	75.4	86.3
Heated	26.9	45.0	46.5	12.1	11.8	28.8	29.2	28.6	22.1
None or Part Heated	51.6	47.5	43.9	57.3	54.9	46.8	46.7	46.8	64.2
Floor Insulated	9.6	11.1	7.4	11.5	7.0	9.1	6.3	10.9	10.9
All Parts Insulated	6.6	6.5	4.4	8.8	5.1	5.9	3.8	7.2	8.4
Some Parts Insulated	3.0	4.6	2.9	2.8	1.9	3.2	2.5	3.7	2.5
Floor Not Insulated	27.8	22.3	23.5	31.6	31.8	23.9	25.6	22.9	37.9
Don't Know/Not Reported	14.2	14.1	13.0	14.2	16.1	13.8	14.8	13.1	15.4
No Basement/Crawl Space	21.4	7.5	9.6	30.6	33.3	24.4	24.1	24.6	13.7
Insulation Characteristics (single-family units)									
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation	51.3	71.4	75.2	38.9	22.8	50.1	43.4	54.5	54.5
Units with One or More of These Types of Insulation	90.0	97.9	98.3	85.0	80.4	90.3	88.1	91.7	89.3
Units with None of These Types of Insulation	10.0	2.1	1.7	15.0	19.6	9.7	11.9	8.3	10.7

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 42. Thermal Characteristics by Housing Structure and Ownership, as of November 1984  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Housing Structure by Ownership														
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Households</b>	86.3	53.5	45.0	8.5	4.1	2.8	1.2	10.0	2.0	8.0	13.6	1.4	12.2	5.1	4.1	1.1
<b>Number of Windows</b>																
1 to 6	16.8	2.5	1.9	.6	.8	.3	.5	3.4	.3	3.1	9.8	.8	9.0	.3	.3	Q
7 to 12	37.3	24.3	19.4	4.9	2.0	1.6	.4	4.6	.6	4.0	3.2	.5	2.7	3.2	2.5	.7
13 to 18	21.1	16.8	14.9	1.9	1.0	.7	.2	1.4	.7	.7	.5	Q	.4	1.4	1.2	.2
19 or More	11.1	10.0	8.9	1.1	.3	.3	Q	.6	.4	.2	Q	Q	Q	Q	Q	Q
None	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Average Number of Windows	11.8	14.0	14.4	12.3	11.0	11.9	9.0	9.3	13.9	8.2	5.3	6.8	5.2	11.2	11.2	11.1
<b>Number of Storm Windows</b>																
1 to 6	10.6	3.8	3.0	.8	.7	.5	.2	1.7	.3	1.4	4.0	.3	3.8	.4	.2	Q
7 to 12	22.2	15.0	13.1	1.9	1.5	1.3	.3	2.8	.6	2.2	1.2	.2	1.0	1.7	1.4	.3
13 to 18	12.6	10.0	9.4	.6	.5	.4	Q	.9	.5	.4	2	Q	.2	.9	.8	C
19 or More	6.7	6.2	5.8	.3	.2	2	Q	.3	.2	Q	Q	Q	Q	Q	Q	Q
None/No Windows	34.2	18.6	13.7	4.9	1.1	.5	.6	4.3	.3	3.9	8.1	.9	7.2	2.2	1.6	.6
Average Number of Storm Windows	7.0	8.6	9.3	4.5	7.4	8.7	4.2	5.5	10.7	4.2	2.1	1.9	2.1	6.2	6.6	4.6
<b>Percent of Windows with Storm Windows</b>																
100 Percent	37.3	24.0	22.1	1.9	2.0	1.6	.4	4.1	1.1	3.0	4.9	.5	4.4	2.3	2.0	.3
76 to 99 Percent	6.8	5.0	4.4	.5	.5	.4	Q	.7	.3	.4	3	Q	.3	.4	.3	Q
51 to 75 Percent	3.9	2.9	2.3	.6	.2	.2	Q	.4	Q	.3	.2	Q	.2	Q	Q	Q
1 to 50 Percent	4.1	3.0	2.5	.6	.3	.2	Q	.5	Q	.4	.2	Q	.2	Q	Q	Q
None/No Windows	34.2	18.6	13.7	4.9	1.1	.5	.6	4.3	.3	3.9	8.1	.9	7.2	2.2	1.6	.6
<b>Number of Outside Doors</b>																
1	9.7	.8	.4	.4	Q	Q	Q	2.6	.2	2.4	6.1	.3	5.8	Q	Q	Q
2	38.5	22.3	17.8	4.5	2.5	1.6	.9	5.3	1.2	4.1	4.1	.6	3.5	4.4	3.4	.9
3	23.1	19.7	17.3	2.5	1.1	.9	.3	1.0	.3	.8	.6	.2	.3	.6	.5	Q
4 or More	11.4	10.5	9.4	1.1	.4	.3	Q	.4	.3	.2	Q	Q	Q	Q	Q	Q
None	3.6	.2	Q	Q	Q	Q	Q	.6	Q	.6	2.7	.2	2.6	Q	Q	Q
Average Number of Doors	2.4	2.8	2.9	2.5	2.5	2.6	2.2	1.8	2.3	1.7	1.2	1.8	1.1	2.1	2.1	2.1
<b>Type and Number of Outside Doors</b>																
<b>Standard Doors</b>																
1	15.3	2.9	2.2	.6	.7	.4	.3	3.5	.4	3.1	7.8	.8	7.0	.4	.3	Q
2	42.2	29.3	24.5	4.8	2.3	1.6	.7	4.5	1.1	3.4	1.8	.2	1.6	4.3	3.5	.9
3	17.7	15.6	13.5	2.1	.9	.7	.2	.8	.2	.6	Q	Q	Q	.4	.3	Q
4 or More	6.1	5.5	4.6	.8	.2	.2	Q	.4	.2	.2	Q	Q	Q	Q	Q	Q
None/No Doors	5.0	.3	.2	Q	Q	Q	Q	.8	Q	.7	3.9	.3	3.6	Q	Q	Q
Average Number of Standard Doors	2.1	2.5	2.5	2.4	2.2	2.3	2.0	1.7	2.1	1.5	.9	1.1	.8	2.0	2.0	2.0
<b>Sliding Glass Doors</b>																
1	18.1	11.5	10.6	.9	.9	.6	.3	1.4	.2	1.2	3.8	.7	3.0	.5	.4	Q
2 or More	3.8	3.1	3.0	Q	Q	Q	Q	Q	Q	Q	.4	Q	.3	Q	Q	Q
None/No Doors	64.5	38.9	31.4	7.5	3.0	2.1	.9	8.6	1.7	6.8	9.4	.5	8.9	4.6	3.7	1.0
Average Number of Sliding Glass Doors	.3	.4	.4	.1	.3	.3	.3	.2	.1	.2	.3	.7	.3	.1	.1	Q
<b>Number of Storm Doors</b>																
1	14.5	8.0	6.5	1.5	.7	.4	.3	2.2	.4	1.8	1.8	.2	1.6	1.7	1.4	.3
2	23.7	19.4	17.4	1.9	1.6	1.2	.4	1.5	.7	.8	.5	Q	.4	.8	.7	Q
3	8.2	7.2	6.7	.5	.6	.5	Q	.2	Q	Q	Q	Q	.2	Q	Q	Q
4 or More	2.8	2.5	2.4	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
None	33.6	16.2	11.9	4.3	1.0	.5	.5	5.4	.7	4.7	8.5	.8	7.7	2.5	1.8	.6
No Outside Doors	3.6	.2	Q	Q	Q	Q	Q	.6	Q	.6	2.7	.2	2.6	Q	Q	Q
Average Number of Storm Doors	1.1	1.5	1.6	.9	1.6	1.8	.9	.6	1.3	.5	.2	.5	.2	.7	.8	.6
Average Number of Standard Storm Doors	1.0	1.3	1.4	.9	1.4	1.6	.8	.6	1.2	.4	.1	.3	.1	.7	.7	.6
Average Number of Sliding Glass Storm Doors	.1	.2	.2	Q	.2	.2	Q	.1	.1	.1	.1	.2	.1	Q	Q	Q

See footnotes at end of table.

**Table 42. Thermal Characteristics by Housing Structure and Ownership,  
as of November 1984 (Continued)  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Housing Structure by Ownership														
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Percent of Outside Doors with Storm Doors</b>																
100 Percent	27.3	20.4	18.5	1.9	1.9	1.6	0.3	2.3	0.8	1.5	1.8	0.2	1.5	0.9	0.7	0.2
51 to 99 Percent	8.2	7.5	6.8	.7	.4	.3	Q	.2	Q	.2	Q	Q	Q	Q	Q	Q
1 to 50 Percent	13.6	9.2	7.7	1.5	.8	.5	.3	1.4	.3	1.1	.6	.2	.4	1.7	1.4	.3
None/No Doors	37.1	16.4	12.0	4.4	1.0	.5	.5	6.0	.7	5.3	11.2	1.0	10.2	2.5	1.8	.6
<b>Total Single-Family Units and Mobile Homes</b>																
	62.7	53.5	45.0	8.5	4.1	2.8	1.2	--	--	--	--	--	--	5.1	4.1	1.1
<b>Have Caulking or Weatherstripping (single-family units and mobile homes)</b>																
Yes	42.5	37.7	33.7	4.0	2.3	1.8	.5	--	--	--	--	--	--	2.6	2.3	.4
Caulking	35.8	32.0	28.9	3.1	1.8	1.5	.3	--	--	--	--	--	--	2.0	1.8	.2
Weatherstripping	34.6	30.8	27.6	3.2	1.9	1.5	.4	--	--	--	--	--	--	2.0	1.7	.3
No/Don't Know/Not Reported	20.2	15.9	11.3	4.5	1.8	1.0	.8	--	--	--	--	--	--	2.5	1.8	.7
<b>Have Roof or Ceiling Insulation (single-family units and mobile homes)</b>																
Yes	48.8	43.0	38.9	4.1	2.2	1.8	.4	--	--	--	--	--	--	3.6	3.0	.5
All Insulated	39.7	34.7	31.9	2.8	1.8	1.5	.3	--	--	--	--	--	--	3.2	2.7	.5
Part Insulated	4.9	4.5	3.8	.7	.3	.2	Q	--	--	--	--	--	--	Q	Q	Q
None, Very Little Insulated	.9	.8	.7	Q	Q	Q	Q	--	--	--	--	--	--	Q	Q	Q
Don't Know Amount/ Not Reported	3.3	3.0	2.6	.4	Q	Q	Q	--	--	--	--	--	--	.3	.3	Q
No	8.6	7.2	4.8	2.4	1.0	.8	.3	--	--	--	--	--	--	.4	.2	.2
Don't Know/Not Reported	5.3	3.3	1.3	2.0	.8	.3	.5	--	--	--	--	--	--	1.2	.8	.4
<b>Type of Insulation</b>																
Batts Only	23.5	20.4	18.4	2.0	1.0	.8	.2	--	--	--	--	--	--	2.2	1.9	.3
Average Number of Inches	5.3	5.5	5.5	4.9	5.2	5.4	4.4	--	--	--	--	--	--	4.1	4.1	3.9
Loose Fill Only	13.3	12.5	11.3	1.2	.7	.5	.2	--	--	--	--	--	--	Q	Q	Q
Average Number of Inches	6.8	6.8	7.0	5.6	7.0	7.9	Q	--	--	--	--	--	--	Q	Q	Q
Batts and Loose Fill Only	5.1	5.0	4.8	.2	Q	Q	Q	--	--	--	--	--	--	Q	Q	Q
Average Number of Inches	10.5	10.5	10.6	8.2	Q	Q	Q	--	--	--	--	--	--	Q	Q	Q
Other/Combination	3.4	2.7	2.4	.2	.3	.2	Q	--	--	--	--	--	--	.4	.4	Q
Don't Know Type/Not Reported	3.5	2.4	1.9	.5	.2	Q	Q	--	--	--	--	--	--	.9	.7	.2
No Insulation																
Don't Know/Not Reported	13.9	10.5	6.1	4.4	1.8	1.1	.8	--	--	--	--	--	--	1.6	1.0	.5
<b>Have Wall Insulation (single-family units and mobile homes)</b>																
Yes	34.4	29.4	27.3	2.2	1.3	1.2	Q	--	--	--	--	--	--	3.6	3.0	.6
All Walls	28.4	24.2	22.7	1.5	.9	.8	Q	--	--	--	--	--	--	3.3	2.8	.5
Some Walls	6.0	5.2	4.5	.7	.5	.4	Q	--	--	--	--	--	--	.3	.2	Q
No	16.1	14.3	10.9	3.4	1.4	1.0	.4	--	--	--	--	--	--	.5	.3	Q
Don't Know/Not Reported	12.2	9.8	6.8	2.9	1.4	.6	.8	--	--	--	--	--	--	1.0	.7	.3
<b>Insulation Characteristics (single-family units and mobile homes)</b>																
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation	31.4	27.9	26.0	2.0	1.6	1.4	.2	--	--	--	--	--	--	1.8	1.6	.2
Units with One or More of These Types of Insulation	56.2	48.2	42.3	5.9	3.6	2.8	.9	--	--	--	--	--	--	4.4	3.6	.7
Units with None of These Types of Insulation	6.5	5.3	2.7	2.6	.4	Q	.4	--	--	--	--	--	--	.8	.5	.3

See footnotes at end of table.

**Table 42. Thermal Characteristics by Housing Structure and Ownership,  
as of November 1984 (Continued)  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Housing Structure by Ownership														
	Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Single-Family Units</b>	57.6	53.5	45.0	8.5	4.1	2.8	1.2	--	--	--	--	--	--	--	--
<b>Floor Insulation (single-family units)</b>															
Basement/Crawl Space	45.2	42.0	35.7	6.3	3.3	2.5	.8	--	--	--	--	--	--	--	--
Heated	15.5	13.7	12.7	1.0	1.8	1.5	.3	--	--	--	--	--	--	--	--
None or Part Heated	29.7	28.3	23.0	5.3	1.4	1.0	.4	--	--	--	--	--	--	--	--
Floor Insulated	5.5	5.4	4.9	.5	Q	Q	Q	--	--	--	--	--	--	--	--
All Parts Insulated	3.8	3.7	3.4	.3	Q	Q	Q	--	--	--	--	--	--	--	--
Some Parts Insulated	1.7	1.7	1.5	.2	Q	Q	Q	--	--	--	--	--	--	--	--
Floor Not Insulated	16.0	15.4	12.1	3.2	.6	.4	.2	--	--	--	--	--	--	--	--
Don't Know/Not Reported	8.2	7.5	6.0	1.6	.6	.4	.2	--	--	--	--	--	--	--	--
No Basement/Crawl Space	12.3	11.5	9.3	2.2	.8	.3	.5	--	--	--	--	--	--	--	--

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 43. Thermal Characteristics by Housing Structure and Ownership,  
as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Housing Structure by Ownership																	
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home					
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of Windows</b>																			
1 to 6	19.5	4.7	4.1	7.5	19.0	9.8	40.1	34.0	13.3	39.1	72.1	57.7	73.7	6.8	7.6	Q			
7 to 12	43.2	45.3	43.0	57.8	49.5	55.6	35.6	46.1	32.7	49.4	23.3	33.7	22.2	62.4	60.2	70.7			
13 to 18	24.4	31.3	33.0	22.3	23.7	25.2	20.1	14.3	35.8	9.0	3.5	Q	3.2	28.1	29.4	22.9			
19 or More	12.9	18.7	19.9	12.4	7.8	9.4	Q	5.6	18.2	2.5	Q	Q	Q	Q	Q	Q	Q	Q	Q
None	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Number of Storm Windows</b>																			
1 to 6	12.3	7.1	6.7	9.2	18.0	17.7	18.6	17.1	15.0	17.6	29.5	18.4	30.8	7.3	6.0	Q			
7 to 12	25.7	27.9	29.0	22.1	38.1	45.2	22.0	28.1	30.5	27.5	9.1	15.9	8.3	32.3	34.3	24.6			
13 to 18	14.5	18.7	20.8	7.3	12.8	15.4	Q	9.2	26.1	5.1	1.7	Q	1.8	17.4	19.9	Q			
19 or More	7.8	11.5	12.9	4.0	4.3	5.8	Q	3.0	11.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
None/No Windows	39.6	34.8	30.5	57.4	26.8	15.9	51.6	42.6	16.6	49.0	59.3	65.7	58.6	41.9	39.2	52.1			
<b>Percent of Windows with Storm Windows</b>																			
100 Percent	43.3	44.9	49.1	22.8	49.3	55.6	34.9	41.1	57.2	37.2	35.7	33.8	35.9	45.5	48.9	32.5			
76 to 99 Percent	7.9	9.3	9.9	6.0	12.3	14.0	Q	7.4	16.0	5.3	1.9	Q	2.2	7.1	7.9	Q			
51 to 75 Percent	4.5	5.4	5.0	7.2	5.0	6.1	Q	4.3	Q	4.1	1.7	Q	1.9	Q	Q	Q			
1 to 50 Percent	4.8	5.7	5.5	6.7	6.6	8.4	Q	4.6	Q	4.5	1.3	Q	1.4	3.1	Q	Q			
None/No Windows	39.6	34.8	30.5	57.4	26.8	15.9	51.6	42.6	16.6	49.0	59.3	65.7	58.6	41.9	39.2	52.1			
<b>Number of Outside Doors</b>																			
1	11.3	1.5	.9	4.5	Q	Q	Q	26.3	12.2	29.7	44.7	20.2	47.5	Q	Q	Q			
2	44.7	41.7	39.6	52.6	60.6	55.2	73.0	52.9	58.9	51.5	30.2	44.3	28.6	84.8	84.2	87.2			
3	26.8	36.9	38.4	28.8	28.0	30.6	21.9	10.2	12.9	9.5	4.3	17.8	2.7	12.5	13.3	Q			
4 or More	13.2	19.6	20.9	12.6	8.8	11.7	Q	4.2	13.0	2.1	Q	Q	Q	Q	Q	Q			
None	4.1	.3	Q	Q	Q	Q	Q	6.3	Q	7.1	20.2	13.5	21.0	Q	Q	Q			
<b>Type and Number of Outside Doors</b>																			
<b>Standard Doors</b>																			
1	17.7	5.4	5.0	7.4	16.3	13.1	23.6	35.0	18.3	39.1	57.4	58.2	57.3	8.3	7.8	Q			
2	48.9	54.7	54.4	56.4	56.5	55.2	59.4	45.2	57.3	42.3	13.2	16.5	12.9	84.5	84.8	83.5			
3	20.6	29.2	30.0	25.1	22.7	26.2	14.8	7.7	8.7	7.4	Q	Q	Q	7.2	7.5	Q			
4 or More	7.1	10.2	10.3	9.6	4.4	5.5	Q	4.2	12.7	2.1	Q	Q	Q	Q	Q	Q			
None/No Doors	5.7	.6	.4	Q	Q	Q	Q	7.9	Q	9.1	28.5	19.7	29.5	Q	Q	Q			
<b>Sliding Glass Doors</b>																			
1	20.9	21.5	23.6	10.4	22.6	22.8	22.3	13.5	9.7	14.5	27.6	53.3	24.7	9.6	9.7	Q			
2 or More	4.4	5.8	6.6	Q	Q	Q	Q	Q	Q	Q	3.0	Q	2.3	Q	Q	Q			
None/No Doors	74.7	72.7	69.7	88.2	73.7	73.1	75.0	85.7	88.4	85.1	69.4	38.0	73.0	89.8	89.6	90.5			
<b>Number of Storm Doors</b>																			
1	16.8	15.0	14.5	17.3	18.0	15.7	23.3	21.9	18.2	22.9	13.6	17.0	13.2	33.2	35.2	25.8			
2	27.5	36.2	38.7	22.9	38.6	42.9	28.8	14.9	34.3	10.1	3.6	Q	3.1	15.7	17.0	Q			
3	9.5	13.5	14.9	5.7	14.9	19.3	Q	2.0	Q	Q	Q	Q	3.0	Q	Q	Q			
4 or More	3.2	4.7	5.2	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q			
None	38.9	30.3	26.4	50.9	24.9	17.0	43.2	54.0	33.6	59.0	62.2	57.6	62.7	48.1	45.1	59.7			
No Outside Doors	4.1	.3	Q	Q	Q	Q	Q	6.3	Q	7.1	20.2	13.5	21.0	Q	Q	Q			
<b>Percent of Outside Doors with Storm Doors</b>																			
100 Percent	31.6	38.2	41.2	22.2	46.3	55.9	24.2	23.4	42.9	18.6	13.0	17.1	12.6	17.5	18.1	15.2			
51 to 99 Percent	9.5	13.9	15.0	8.2	10.1	11.2	Q	2.5	Q	2.0	Q	Q	Q	Q	Q	Q			
1 to 50 Percent	15.8	17.2	17.2	17.3	18.7	15.9	25.0	13.8	16.0	13.3	4.5	11.8	3.7	32.7	34.6	25.2			
None/No Doors	43.0	30.7	26.6	52.3	24.9	17.0	43.2	60.3	36.6	66.2	82.4	71.1	83.7	48.1	45.1	59.7			

See footnotes at end of table.

**Table 43. Thermal Characteristics by Housing Structure and Ownership,  
as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Housing Structure by Ownership														
	Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Single-Family Units and Mobile Homes</b>															
Homes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	--	--	--	--	--	100.0
Have Caulking or Weatherstripping (single-family units and mobile homes)															
Yes	67.8	70.4	74.8	46.7	55.6	63.6	37.2	--	--	--	--	--	--	--	50.8
Caulking	57.1	59.8	64.3	35.9	44.3	53.3	23.6	--	--	--	--	--	--	--	39.4
Weatherstripping	55.1	57.5	61.3	37.5	45.7	52.4	30.4	--	--	--	--	--	--	--	38.1
No/Don't Know/Not Reported	32.2	29.6	25.2	53.3	44.4	36.4	62.8	--	--	--	--	--	--	--	49.2
Have Roof or Ceiling Insulation (single-family units and mobile homes)															
Yes	77.8	80.4	86.5	47.9	54.6	62.7	36.0	--	--	--	--	--	--	--	69.5
All Insulated	63.3	64.9	70.9	33.1	43.4	51.6	24.6	--	--	--	--	--	--	--	61.8
Part Insulated	7.7	8.4	8.4	8.6	6.4	6.6	Q	--	--	--	--	--	--	--	Q
None, Very Little Insulated	1.5	1.5	1.5	Q	Q	Q	Q	--	--	--	--	--	--	--	Q
Don't Know Amount/Not Reported	5.3	5.6	5.7	5.0	Q	Q	Q	--	--	--	--	--	--	--	5.3
No	13.7	13.4	10.6	28.5	25.6	27.2	22.0	--	--	--	--	--	--	--	7.4
Don't Know/Not Reported	8.5	6.2	2.9	23.5	19.8	10.1	42.0	--	--	--	--	--	--	--	23.1
Type of Insulation															
Batts Only	37.5	38.1	40.9	23.5	24.2	29.4	12.3	--	--	--	--	--	--	--	42.2
Loose Fill Only	21.1	23.4	25.2	13.8	16.8	18.3	13.1	--	--	--	--	--	--	--	Q
Batts and Loose Fill Only	8.2	9.4	10.7	2.1	Q	Q	Q	--	--	--	--	--	--	--	Q
Other/Combination	5.4	5.0	5.4	2.8	7.2	8.6	Q	--	--	--	--	--	--	--	8.7
Don't Know Type/Not Reported	5.5	4.5	4.3	5.8	3.7	Q	Q	--	--	--	--	--	--	--	17.3
No Insulation/Don't Know/Not Reported	22.2	19.6	13.5	52.1	45.4	37.3	64.0	--	--	--	--	--	--	--	30.5
Have Wall Insulation (single-family units and mobile homes)															
Yes	54.9	55.0	60.6	25.4	32.8	44.1	Q	--	--	--	--	--	--	--	70.7
All Walls	45.4	45.3	50.5	17.4	21.6	28.8	Q	--	--	--	--	--	--	--	65.1
Some Walls	9.5	9.7	10.1	8.0	11.2	15.4	Q	--	--	--	--	--	--	--	5.6
No	25.7	26.8	24.3	39.9	33.3	34.3	31.2	--	--	--	--	--	--	--	8.9
Don't Know/Not Reported	19.4	18.2	15.1	34.6	33.8	21.6	62.0	--	--	--	--	--	--	--	20.4
Insulation Characteristics (single-family units and mobile homes)															
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation	50.1	52.2	57.6	23.4	39.9	48.5	20.1	--	--	--	--	--	--	--	35.7
Units with One or More of These Types of Insulation	89.6	90.0	94.0	69.2	89.6	97.5	71.5	--	--	--	--	--	--	--	85.1
Units with None of These Types of Insulation	10.4	10.0	6.0	30.8	10.4	Q	28.5	--	--	--	--	--	--	--	14.9

See footnotes at end of table.

**Table 43. Thermal Characteristics by Housing Structure and Ownership,  
as of November 1984 (Continued)  
(Percent of Households)**

Household Characteristics	Total	Housing Structure by Ownership														
		Single-Family Detached			Single-Family Attached			Building of 2 to 4 Units			Building of 5 or More Units			Mobile Home		
		Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
<b>Total Single-Family Units</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	--	--	--	--	--	--	--	--	--
<b>Floor Insulation (single-family units)</b>																
Basement/Crawl Space	78.6	78.5	79.3	73.7	80.1	88.3	61.2	--	--	--	--	--	--	--	--	--
Heated	26.9	25.6	28.3	11.4	44.8	53.4	24.9	--	--	--	--	--	--	--	--	--
None or Part Heated	51.6	52.9	51.1	62.3	35.3	34.9	36.3	--	--	--	--	--	--	--	--	--
Floor Insulated	9.6	10.0	10.9	5.6	Q	Q	Q	--	--	--	--	--	--	--	--	--
All Parts Insulated	6.6	6.9	7.6	3.5	Q	Q	Q	--	--	--	--	--	--	--	--	--
Some Parts Insulated	3.0	3.1	3.3	2.2	Q	Q	Q	--	--	--	--	--	--	--	--	--
Floor Not Insulated	27.8	28.7	27.0	38.0	15.8	15.4	16.8	--	--	--	--	--	--	--	--	--
Don't Know/Not Reported	14.2	14.1	13.2	18.7	15.9	15.4	17.2	--	--	--	--	--	--	--	--	--
No Basement/Crawl Space	21.4	21.5	20.7	26.3	19.9	11.7	38.8	--	--	--	--	--	--	--	--	--

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457,  
The 1984 Residential Energy Consumption Survey.

**Table 44. Thermal Characteristics by Weather Zone and Census Regions  
as of November 1984  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Weather Zone												
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast		North Central	South		West		
		5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD						
Total Households .....	86.3	9.0	21.5	22.5	20.0	13.3	9.9	8.4	21.6	17.1	12.2	6.7	10.4	
<b>Number of Windows</b>														
1 to 6 .....	16.8	1.8	2.9	4.0	5.1	3.0	1.2	2.0	3.4	2.5	2.5	1.5	3.8	
7 to 12 .....	37.3	3.3	8.1	10.5	9.3	6.0	2.9	3.3	9.4	8.5	5.7	3.0	4.5	
13 to 18 .....	21.1	2.5	6.2	5.3	3.9	3.2	3.6	1.8	5.4	4.3	3.0	1.5	1.5	
19 or More .....	11.1	1.4	4.4	2.7	1.6	1.1	2.3	1.3	3.4	1.8	1.1	.7	.6	
None .....	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Average Number of Windows .....	11.8	12.1	13.5	11.8	10.5	10.8	14.6	11.9	12.4	11.6	11.0	11.2	9.6	
<b>Number of Storm Windows</b>														
1 to 6 .....	10.6	2.0	3.3	3.0	1.5	.7	1.1	1.2	4.2	1.7	.7	1.1	.5	
7 to 12 .....	22.2	3.1	7.1	8.0	2.8	1.2	2.8	2.5	8.5	5.2	1.2	1.7	.3	
13 to 18 .....	12.6	2.1	5.4	3.3	1.3	.5	3.3	1.3	4.6	2.3	.5	.5	Q	
19 or More .....	6.7	1.1	3.3	1.8	.4	Q	1.7	1.0	2.8	.8	Q	.4	Q	
None/No Windows .....	34.2	.8	2.4	6.3	13.9	10.8	.9	2.2	1.6	7.1	9.7	3.0	9.6	
Average Number of Storm Windows .....	7.0	10.5	11.3	8.1	3.1	1.8	12.6	8.9	10.7	6.4	1.9	5.5	.5	
<b>Percent of Windows with Storm Windows</b>														
100 Percent .....	37.3	6.5	13.7	10.8	4.5	1.8	6.3	4.4	15.1	6.9	1.7	2.4	.5	
76 to 99 Percent .....	6.8	.9	2.7	2.4	.6	.2	1.7	1.0	2.2	1.3	.2	.4	Q	
51 to 75 Percent .....	3.9	.5	1.7	1.2	.3	Q	.6	.2	1.9	.8	Q	.4	Q	
1 to 50 Percent .....	4.1	.4	1.0	1.8	.6	.4	.5	.5	.9	1.1	.4	.5	.2	
None/No Windows .....	34.2	.8	2.4	6.3	13.9	10.8	.9	2.2	1.6	7.1	9.7	3.0	9.6	
<b>Number of Outside Doors</b>														
1 .....	9.7	1.0	2.6	3.0	1.8	1.3	.8	1.8	2.7	1.0	1.3	.9	1.4	
2 .....	38.5	3.9	9.5	9.5	9.5	6.1	4.1	2.9	10.0	8.7	5.8	2.8	4.2	
3 .....	23.1	2.4	5.5	6.2	5.7	3.4	2.9	2.0	5.3	5.0	3.2	2.1	2.7	
4 or More .....	11.4	1.1	2.7	2.5	2.8	2.2	1.6	.6	2.4	2.3	1.9	.9	1.3	
None .....	3.6	.6	1.3	1.3	.2	.2	.5	1.2	1.3	Q	Q	Q	3	
Average Number of Doors .....	2.4	2.3	2.3	2.3	2.5	2.5	2.5	1.9	2.3	2.5	2.5	2.5	2.5	
<b>Type and Number of Outside Doors</b>														
<b>Standard Doors</b>														
1 .....	15.3	.9	3.1	4.5	4.3	2.5	1.1	2.1	2.7	2.3	2.4	1.5	3.2	
2 .....	42.2	4.4	10.5	10.4	10.3	6.6	4.6	3.1	11.2	9.1	6.1	3.6	4.6	
3 .....	17.7	1.7	4.5	4.6	3.9	3.0	2.6	1.6	4.0	4.3	2.7	1.0	1.6	
4 or More .....	6.1	.8	1.6	1.6	1.2	1.0	1.1	.4	1.4	1.3	.9	.4	.6	
None/No Doors .....	5.0	1.1	1.9	1.4	.3	.3	.6	1.2	2.4	.2	Q	.2	.4	
Average Number of Standard Doors .....	2.1	2.0	2.1	2.0	2.1	2.2	2.3	1.7	2.0	2.3	2.2	2.0	1.9	
<b>Sliding Glass Doors</b>														
1 .....	18.1	2.0	4.0	4.0	5.4	2.7	1.4	1.0	4.1	3.2	2.3	2.4	3.7	
2 or More .....	3.8	.3	.7	.7	1.3	.8	.3	Q	.7	.5	.7	.4	1.1	
None/No Doors .....	64.5	6.8	16.8	17.8	13.3	9.8	8.2	7.3	16.8	13.4	9.2	3.9	5.6	
Average Number of Sliding Glass Doors .....	.3	.3	.3	.3	.4	.4	.2	.1	.3	.3	.3	.5	.6	

See footnotes at end of table.

**Table 44. Thermal Characteristics by Weather Zone and Census Regions as of November 1984 (Continued)**  
**(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Weather Zone												
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions						
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	Northeast	North Central	South	West					
<b>Number of Storm Doors</b>														
1 .....	14.5	2.0	4.6	3.6	2.5	1.8	1.5	1.0	5.1	3.2	1.7	1.4	0.6	
2 .....	23.7	3.3	8.3	7.5	3.0	1.7	4.0	2.5	8.4	5.5	1.7	1.6	Q	
3 .....	8.2	1.1	2.8	2.6	1.2	.4	1.6	1.0	2.7	2.0	.4	.4	Q	
4 or More .....	2.8	.5	.9	.9	.4	Q	.6	.2	1.0	.6	Q	.2	Q	
None .....	33.6	1.5	3.7	6.6	12.7	9.1	1.8	2.4	3.2	5.7	8.2	3.0	9.3	
No Outside Doors .....	3.6	.6	1.3	1.3	.2	.2	.5	1.2	1.3	Q	Q	Q	Q	.3
Average Number of Storm Doors .....	1.1	1.6	1.6	1.3	.7	.5	1.7	1.2	1.6	1.3	.6	1.0	.1	
Average Number of Standard Storm Doors .....	1.0	1.3	1.4	1.2	.6	.5	1.5	1.1	1.4	1.2	.5	.7	.1	
Average Number of Sliding Glass Storm Doors .....	.1	.2	.2	.2	.1	.1	.2	.1	.2	.1	.1	.3	Q	
<b>Percent of Outside Doors with Storm Doors</b>														
100 Percent .....	27.3	4.3	9.9	8.5	3.2	1.4	4.5	3.1	10.8	5.9	1.3	1.4	.2	
51 to 99 Percent .....	8.2	1.1	2.9	2.4	1.3	.6	1.5	.8	2.6	1.9	.6	.7	Q	
1 to 50 Percent .....	13.6	1.5	3.8	3.7	2.5	2.0	1.6	.9	3.7	3.4	2.0	1.5	.5	
None/No Doors .....	37.1	2.1	4.9	7.9	12.9	9.3	2.2	3.6	4.5	5.8	8.2	3.1	9.6	
<b>Total Single-Family Units</b> .....	57.6	6.2	13.6	15.2	12.9	9.6	6.4	4.5	14.6	13.1	8.7	4.4	5.9	
<b>Have Caulking or Weatherstripping (single-family units)</b>														
Yes .....	39.9	4.9	10.4	11.1	8.2	5.4	4.9	3.4	11.0	8.7	4.9	3.5	3.6	
Caulking .....	33.8	4.3	8.7	9.8	6.4	4.6	4.1	3.1	9.6	7.6	4.2	2.8	2.4	
Weatherstripping .....	32.6	3.9	8.5	9.1	6.7	4.4	4.0	3.0	8.7	6.9	3.9	3.0	3.1	
No/Don't Know/Not Reported .....	17.7	1.4	3.2	4.1	4.7	4.3	1.5	1.1	3.6	4.4	3.8	1.0	2.3	
<b>Have Roof or Ceiling Insulation (single-family units)</b>														
Yes .....	45.2	5.5	11.4	11.8	9.9	6.6	5.3	3.2	12.4	10.4	5.9	3.8	4.2	
All Insulated .....	36.5	4.8	9.3	9.2	8.0	5.2	4.2	2.5	10.2	8.4	4.7	3.2	3.3	
Part Insulated .....	4.8	.5	1.0	1.3	1.1	.8	.5	.5	1.0	1.0	.8	.4	.6	
None, Very Little Insulated .....	.9	Q	.2	.4	.2	Q	Q	Q	.2	.3	Q	Q	Q	
Don't Know Amount/Not Reported .....	3.1	.3	.9	.9	.6	.5	.5	Q	.9	.7	.4	.2	.3	
No .....	8.2	.4	1.4	2.2	2.0	2.2	.9	1.0	1.1	1.8	1.9	.3	1.2	
Don't Know/Not Reported .....	4.1	.2	.8	1.2	.9	.9	.2	.3	1.1	.9	.9	.3	.5	
<b>Type of Insulation</b>														
Batts Only .....	21.4	2.6	5.5	6.2	3.9	3.1	3.5	2.1	4.9	4.9	3.0	1.2	1.7	
Average Number of Inches .....	5.4	6.2	5.8	5.2	5.3	4.7	6.1	5.0	5.8	5.4	4.7	5.3	5.0	
Loose Fill Only .....	13.2	1.3	3.0	3.2	3.8	1.9	.7	.6	3.8	3.4	1.6	1.5	1.6	
Average Number of Inches .....	6.8	8.2	6.8	7.3	6.6	5.8	6.9	8.2	7.1	7.1	5.3	7.3	6.0	
Batts and Loose Fill Only .....	5.1	.8	1.7	1.1	.9	.7	.5	Q	2.1	1.1	.6	.4	.2	
Average Number of Inches .....	10.6	12.1	10.6	10.3	9.2	10.1	9.7	Q	11.2	10.2	10.1	10.3	Q	
Other/Combination .....	3.0	.6	.7	.7	.7	.3	.3	.2	.9	.7	.3	.3	.3	
Don't Know Type/Not Reported .....	2.6	.3	.5	.6	.6	.6	.2	Q	.6	.5	.5	.4	.4	
No Insulation														
Don't Know/Not Reported .....	12.4	.7	2.3	3.4	2.9	3.1	1.1	1.3	2.2	2.7	2.7	.6	1.7	

See footnotes at end of table.

**Table 44. Thermal Characteristics by Weather Zone and Census Regions as of November 1984 (Continued)**  
**(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Weather Zone											
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions						
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast		North Central	South		West	
		5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD					
<b>Have Wall Insulation (single-family units)</b>													
Yes .....	30.8	4.6	8.4	8.5	5.3	4.0	4.1	2.3	9.4	7.0	3.6	2.7	1.7
All Walls .....	25.1	3.8	7.1	6.5	4.2	3.4	3.5	1.7	7.8	5.6	3.1	2.3	1.2
Some Walls .....	5.7	.8	1.3	2.0	1.1	.5	.6	.7	1.6	1.4	.5	.4	.5
No .....	15.7	.9	3.0	3.9	4.4	3.6	1.6	1.2	2.7	3.3	3.1	.9	2.9
Don't Know/Not Reported .....	11.1	.8	2.2	2.8	3.2	2.1	.7	1.0	2.5	2.8	2.0	.9	1.4
<b>Floor Insulation (single-family units)</b>													
Basement/Crawl Space .....	45.2	5.9	12.3	13.8	9.3	4.0	6.0	4.1	13.2	11.3	3.8	3.8	3.1
Heated .....	15.5	2.7	6.2	5.6	.8	Q	2.6	2.3	6.8	2.5	Q	1.0	.2
None or Part Heated .....	29.7	3.1	6.1	8.2	8.5	3.8	3.3	1.8	6.4	8.8	3.7	2.8	2.9
Floor Insulated .....	5.5	.7	1.3	1.8	1.3	.4	.8	.4	1.1	2.1	.4	.6	Q
All Parts Insulated .....	3.8	.4	.8	1.3	1.0	.2	.5	.3	.6	1.7	.2	.5	Q
Some Parts Insulated .....	1.7	.3	.5	.5	.3	Q	.4	Q	.4	.5	Q	Q	Q
Floor Not Insulated .....	16.0	1.7	2.9	4.1	4.9	2.4	1.7	.7	3.4	4.7	2.2	1.3	2.0
Don't Know/Not Reported .....	8.2	.7	1.9	2.3	2.3	1.1	.8	.7	1.9	2.0	1.1	.8	.8
No Basement/Crawl Space .....	12.3	.4	1.3	1.5	3.6	5.6	.4	.4	1.4	1.8	4.9	.6	2.8
<b>Insulation Characteristics (single-family units)</b>													
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation .....	29.6	4.8	10.0	9.4	4.0	1.5	4.8	3.0	11.0	7.1	1.4	2.1	.2
Units with One or More of These Types of Insulation .....	51.8	6.1	13.4	14.5	10.6	7.1	6.3	4.3	14.3	12.0	6.5	4.1	4.3
Units with None of These Types of Insulation .....	5.8	Q	.2	.7	2.3	2.5	Q	.2	.2	1.1	2.1	.4	1.7

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 45. Thermal Characteristics by Weather Zone and Census Regions as of November 1984 (Percent of Households)**

Household Characteristics	Total	Weather Zone													
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions							
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	4,000 HDD or More	West		
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of Windows</b>															
1 to 6	19.5	20.0	13.6	17.6	25.5	22.7	11.6	24.3	15.6	14.7	20.2	22.4	36.3		
7 to 12	43.2	36.6	37.5	46.8	46.8	45.3	28.9	39.1	43.7	49.7	46.6	44.8	43.2		
13 to 18	24.4	28.1	28.7	23.4	19.8	23.7	36.8	21.0	25.1	25.1	24.4	21.8	14.4		
19 or More	12.9	15.1	20.2	12.1	7.8	8.3	22.7	15.7	15.6	10.4	8.8	10.6	5.7		
None	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
<b>Number of Storm Windows</b>															
1 to 6	12.3	22.3	15.5	13.5	7.5	5.5	11.5	14.8	19.5	10.1	5.9	16.9	4.5		
7 to 12	25.7	34.1	33.0	35.7	13.9	9.2	28.0	30.4	39.3	30.6	9.8	24.7	2.8		
13 to 18	14.5	23.1	25.0	14.6	6.7	3.5	33.8	16.1	21.2	13.2	3.9	7.7	Q		
19 or More	7.8	12.1	15.4	8.1	2.2	Q	17.3	12.2	12.7	4.5	Q	5.9	Q		
None/No Windows	39.6	8.4	11.2	28.1	69.6	81.1	9.5	26.6	7.3	41.6	79.7	44.8	92.4		
<b>Percent of Windows with Storm Windows</b>															
100 Percent	43.3	72.4	63.6	48.2	22.7	13.2	63.0	52.5	69.9	40.1	14.2	36.5	5.1		
76 to 99 Percent	7.9	9.7	12.6	10.5	3.2	1.5	17.2	12.4	10.0	7.6	1.6	5.3	Q		
51 to 75 Percent	4.5	5.7	8.1	5.3	1.6	Q	5.6	2.4	8.7	4.4	Q	5.3	Q		
1 to 50 Percent	4.8	3.9	4.5	7.8	2.9	3.3	4.7	6.2	4.0	6.3	3.5	8.1	2.0		
None/No Windows	39.6	8.4	11.2	28.1	69.6	81.1	9.5	26.6	7.3	41.6	79.7	44.8	92.4		
<b>Number of Outside Doors</b>															
1	11.3	11.2	12.2	13.5	8.9	9.9	8.3	21.0	12.4	5.8	10.5	12.9	13.1		
2	44.7	43.4	44.0	42.2	47.7	46.1	41.8	34.5	46.2	51.0	47.9	41.4	40.4		
3	26.8	26.6	25.5	27.4	28.4	25.5	29.5	23.5	24.3	29.3	25.9	31.3	26.0		
4 or More	13.2	12.6	12.5	11.1	14.1	16.7	15.7	6.8	10.9	13.3	15.4	13.2	17.7		
None	4.1	6.2	5.8	5.9	.9	1.9	4.8	14.3	6.2	Q	Q	3.5	2.8		
<b>Type and Number of Outside Doors</b>															
<b>Standard Doors</b>															
1	17.7	10.1	14.2	20.2	21.4	18.7	11.5	25.5	12.3	13.3	19.7	21.8	30.7		
2	48.9	49.0	49.0	46.2	51.6	49.3	46.0	36.7	51.9	52.9	50.1	53.7	44.5		
3	20.6	19.3	20.8	20.5	19.6	22.7	26.1	18.5	18.4	25.2	22.1	15.5	15.3		
4 or More	7.1	9.1	7.3	6.9	5.9	7.4	10.7	4.9	6.6	7.8	7.7	5.6	5.5		
None/No Doors	5.7	12.6	8.7	6.2	1.5	1.9	5.6	14.3	10.9	.9	Q	3.5	4.1		
<b>Sliding Glass Doors</b>															
1	20.9	21.6	18.4	18.0	27.0	20.3	13.9	11.8	19.0	18.9	19.0	35.5	35.2		
2 or More	4.4	3.0	3.3	2.9	6.4	6.4	3.1	Q	3.1	2.7	5.8	6.6	10.7		
None/No Doors	74.7	75.4	78.3	79.1	66.6	73.3	83.0	87.5	77.9	78.4	75.2	58.0	54.2		
<b>Number of Storm Doors</b>															
1	16.8	21.9	21.5	15.8	12.7	13.5	15.5	11.8	23.5	18.4	14.3	21.2	5.6		
2	27.5	36.1	38.4	33.3	15.1	12.8	39.9	30.2	38.8	32.0	14.0	23.3	Q		
3	9.5	12.7	13.1	11.8	5.8	2.9	16.3	11.6	12.3	11.9	3.1	6.6	Q		
4 or More	3.2	6.0	4.2	3.8	1.8	Q	5.8	3.0	4.6	3.6	Q	3.0	Q		
None	38.9	17.0	17.0	29.4	63.7	67.9	17.8	29.2	14.6	33.3	67.2	44.7	89.6		
No Outside Doors	4.1	6.2	5.8	5.9	.9	1.9	4.8	14.3	6.2	Q	Q	Q	2.8		

See footnotes at end of table.

**Table 45. Thermal Characteristics by Weather Zone and Census Regions as of November 1984 (Continued) (Percent of Households)**

Household Characteristics	Total	Weather Zone											
		Fewer than 2,000 CDD and --					More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions					
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD	Northeast	North Central	South	West				
						5,500 HDD or More	Fewer than 5,500 HDD or More	4,000 HDD or More	Fewer than 2,000 CDD or More	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD	
<b>Percent of Outside Doors with Storm Doors</b>													
100 Percent .....	31.6	47.7	46.0	37.8	16.3	10.2	45.6	36.5	50.1	34.7	10.9	21.6	1.9
51 to 99 Percent .....	9.5	11.9	13.4	10.5	6.4	4.7	15.5	9.0	12.0	11.4	5.2	10.4	Q
1 to 50 Percent .....	15.8	17.1	17.8	16.4	12.7	15.3	16.3	11.0	17.1	19.9	16.3	22.1	5.1
None/No Doors .....	43.0	23.3	22.8	35.3	64.6	69.8	22.6	43.5	20.8	34.1	67.6	45.9	92.4
<b>Total Single-Family Units</b> .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Have Caulking or Weatherstripping (single-family units)</b>													
Yes .....	69.3	78.1	76.6	72.8	63.5	55.7	76.9	76.6	75.2	66.6	56.0	78.1	60.5
Caulking .....	58.7	69.4	64.0	64.2	49.5	47.6	64.6	69.0	66.1	57.7	47.8	62.9	40.9
Weatherstripping .....	56.7	62.8	62.1	59.8	52.1	46.1	62.3	65.7	59.7	52.9	45.3	68.7	52.1
No/Don't Know/Not Reported .....	30.7	21.9	23.4	27.2	36.5	44.3	23.1	23.4	24.8	33.4	44.0	21.9	39.5
<b>Have Roof or Ceiling Insulation (single-family units)</b>													
Yes .....	78.5	89.1	83.3	77.6	77.2	68.2	82.6	70.5	84.8	79.6	68.6	86.5	71.3
All Insulated .....	63.4	77.4	67.9	60.5	62.1	54.3	65.7	55.0	70.1	64.3	54.7	72.0	55.0
Part Insulated .....	8.3	7.7	7.2	8.9	8.8	8.6	7.7	11.1	7.1	7.9	8.8	8.1	10.0
None, Very Little Insulated .....	1.6	Q	1.8	2.5	1.8	Q	Q	Q	1.7	2.2	Q	Q	C
Don't Know Amount/Not Reported .....	5.3	4.0	6.4	5.8	4.5	4.8	7.7	Q	5.9	5.2	4.5	5.3	5.6
No .....	14.3	7.1	10.6	14.3	15.5	22.5	14.9	21.9	7.7	13.7	21.5	6.8	20.5
Don't Know/Not Reported .....	7.2	3.9	6.1	8.1	7.2	9.2	2.5	7.7	7.5	6.7	9.9	6.7	8.2
<b>Type of Insulation</b>													
Batts Only .....	37.1	41.5	40.2	41.0	30.6	32.5	55.7	46.3	34.0	37.0	34.4	28.1	29.1
Loose Fill Only .....	22.9	21.1	22.1	21.0	29.3	19.7	10.6	14.4	26.0	25.9	17.9	35.0	26.6
Batts and Loose Fill Only .....	8.9	13.3	12.2	7.0	6.9	6.9	8.1	Q	14.5	8.2	7.5	9.4	3.3
Other/Combination .....	5.1	9.1	5.0	4.7	5.6	2.9	5.2	4.7	6.4	5.0	3.2	5.7	4.9
Don't Know Type/Not Reported .....	4.5	4.1	3.8	3.9	4.8	6.2	2.9	Q	3.9	3.4	5.6	8.3	7.5
No Insulation/Don't Know/Not Reported .....	21.5	10.9	16.7	22.4	22.8	31.8	17.4	29.5	15.2	20.4	31.4	13.5	28.7
<b>Have Wall Insulation (single-family units)</b>													
Yes .....	53.4	73.7	61.4	56.0	41.2	41.4	63.8	52.1	64.4	53.4	41.5	60.7	28.4
All Walls .....	43.6	61.3	52.2	42.8	32.6	35.7	54.7	36.8	53.6	42.8	35.5	50.8	20.4
Some Walls .....	9.8	12.4	9.2	13.2	8.5	5.6	9.1	15.3	10.8	10.6	6.0	9.9	8.0
No .....	27.2	13.7	22.1	25.6	33.8	37.1	25.9	25.8	18.6	25.4	35.9	19.3	48.2
Don't Know/Not Reported .....	19.3	12.6	16.5	18.5	25.1	21.5	10.4	22.1	17.0	21.2	22.6	20.0	23.4
<b>Floor Insulation (single-family units)</b>													
Basement/Crawl Space .....	78.6	94.0	90.5	90.4	72.3	41.2	93.8	90.6	90.4	86.4	43.7	85.5	52.6
Heated .....	26.9	44.1	45.7	36.8	6.4	Q	41.4	50.1	46.5	19.3	Q	22.8	3.6
None or Part Heated .....	51.6	50.0	44.8	53.6	65.9	40.1	52.4	40.5	43.9	67.1	42.5	62.7	49.0
Floor Insulated .....	9.6	11.4	9.7	11.9	10.0	4.0	13.1	8.3	7.4	16.2	4.4	13.5	Q
All Parts Insulated .....	6.6	6.6	6.2	8.4	7.9	2.4	7.1	5.6	4.4	12.8	2.7	10.2	Q
Some Parts Insulated .....	3.0	4.8	3.5	3.5	2.1	Q	6.0	Q	2.9	3.4	Q	Q	Q
Floor Not Insulated .....	27.8	27.9	21.3	26.8	38.3	24.7	26.6	16.2	23.5	35.6	25.5	30.1	33.1
Don't Know/Not Reported .....	14.2	10.6	13.8	14.9	17.7	11.3	12.7	16.0	13.0	15.3	12.6	19.1	13.8
No Basement/Crawl Space .....	21.4	6.0	9.5	9.6	27.7	58.8	6.2	9.4	9.6	13.6	56.3	14.5	47.4

See footnotes at end of table.

**Table 45. Thermal Characteristics by Weather Zone and Census Regions as of November 1984 (Continued) (Percent of Households)**

Household Characteristics	Total	Weather Zone											
		Fewer than 2,000 CDD and --				More than 2,000 CDD and Fewer than 4,000 HDD	Census Regions						
		More than 7,000 HDD	5,500 to 7,000 HDD	4,000 to 5,499 HDD	Fewer than 4,000 HDD		Northeast		North Central	South		West	
							5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD
<b>Insulation Characteristics (single-family units)</b>													
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation .....	51.3	76.9	73.0	61.5	30.9	15.2	75.6	65.6	75.2	53.8	16.4	48.0	4.0
Units with One or More of These Types of Insulation .....	90.0	98.1	98.5	95.3	82.5	74.3	99.3	96.0	98.3	91.5	75.3	92.1	71.7
Units with None of These Types of Insulation .....	10.0	Q	1.5	4.7	17.5	25.7	Q	4.0	1.7	8.5	24.7	7.9	28.3

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 46. Thermal Characteristics by Year of Construction, as of November 1984**  
 (Million Households Except Where Averages Are Indicated)

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	86.3	5.0	10.1	10.7	8.2	7.5	12.6	7.0	25.2
<b>Number of Windows</b>									
1 to 6	16.8	2.0	3.3	3.3	1.5	1.7	1.3	.6	3.0
7 to 12	37.3	2.2	4.3	4.2	4.0	3.2	6.0	3.2	10.3
13 to 18	21.1	.7	1.8	2.4	2.0	1.8	3.8	2.2	6.5
19 or More	11.1	Q	.9	.8	.7	.6	1.5	1.1	5.4
None	Q	Q	Q	Q	Q	Q	Q	Q	Q
Average Number of Windows	11.8	8.2	9.7	10.1	11.1	10.8	12.6	13.0	13.9
<b>Number of Storm Windows</b>									
1 to 6	10.6	1.2	1.9	1.5	.6	.8	1.0	.6	3.1
7 to 12	22.2	1.6	2.6	2.5	1.8	1.7	3.2	1.8	6.9
13 to 18	12.6	.6	1.2	1.4	1.1	1.1	2.0	1.0	4.3
19 or More	6.7	Q	.7	.5	.5	.2	.8	.6	3.2
None/No Windows	34.2	1.5	3.6	4.8	4.3	3.7	5.6	3.0	7.7
Average Number of Storm Windows	7.0	6.2	6.7	5.9	5.7	5.4	6.7	7.0	8.8
<b>Percent of Windows with Storm Windows</b>									
100 Percent	37.3	3.2	5.5	4.8	2.8	3.1	4.7	2.6	10.6
76 to 99 Percent	6.8	Q	.5	.5	.7	.2	1.1	.6	3.0
51 to 75 Percent	3.9	Q	.3	.3	.2	.2	.7	.3	1.8
1 to 50 Percent	4.1	Q	.2	.3	.2	.3	.6	.4	2.0
None/No Windows	34.2	1.5	3.6	4.8	4.3	3.7	5.6	3.0	7.7
<b>Number of Outside Doors</b>									
1	9.7	.7	1.2	1.5	.9	.9	1.2	.7	2.6
2	38.5	2.2	3.6	4.6	3.4	3.1	6.4	3.2	12.0
3	23.1	1.3	2.9	2.9	2.3	2.0	3.6	2.0	6.0
4 or More	11.4	.7	1.8	1.2	1.2	1.2	1.4	.9	3.1
None	3.6	Q	.6	.4	.4	.3	Q	.2	1.4
Average Number of Doors	2.4	2.5	2.5	2.3	2.4	2.5	2.4	2.4	2.3
<b>Type and Number of Outside Doors</b>									
Standard Doors									
1	15.3	1.5	2.0	3.1	1.7	1.5	1.6	.9	3.1
2	42.2	2.3	4.9	4.7	4.3	3.6	7.3	3.2	12.0
3	17.7	.6	1.7	1.9	1.3	1.5	2.8	2.1	5.8
4 or More	6.1	.3	.4	.4	.4	.5	.8	.6	2.8
None/No Doors	5.0	.3	1.1	.7	.6	.4	.2	.2	1.5
Average Number of Standard Doors	2.1	1.9	1.8	1.8	1.9	2.0	2.2	2.3	2.2
Sliding Glass Doors									
1	18.1	2.1	4.2	3.4	2.7	1.8	1.9	.7	1.2
2 or More	3.8	.4	.9	.7	.6	.5	.4	Q	.2
None/No Doors	64.5	2.5	4.9	6.5	4.9	5.1	10.4	6.2	23.8
Average Number of Sliding Glass Doors	.3	.6	.6	.5	.5	.4	.2	.1	.1

See footnotes at end of table.

**Table 46. Thermal Characteristics by Year of Construction, as of November 1984 (Continued)**  
 (Million Households Except Where Averages Are Indicated)

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Number of Storm Doors</b>									
1	14.5	1.3	2.4	2.2	1.2	1.0	1.6	0.9	3.8
2	23.7	1.0	2.0	2.4	1.8	2.1	4.4	2.0	8.1
3	8.2	.6	1.0	.9	.9	.7	1.2	.7	2.3
4 or More	2.8	.3	.5	.2	.2	Q	.5	.2	.7
None	33.6	1.7	3.6	4.4	3.7	3.3	4.8	3.1	8.9
No Outside Doors	3.6	Q	.6	.4	.4	.3	Q	.2	1.4
Average Number of Storm Doors	1.1	1.3	1.1	1.0	1.0	1.0	1.3	1.1	1.2
Average Number of Standard Storm Doors	1.0	.8	.8	.8	.8	.9	1.2	1.0	1.2
Average Number of Sliding Glass Storm Doors	.1	.4	.3	.2	.2	.1	.1	.1	Q
<b>Percent of Outside Doors with Storm Doors</b>									
100 Percent	27.3	1.6	2.7	2.7	2.3	2.1	5.0	2.3	8.7
51 to 99 Percent	8.2	.5	1.0	1.2	.7	.7	1.3	.6	2.2
1 to 50 Percent	13.6	1.2	2.1	2.0	1.1	1.1	1.4	.9	3.9
None/No Doors	37.1	1.8	4.3	4.9	4.2	3.5	4.9	3.2	10.3
<b>Total Single-Family Units</b>	57.6	2.8	5.6	5.4	5.1	5.1	10.4	5.4	17.7
<b>Have Caulking or Weatherstripping (single-family units)</b>									
Yes	39.9	2.1	4.3	3.9	3.8	3.6	7.1	3.6	11.4
Caulking	33.8	1.8	3.9	3.5	3.2	2.9	6.0	3.1	9.5
Weatherstripping	32.6	1.8	3.6	3.3	3.1	3.0	5.9	2.8	9.2
No/Don't Know/Not Reported	17.7	.7	1.2	1.6	1.3	1.5	3.3	1.8	6.3
<b>Have Roof or Ceiling Insulation (single-family units)</b>									
Yes	45.2	2.6	5.1	4.8	4.7	4.4	8.5	4.0	11.2
All Insulated	36.5	2.4	4.5	4.2	3.8	3.5	7.1	3.0	7.9
Part Insulated	4.8	Q	.3	.2	.3	.5	.6	.6	2.2
None, Very Little Insulated	.9	Q	Q	Q	Q	Q	.3	Q	.2
Don't Know Amount/Not Reported	3.1	Q	.3	.3	.4	.3	.6	.3	.9
No	8.2	Q	.3	.2	.2	.3	1.3	.8	5.0
Don't Know/Not Reported	4.1	.2	Q	.4	.3	.4	.6	.7	1.5
<b>Type of Insulation</b>									
Batts Only	21.4	1.5	2.1	2.4	2.2	2.2	4.1	1.8	5.1
Average Number of Inches	5.4	6.7	6.6	5.8	5.4	5.2	5.2	4.8	5.0
Loose Fill Only	13.2	.7	1.6	1.4	1.5	1.3	2.3	1.1	3.3
Average Number of Inches	6.8	10.0	7.9	6.5	6.1	6.6	6.8	6.5	6.5
Batts and Loose Fill Only	5.1	Q	.5	.5	.5	.5	1.0	.6	1.3
Average Number of Inches	10.6	Q	12.8	10.9	9.2	9.2	10.3	9.3	11.0
Other/Combination	3.0	.2	.3	.2	.2	Q	.6	.2	1.1
Don't Know Type/Not Reported	2.6	Q	.5	.2	.3	.3	.5	.2	.4
No Insulation									
Don't Know/Not Reported	12.4	.2	.5	.7	.5	.7	1.9	1.5	6.5

See footnotes at end of table.

**Table 46. Thermal Characteristics by Year of Construction, as of November 1984 (Continued)**  
 (Million Households Except Where Averages Are Indicated)

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Have Wall Insulation (single-family units)</b>									
Yes .....	30.8	2.3	4.4	3.8	3.0	2.9	4.6	2.2	7.6
All Walls .....	25.1	2.3	4.1	3.5	2.6	2.3	3.6	1.6	5.0
Some Walls .....	5.7	Q	.3	.3	.4	.5	1.0	.6	2.6
No .....	15.7	Q	.4	.4	1.0	1.0	3.6	1.9	7.4
Don't Know/Not Reported .....	11.1	.4	.8	1.2	1.2	1.2	2.2	1.3	2.7
<b>Floor Insulation (single-family units)</b>									
Basement/Crawl Space .....	45.2	1.7	3.5	3.8	3.3	3.4	8.0	4.7	16.9
Heated .....	15.5	.5	1.6	1.6	1.2	1.1	2.6	1.2	5.7
None or Part Heated .....	29.7	1.1	2.0	2.2	2.1	2.3	5.4	3.5	11.1
Floor Insulated .....	5.5	.4	.9	.7	.6	.5	.8	.5	1.2
All Parts Insulated .....	3.8	.3	.9	.6	.5	.4	.5	.2	.5
Some Parts Insulated .....	1.7	Q	Q	Q	Q	.2	.3	.2	.7
Floor Not Insulated .....	16.0	.2	.7	.9	.8	1.1	3.0	2.1	7.3
Don't Know/Not Reported .....	8.2	.6	.4	.7	.7	.7	1.6	1.0	2.7
No Basement/Crawl Space .....	12.3	1.1	2.0	1.7	1.8	1.7	2.4	.8	.8
<b>Insulation Characteristics (single-family units)</b>									
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation .....	29.6	2.0	3.5	2.9	2.6	2.3	5.3	2.5	8.4
Units with One or More of These Types of Insulation .....	51.8	2.7	5.2	5.2	4.8	4.7	9.3	4.6	15.3
Units with None of These Types of Insulation .....	5.8	Q	.3	.3	.3	.3	1.1	.8	2.4

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 47. Thermal Characteristics by Year of Construction, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Number of Windows</b>									
1 to 6	19.5	40.2	32.1	31.0	18.6	23.3	10.4	8.8	12.1
7 to 12	43.2	43.1	42.0	39.5	48.1	43.3	47.5	45.3	40.9
13 to 18	24.4	13.9	17.5	22.3	23.9	24.3	30.0	30.8	25.8
19 or More	12.9	Q	8.4	7.2	8.9	8.7	12.2	15.1	21.3
None	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Number of Storm Windows</b>									
1 to 6	12.3	23.7	18.8	13.9	7.4	10.1	8.3	8.3	12.2
7 to 12	25.7	32.8	25.9	23.9	21.4	23.1	25.5	25.6	27.4
13 to 18	14.5	11.3	12.3	12.9	12.8	14.1	15.5	15.0	16.9
19 or More	7.8	Q	7.4	4.5	5.9	3.1	6.7	8.6	12.8
None/No Windows	39.6	29.7	35.7	44.8	52.4	49.6	44.0	42.6	30.7
<b>Percent of Windows with Storm Windows</b>									
100 Percent	43.3	64.6	54.5	44.9	33.6	41.4	37.2	37.2	42.2
76 to 99 Percent	7.9	Q	5.1	5.1	8.6	3.0	8.7	9.3	11.8
51 to 75 Percent	4.5	Q	3.1	2.6	2.8	2.5	5.2	4.7	7.2
1 to 50 Percent	4.8	Q	1.6	2.5	2.6	3.6	4.9	6.1	8.1
None/No Windows	39.6	29.7	35.7	44.8	52.4	49.6	44.0	42.6	30.7
<b>Number of Outside Doors</b>									
1	11.3	14.1	11.6	14.1	11.1	12.5	9.3	9.9	10.5
2	44.7	44.0	35.8	43.4	41.3	41.8	50.4	46.3	47.5
3	26.8	26.5	28.7	27.5	28.4	26.2	28.4	28.8	24.0
4 or More	13.2	14.0	17.6	10.8	14.2	15.7	11.2	12.3	12.3
None	4.1	Q	6.4	4.2	4.9	3.7	Q	2.7	5.7
<b>Type and Number of Outside Doors</b>									
Standard Doors									
1	17.7	30.3	20.2	28.7	20.2	19.7	12.3	12.5	12.2
2	48.9	45.6	48.1	44.4	52.1	48.3	57.5	45.8	47.6
3	20.6	11.9	16.6	17.5	16.2	20.4	22.4	29.8	23.1
4 or More	7.1	6.6	4.0	3.3	4.5	6.5	6.2	8.4	11.1
None/No Doors	5.7	5.6	11.1	6.1	7.0	5.2	1.5	3.4	6.0
Sliding Glass Doors									
1	20.9	42.7	41.9	31.7	32.7	24.1	14.9	9.9	4.9
2 or More	4.4	7.2	9.3	7.0	7.5	7.0	2.8	Q	6
None/No Doors	74.7	50.2	48.8	61.4	59.9	68.9	82.3	89.2	94.5
<b>Number of Storm Doors</b>									
1	16.8	26.6	23.6	21.0	14.9	14.0	12.6	13.0	14.9
2	27.5	20.4	19.6	22.5	21.7	28.0	34.8	28.6	32.0
3	9.5	11.2	9.4	8.7	10.4	9.1	9.6	9.4	9.2
4 or More	3.2	6.1	5.1	2.1	2.5	Q	4.0	2.7	2.9
None	38.9	34.4	36.0	41.6	45.5	43.7	38.3	43.6	35.2
No Outside Doors	4.1	Q	6.4	4.2	4.9	3.7	Q	2.7	5.7

See footnotes at end of table.

**Table 47. Thermal Characteristics by Year of Construction, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Year of Construction								
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier	
<b>Percent of Outside Doors with Storm Doors</b>										
<b>100 Percent</b>										
100 Percent .....	31.6	31.2	27.0	25.1	27.6	28.3	39.3	32.5	34.6	
51 to 99 Percent .....	9.5	9.5	10.1	10.8	9.1	9.2	10.5	8.5	8.8	
1 to 50 Percent .....	15.8	23.4	20.6	18.4	12.8	15.0	11.2	12.6	15.7	
None/No Doors .....	43.0	35.9	42.3	45.7	50.5	47.5	39.0	46.3	41.0	
<b>Total Single-Family Units</b> .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Have Caulking or Weatherstripping (single-family units)</b>										
Yes .....	69.3	76.3	77.8	71.3	74.3	70.8	68.5	66.3	64.5	
Caulking .....	58.7	64.3	69.3	63.5	61.8	57.0	57.7	57.3	53.5	
Weatherstripping .....	56.7	65.8	64.1	61.3	59.8	58.6	56.4	51.4	51.7	
No/Don't Know/Not Reported .....	30.7	23.7	22.2	28.7	25.7	29.2	31.5	33.7	35.5	
<b>Have Roof or Ceiling Insulation (single-family units)</b>										
Yes .....	78.5	93.1	91.5	87.9	90.7	86.5	82.0	72.8	63.2	
All Insulated .....	63.4	86.0	81.2	77.9	74.7	69.9	67.9	54.3	44.7	
Part Insulated .....	8.3	Q	4.5	3.2	6.4	9.3	6.0	11.7	12.4	
None, Very Little Insulated .....	1.6	Q	Q	Q	Q	Q	2.6	Q	1.3	
Don't Know Amount/Not Reported .....	5.3	Q	5.0	5.3	8.3	4.9	5.4	5.0	4.9	
No .....	14.3	Q	6.1	4.0	4.0	5.8	12.3	15.0	28.5	
Don't Know/Not Reported .....	7.2	5.9	Q	8.1	5.4	7.7	5.7	12.3	8.2	
<b>Type of Insulation</b>										
Batts Only .....	37.1	52.1	37.7	43.7	42.3	43.7	39.3	33.3	29.0	
Loose Fill Only .....	22.9	24.5	28.7	26.4	28.7	26.1	22.5	19.7	18.4	
Batts and Loose Fill Only .....	8.9	Q	9.5	9.5	10.0	9.8	9.6	11.5	7.3	
Other/Combination .....	5.1	6.8	5.9	4.3	4.4	Q	5.6	4.3	6.0	
Don't Know Type/Not Reported .....	4.5	Q	9.7	3.9	5.3	5.0	5.0	4.0	2.5	
No Insulation/Don't Know/Not Reported .....	21.5	6.9	8.5	12.1	9.3	13.5	18.0	27.2	36.8	
<b>Have Wall Insulation (single-family units)</b>										
Yes .....	53.4	83.4	79.2	70.1	57.8	56.3	44.6	39.8	42.8	
All Walls .....	43.6	81.1	74.1	65.2	50.6	45.9	34.8	29.3	28.3	
Some Walls .....	9.8	Q	5.1	4.9	7.3	10.4	9.8	10.5	14.4	
No .....	27.2	Q	6.5	7.4	18.6	19.3	34.5	35.6	41.7	
Don't Know/Not Reported .....	19.3	14.7	14.2	22.5	23.6	24.4	20.9	24.6	15.5	

See footnotes at end of table.

**Table 47. Thermal Characteristics by Year of Construction, as of November 1984 (Continued)**  
**(Percent of Households)**

Household Characteristics	Total	Year of Construction							
		1980 or Later	1975 to 1979	1970 to 1974	1965 to 1969	1960 to 1964	1950 to 1959	1940 to 1949	1939 or Earlier
<b>Floor Insulation (single-family units)</b>									
Basement/Crawl Space	78.6	59.6	63.8	69.5	64.3	66.8	77.0	85.8	95.2
Heated	26.9	19.1	28.5	28.9	23.6	21.6	24.7	22.1	32.4
None or Part Heated	51.6	40.5	35.3	40.6	40.7	45.2	52.3	63.7	62.8
Floor Insulated	9.6	13.5	16.4	12.2	10.7	10.1	7.9	8.5	6.8
All Parts Insulated	6.6	12.2	15.7	10.3	9.1	7.0	4.6	4.2	2.7
Some Parts Insulated	3.0	Q	Q	Q	Q	3.1	3.3	4.3	4.2
Floor Not Insulated	27.8	7.3	11.7	16.1	16.4	21.4	29.2	37.7	41.0
Don't Know/Not Reported	14.2	19.7	7.1	12.3	13.5	13.7	15.1	17.5	15.0
No Basement/Crawl Space	21.4	40.4	36.2	30.5	35.7	33.2	23.0	14.2	4.8
<b>Insulation Characteristics (single-family units)</b>									
Units with Some or All Storm Windows, and Some or All Storm Doors, and Roof or Ceiling Insulation	51.3	71.2	63.4	53.7	50.4	44.9	51.2	46.2	47.5
Units with One or More of These Types of Insulation	90.0	95.1	93.8	94.7	94.2	93.3	88.9	85.3	86.5
Units with None of These Types of Insulation	10.0	Q	6.2	5.3	5.8	6.7	11.1	14.7	13.5

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 48. Conservation Improvements Made from December 1983 Through November 1984, by Census Region and Metropolitan Status  
(Million Households Except Where Averages Are Indicated)**

Household Characteristics	Total	Census Region				Metropolitan Status				Non-Metropolitan	
		Northeast	North Central	South	West	Metropolitan					
						Total	Central City	Outside Central City			
<b>Total Households</b>	86.3	18.3	21.6	29.3	17.1	65.7	30.6	35.1	20.6		
<b>Total Households Adding Items</b>	5.2	1.4	1.6	1.7	.4	4.0	1.6	2.4	1.2		
Storm Doors (standard or sliding glass)	3.1	.7	.8	1.3	.3	2.3	.9	1.4	.7		
Average Number Added	1.4	1.4	1.5	1.4	1.4	1.5	1.4	1.5	1.3		
Storm Windows	3.1	.9	1.1	.8	.3	2.3	.9	1.5	.7		
Average Number Added	5.8	6.1	5.0	6.2	7.0	5.8	4.6	6.6	5.8		
<b>Total Single-Family Units and Mobile Homes</b>	62.7	11.5	15.7	24.1	11.4	44.3	16.8	27.5	18.5		
<b>Single-Family Units or Mobile Homes Adding Items</b>	17.5	3.6	5.9	5.0	3.0	12.3	4.8	7.5	5.2		
Caulking	6.8	1.4	2.6	1.9	.9	4.9	1.9	3.0	1.9		
Weatherstripping	5.0	1.2	1.6	1.3	.8	3.8	1.5	2.3	1.2		
Closable Shutters, Insulating Drapes, or Reflective Film	2.1	.4	.7	.5	.5	1.5	.6	.9	.6		
Plastic Sheets	4.5	1.0	2.0	.9	.6	2.9	1.3	1.7	1.6		
Roof or Ceiling Insulation	2.6	.5	.7	.8	.6	1.9	.7	1.2	.7		
Insulation Around Water Heater	1.8	.5	.4	.4	.6	1.3	.6	.8	.4		
Outside Wall Insulation	1.8	.6	.5	.6	Q	1.3	.5	.9	.5		
Automatic or Clock Thermostat	1.0	.2	.2	.3	.2	.8	.4	.5	Q		
Insulation Around Hot-Water/Cooling Pipes	1.2	.3	.3	.3	.3	.8	.3	.5	.5		
Wood-Burning Stove	1.2	.2	.3	.4	.2	.5	.2	.4	.6		
Insulation Around Heating/Cooling Ducts	.8	.2	Q	.3	.2	.6	.3	.4	.2		
Floor Insulation	.7	.3	.2	Q	Q	.5	.2	.3	.2		
Electrical or Mechanical Furnace Ignition	.7	Q	.3	Q	Q	.6	.3	.3	Q		
Automatic Flue Door	.3	Q	Q	Q	Q	Q	Q	Q	Q		
Flame-Retention Head Burner	.3	.2	Q	Q	Q	.3	Q	.2	Q		
Heat Pump	.2	Q	Q	Q	Q	.2	Q	Q	Q		
<b>Single-Family Units or Mobile Homes Adding Storm Windows, Storm Doors, or Other Conservation Measures Listed Above</b>	19.7	4.3	6.6	5.7	3.1	14.1	5.5	8.6	5.6		

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 49. Conservation Improvements Made from December 1983 Through November 1984, by Census Region and Metropolitan Status (Percent of Households)**

Household Characteristics	Total	Census Region				Metropolitan Status			
		Northeast	North Central	South	West	Metropolitan			Non-Metropolitan
						Total	Central City	Outside Central City	
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Total Households Adding Items</b>	6.0	7.7	7.5	5.8	2.6	6.0	5.1	6.9	6.0
Storm Doors (standard or sliding glass)	3.5	4.0	3.6	4.4	1.5	3.6	2.9	4.1	3.5
Storm Windows	3.5	5.1	5.0	2.6	1.7	3.6	2.8	4.2	3.4
<b>Total Single-Family Units and Mobile Homes</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Single-Family Units or Mobile Homes Adding Items</b>	27.9	31.6	37.3	20.8	26.1	27.7	28.4	27.2	28.3
Caulking	10.8	12.0	16.4	7.8	8.3	11.1	11.3	10.9	10.1
Weatherstripping	7.9	10.6	10.4	5.4	7.0	8.6	8.8	8.5	6.2
Closable Shutters, Insulating									
Drapes, or Reflective Film	3.3	3.3	4.6	2.0	4.2	3.4	3.4	3.3	3.1
Plastic Sheets	7.2	8.8	12.6	3.9	5.0	6.6	7.6	6.1	8.4
Roof or Ceiling Insulation	4.1	4.7	4.2	3.3	5.0	4.3	4.0	4.5	3.7
Insulation Around									
Water Heater	2.8	4.0	2.3	1.5	5.1	3.0	3.4	2.8	2.3
Outside Wall Insulation	2.9	5.6	3.2	2.3	Q	3.0	2.8	3.1	2.6
Automatic or Clock Thermostat	1.5	2.2	1.5	1.2	1.6	1.8	2.1	1.6	Q
Insulation Around									
Hot-Water/Cooling Pipes	2.0	2.6	1.7	1.4	3.0	1.8	1.7	1.8	2.5
Wood-Burning Stove	1.9	2.1	1.9	1.8	1.7	1.2	1.1	1.3	3.4
Insulation Around									
Heating/Cooling Ducts	1.3	1.7	Q	1.4	2.0	1.4	1.6	1.3	1.2
Floor Insulation	1.1	2.9	1.1	Q	Q	1.1	1.4	1.0	1.1
Electrical or Mechanical									
Furnace Ignition	1.1	Q	1.6	Q	Q	1.3	1.6	1.1	Q
Automatic Flue Door	.4	Q	Q	Q	Q	Q	Q	Q	Q
Flame-Retention Head Burner	.5	1.4	Q	Q	Q	.6	Q	.8	Q
Heat Pump	.3	Q	Q	Q	Q	.4	Q	Q	Q
<b>Single-Family Units or Mobile Homes Adding Storm Windows, Storm Doors, or Other Conservation Measures Listed Above</b>	31.4	37.7	41.7	23.6	27.1	31.8	32.6	31.4	30.2

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 50. Number of U.S Households by Inside Temperatures, Heating Degree-Days and Size of Residence, as of November 1984  
(Million Households)**

Household Characteristics	Total	Heating Degree Days (HDD) April 1984 Through March 1985 by Heated Square Footage								
		More than 5,499 HDD			4,000 to 5,499 HDD			Fewer than 4,000 HDD		
		Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.
<b>Total Households</b>	86.3	11.4	12.0	9.5	7.9	10.3	5.2	12.6	14.1	3.3
<b>Have Heating Controls</b>										
Yes	68.0	8.9	10.7	8.9	5.1	8.6	4.8	7.1	10.9	2.9
No/Do Not Heat	18.4	2.5	1.3	.6	2.8	1.7	.4	5.5	3.2	.4
<b>Daytime Temperature When Someone Is at Home</b>										
Heat Is Turned On	66.5	8.8	10.6	8.9	5.0	8.5	4.7	6.6	10.5	2.8
63 Degrees or Less	3.2	.7	.5	.4	.5	.4	Q	.2	.3	Q
64 to 66 Degrees	8.6	1.1	1.4	1.5	.8	.9	.5	.9	1.2	.4
67 to 69 Degrees	19.1	2.2	3.3	3.4	1.1	2.6	1.9	1.2	2.4	.8
70 Degrees	18.7	2.4	3.1	2.1	1.5	2.4	1.1	1.9	3.3	.8
71 or More Degrees	16.9	2.4	2.4	1.6	1.1	2.3	1.0	2.3	3.3	.7
Heat Turned Off	.8	Q	Q	Q	Q	Q	Q	.4	.3	Q
Unknown/No Answer	.7	Q	Q	Q	Q	Q	Q	.2	Q	Q
<b>Daytime Temperature When No One Is at Home</b>										
Heat Is Turned On	57.5	8.3	10.3	8.8	4.5	7.9	4.6	3.6	7.4	2.2
63 Degrees or Less	18.9	2.9	3.4	3.3	1.7	2.1	1.4	1.1	2.6	.6
64 to 66 Degrees	12.8	1.7	2.3	2.1	.9	1.8	.9	.7	1.7	.6
67 to 69 Degrees	11.5	1.6	2.0	2.0	.7	1.6	1.4	.7	1.0	.4
70 Degrees	7.7	1.1	1.6	.6	.7	1.5	.6	.5	1.0	.2
71 or More Degrees	6.6	1.0	1.1	.7	.4	.9	.4	.6	1.2	.3
Heat Turned Off	9.9	.6	.3	Q	.5	.7	Q	3.5	3.4	.8
Unknown/No Answer	.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
<b>Nighttime (sleeping hours)</b>										
Heat Is Turned On	61.5	8.5	10.4	8.8	4.2	7.9	4.6	5.4	9.1	2.6
63 Degrees or Less	15.5	2.0	3.0	2.9	1.1	1.8	1.3	.9	2.0	.5
64 to 66 Degrees	14.5	2.0	2.3	2.2	1.0	1.9	.9	1.4	2.0	.8
67 to 69 Degrees	14.0	2.2	2.2	2.2	.8	1.9	1.3	1.0	1.9	.5
70 Degrees	9.7	1.3	1.8	1.0	.9	1.3	.6	1.0	1.4	.3
71 or More Degrees	7.8	1.1	1.1	.7	.5	1.1	.4	1.0	1.7	.3
Heat Turned Off	5.9	.3	.3	Q	.8	.6	Q	1.7	1.7	.4
Unknown/No Answer	.5	Q	Q	Q	Q	Q	Q	Q	Q	Q

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 51. Number of U.S. Households by Inside Temperatures, Heating Degree-Days and Size of Residence, as of November 1984  
(Percent of Households)**

Household Characteristics	Total	Heating Degree Days (HDD) April 1984 Through March 1985 by Heated Square Footage									
		More than 5,499 HDD			4,000 to 5,499 HDD			Fewer than 4,000 HDD			
		Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	
<b>Total Households</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Have Heating Controls</b>											
Yes	78.7	78.1	89.0	93.6	64.9	83.4	91.6	56.6	77.3	89.0	
No/Do Not Heat	21.3	21.9	11.0	6.4	35.1	16.6	8.4	43.4	22.7	11.0	
<b>Have Heating Controls</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Daytime Temperature When Someone Is at Home</b>											
Heat Is Turned On	97.9	99.2	99.4	99.9	97.5	99.1	98.0	92.0	96.7	97.1	
63 Degrees or Less	4.8	7.6	5.0	4.4	9.6	4.5	Q	3.1	2.9	Q	
64 to 66 Degrees	12.6	12.1	13.0	16.8	15.4	10.7	10.4	12.0	10.6	12.8	
67 to 69 Degrees	28.1	25.3	30.6	37.7	22.3	30.2	40.2	17.4	22.3	29.0	
70 Degrees	27.5	27.5	28.7	23.4	29.5	27.4	24.0	26.6	30.6	29.1	
71 or More Degrees	24.9	26.7	22.1	17.6	20.6	26.2	20.3	32.9	30.2	23.4	
Heat Turned Off	1.2	Q	Q	Q	Q	Q	Q	5.3	2.5	Q	
Unknown/No Answer	1.0	Q	Q	Q	Q	Q	Q	2.7	Q	Q	
<b>Daytime Temperature When No One Is at Home</b>											
Heat Is Turned On	84.6	92.8	96.3	98.7	87.5	91.4	96.2	50.0	68.3	73.9	
63 Degrees or Less	27.8	32.0	31.4	37.0	32.4	24.5	28.8	14.8	23.5	22.1	
64 to 66 Degrees	18.8	18.8	21.3	24.0	18.6	20.8	18.7	9.8	15.7	20.8	
67 to 69 Degrees	16.9	18.3	18.7	22.6	14.5	18.7	28.7	9.9	8.7	14.8	
70 Degrees	11.4	12.4	14.7	6.7	13.7	17.2	12.1	7.3	9.1	6.7	
71 or More Degrees	9.7	11.3	10.2	8.4	8.3	10.2	7.9	8.2	11.1	9.6	
Heat Turned Off	14.6	6.5	3.0	Q	10.5	7.6	Q	49.0	31.3	26.1	
Unknown/No Answer	.8	Q	Q	Q	Q	Q	Q	Q	Q	Q	
<b>Nighttime (sleeping hours)</b>											
Heat Is Turned On	90.5	95.6	96.8	98.8	83.2	92.0	96.2	75.4	83.7	87.7	
63 Degrees or Less	22.9	22.6	28.0	32.0	21.1	20.8	27.9	12.7	18.6	18.4	
64 to 66 Degrees	21.4	22.3	21.6	24.5	20.0	21.5	19.1	20.0	18.6	28.6	
67 to 69 Degrees	20.6	24.3	20.5	24.2	15.1	22.0	28.1	13.8	17.9	18.7	
70 Degrees	14.2	14.5	16.8	10.7	17.6	15.3	12.2	14.6	13.3	11.7	
71 or More Degrees	11.4	11.9	9.9	7.5	9.4	12.3	8.8	14.3	15.4	10.3	
Heat Turned Off	8.8	3.7	2.5	Q	15.9	7.1	Q	23.5	15.6	12.3	
Unknown/No Answer	.7	Q	Q	Q	Q	Q	Q	Q	Q	Q	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 52. Number of U.S. Households Changing Temperatures at Night by Heating Degree-Days and Size of Residence, as of November 1984 (Million Households)**

Household Characteristics	Total	Heating Degree Days (HDD) April 1984 Through March 1985 by Heated Square Footage									
		More than 5,499 HDD			4,000 to 5,499 HDD			Fewer than 4,000 HDD			
		Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	
<b>Total Households</b>	86.3	11.4	12.0	9.5	7.9	10.3	5.2	12.6	14.1	3.3	
<b>Households with Heating Controls and Heat Turned On in Daytime</b>	66.5	8.8	10.6	8.9	5.0	8.5	4.7	6.6	10.5	2.8	
<b>Nighttime (sleeping hours)</b>											
<b>Temperature-Setting Behavior</b>											
Turns Heat Down at Night	32.8	4.4	5.9	5.3	1.9	4.0	2.7	2.5	4.5	1.6	
1 to 2 Degrees	4.9	.7	.9	.9	.2	.5	.4	.3	.5	.4	
3 to 5 Degrees	14.0	1.9	2.5	2.2	.8	1.9	1.2	1.1	1.9	.7	
6 to 10 Degrees	10.3	1.3	2.0	1.7	.6	1.1	.9	.8	1.5	.4	
11 or More Degrees	3.6	.5	.5	.5	.3	.6	.2	.3	.7	Q	
Keeps Same Temperature											
at Night	26.5	3.8	4.1	3.4	2.2	3.6	1.9	2.5	4.1	.8	
Turns Heat Off at Night	5.2	.3	.3	Q	.7	.6	Q	1.3	1.5	.3	
Turns Heat Off at Night	2.0	.3	.3	Q	Q	.3	Q	.2	.4	Q	
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 53. Number of U.S. Households Changing Temperatures at Night by Heating Degree-Days and Size of Residence, as of November 1984 (Percent of Households)**

Household Characteristics	Total	Heating Degree Days (HDD) April 1984 Through March 1985 by Heated Square Footage									
		More than 5,499 HDD			4,000 to 5,499 HDD			Fewer than 4,000 HDD			
		Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	Fewer than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	More than 1,999 Sq.Ft.	
<b>Households with Heating Controls and Heat Turned On in Daytime</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
<b>Nighttime (sleeping hours)</b>											
<b>Temperature-Setting Behavior</b>											
Turns Heat Down at Night	49.3	49.3	55.8	59.7	38.0	46.8	56.6	38.5	43.0	56.5	
1 to 2 Degrees	7.4	8.4	8.8	10.4	4.2	5.4	9.2	4.8	4.6	14.4	
3 to 5 Degrees	21.1	21.5	23.4	24.3	16.8	21.8	24.7	16.4	17.7	23.5	
6 to 10 Degrees	15.5	14.2	18.8	19.3	11.9	12.8	19.0	12.3	14.4	14.5	
11 or More Degrees	5.4	5.3	4.8	5.6	5.0	6.7	3.7	5.0	6.3	Q	
Keeps Same Temperature											
at Night	39.8	43.0	38.3	38.3	44.2	42.4	41.0	38.9	39.2	28.0	
Turns Heat Off at Night	7.8	3.7	2.5	Q	14.9	7.1	Q	19.5	14.2	10.5	
Turns Heat Off at Night	3.0	3.9	3.3	Q	Q	3.7	Q	3.0	3.7	Q	
Other	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 54. Mean Daytime Temperature for U.S. Households by Main Heating Fuel, Secondary Heating, and Age of Householder, as of November 1984--Households with Heating Controls and Heat On in Daytime (Degrees Fahrenheit)**

Housing Characteristics	Total	Census Region and Weather Zone						
		Northeast		North Central	South		West	
		5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD
<b>Households with Heating Controls and Heat Turned On in Daytime</b>	69.3	68.1	68.0	69.6	69.9	70.9	68.1	69.1
<b>Nighttime (sleeping hours) Temperature-Setting Behavior</b>								
<b>Turns Heat Down at Night</b>								
Yes .....	69.8	68.6	68.9	69.9	70.3	71.5	68.9	69.6
No .....	68.8	67.5	67.4	69.2	69.3	70.5	67.1	68.8
<b>Main Heating Fuel</b>								
Natural Gas .....	69.5	68.3	68.6	69.4	70.2	71.3	68.8	69.3
Electricity .....	69.2	66.9	67.8	69.3	69.4	70.9	66.7	68.8
Fuel Oil or Kerosene .....	68.0	67.9	67.4	69.5	68.8	67.7	67.5	68.0
LPG .....	69.7	69.3	Q	70.2	69.8	69.8	69.4	66.1
Wood/Coal/Other .....	70.7	69.6	71.9	72.5	70.8	71.2	67.2	70.0
<b>Secondary Heating</b>								
Yes .....	68.9	67.7	67.8	69.3	69.3	70.5	67.7	68.5
No .....	69.6	68.4	68.2	69.7	70.4	71.2	68.6	69.6
<b>Main Heating Fuel</b>								
Gas, Electricity, Oil Paid by Household								
Yes .....	69.2	67.9	68.5	69.3	69.6	70.7	67.9	69.2
No .....	69.5	68.7	66.7	70.7	71.4	72.8	69.7	67.7
Wood/Coal/Other .....	70.7	69.6	71.9	72.5	70.8	71.2	67.2	70.0
<b>Age of Householder</b>								
Under 25 Years .....	69.0	67.0	67.4	68.6	70.5	70.7	67.3	68.6
25 to 34 Years .....	68.8	67.6	67.0	68.7	69.2	70.4	67.7	69.0
35 to 44 Years .....	68.7	67.7	67.8	68.9	69.3	70.8	67.2	68.7
45 to 59 Years .....	69.4	68.0	68.4	69.6	69.9	70.7	68.2	69.4
60 Years and Over .....	70.1	69.0	68.6	70.7	70.7	71.7	69.8	69.2

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 55. Number of U.S. Households by Main Heating Fuel, Secondary Heating, and Age of Householder, as of November 1984--Households with Heating Controls and Heat On in Daytime (Million Households)**

Housing Characteristics	Total	Census Region and Weather Zone						
		Northeast		North Central	South		West	
		5,500 HDD or More	Fewer than 5,500 HDD	4,000 HDD or More	Fewer than 2,000 CDD	2,000 CDD or More	4,000 HDD or More	Fewer than 4,000 HDD
<b>Total Households</b>	86.3	9.9	8.4	21.6	17.1	12.2	6.7	10.4
<b>Households with Heating Controls and Heat Turned On in Daytime</b>	66.5	8.4	6.3	18.7	13.0	8.0	5.7	6.4
<b>Nighttime (sleeping hours) Temperature-Setting Behavior</b>								
<b>Turns Heat Down at Night</b>								
Yes	32.8	5.0	2.9	9.5	6.8	3.5	3.1	2.1
No	33.7	3.5	3.4	9.2	6.2	4.5	2.6	4.3
<b>Main Heating Fuel</b>								
<b>Natural Gas</b>	39.0	3.6	2.7	14.4	6.4	3.6	3.3	5.0
<b>Electricity</b>	12.0	.7	.5	1.2	3.4	3.5	1.5	1.2
<b>Fuel Oil or Kerosene</b>	9.6	3.5	3.0	1.1	1.4	.3	.4	Q
<b>LPG</b>	2.9	Q	Q	1.2	.8	.4	.2	.2
<b>Wood/Coal/Other</b>	2.9	.6	Q	.7	1.1	Q	.3	Q
<b>Secondary Heating</b>								
<b>Yes</b>	28.3	3.7	2.3	6.2	6.5	3.6	2.9	3.0
<b>No</b>	38.2	4.8	4.0	12.5	6.5	4.3	2.8	3.4
<b>Main Heating Fuel</b>								
<b>Gas, Electricity, Oil</b>								
<b>Paid by Household</b>								
Yes	55.7	6.8	4.4	15.6	11.1	7.2	4.7	6.0
No	7.8	1.0	1.8	2.3	.9	.7	.7	.4
<b>Wood/Coal/Other</b>	2.9	.6	Q	.7	1.1	Q	.3	Q
<b>Age of Householder</b>								
<b>Under 25 Years</b>	4.5	.4	.2	1.1	.9	.8	.7	.3
<b>25 to 34 Years</b>	15.6	1.5	1.2	4.5	3.3	2.0	1.4	1.6
<b>35 to 44 Years</b>	13.0	1.8	1.4	3.2	2.5	1.5	1.3	1.4
<b>45 to 59 Years</b>	13.8	1.9	1.5	3.7	2.9	1.7	.9	1.1
<b>60 Years and Over</b>	19.6	2.8	2.0	6.2	3.5	1.9	1.3	1.9

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 56. Use of Air-Conditioning Equipment in the United States in the Summer of 1984 and Indoor Temperatures by Region, Climate Zones, Income, Type of Equipment, and Payment for Air-Conditioning Fuel--Households with Air-Conditioning Equipment**

Household Characteristics	Million Households	Percent of Households					Temperature of Cooled Area		
		Total	Did Not Use Air-Conditioning Equipment	Air Conditioning Turned On:			Not Living Here In Summer 1984	Million Households Reporting	
				A Few Times	Quite a Bit	All Summer			
<b>Total Households</b>	51.5	100.0	6.2	42.6	20.1	22.9	8.1	40.5	73.1
<b>Census Region</b>									
Northeast	9.3	100.0	6.7	58.3	23.2	9.3	2.5	5.9	70.4
North Central	12.9	100.0	5.8	55.7	16.3	15.3	6.9	10.8	73.4
South	22.6	100.0	5.5	29.8	20.7	34.2	9.8	18.6	73.8
West	6.6	100.0	8.8	38.9	21.1	18.7	12.6	5.2	73.4
<b>Cooling Degree-Days (CDD)--April 1984 Through March 1985</b>									
2,000 or More	10.9	100.0	4.0	24.9	21.1	37.5	12.6	9.2	74.7
1,000 to 1,999	18.7	100.0	6.0	39.2	19.9	27.9	7.0	15.5	73.5
500 to 999	17.8	100.0	7.2	53.6	19.9	12.3	7.0	12.4	72.2
Fewer than 500	4.0	100.0	9.1	58.3	18.9	7.3	6.4	3.4	70.8
<b>1984 Family Income</b>									
Less than \$5,000	3.1	100.0	6.5	41.7	20.1	20.7	10.9	2.1	73.2
\$5,000 to \$9,999	7.0	100.0	7.6	46.7	18.9	16.9	9.8	5.1	73.1
\$10,000 to \$14,999	7.5	100.0	5.5	45.6	19.7	18.8	10.3	5.6	73.3
\$15,000 to \$19,999	5.2	100.0	8.4	45.8	20.4	17.6	7.8	3.9	72.8
\$20,000 to \$24,999	5.2	100.0	7.8	38.6	27.5	19.3	6.7	3.9	72.2
\$25,000 to \$34,999	10.3	100.0	4.9	42.1	20.0	24.1	8.9	8.1	73.2
\$35,000 or More	13.3	100.0	5.4	39.7	18.0	31.5	5.4	11.8	73.4
<b>Air-Conditioning (A/C) Equipment</b>									
Central A/C Units	25.7	100.0	5.1	31.8	18.8	34.7	9.6	23.5	74.1
Individual Room A/C Units	25.8	100.0	7.4	53.4	21.4	11.2	6.7	17.0	71.8
<b>Pay for Electricity/Gas for Air-Conditioning</b>									
Yes	48.2	100.0	6.0	43.1	20.1	23.2	7.6	38.4	73.3
No	3.2	100.0	10.2	35.9	19.3	18.4	16.2	2.1	70.8

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 57. U.S. Residential Wood Consumption for the Year Ending November 1984**

Household Characteristics	Households Burning Wood					Households Burning Wood as the Main Heating Fuel					
	Number of Households		Total Number of Cords Burned		Average Number of Cords Burned per Household	Number of Households		Total Number of Cords Burned		Average Number of Cords Burned per Household	
	(millions)	(percent)	(millions)	(percent)		(millions)	(percent)	(millions)	(percent)		
<b>Total Households</b>	22.9	100.0	49.0	100.0	2.1	6.4	100.0	29.4	100.0	4.6	
<b>Census Region and Annual Heating Degree-Days (HDD) or Cooling Degree-Days (CDD)--Long-Term Average</b>											
Northeast	4.4	19.3	10.6	21.6	2.4	1.1	17.2	6.0	20.3	5.4	
5,500 HDD or More	3.2	14.0	9.2	18.7	2.9	1.0	15.2	5.5	18.8	5.7	
Fewer than 5,500 HDD	1.2	5.3	1.4	2.8	1.1	Q	Q	.4	1.5	Q	
North Central	4.7	20.5	13.4	27.2	2.8	1.4	21.2	8.5	28.8	6.2	
South	8.3	36.2	16.4	33.5	2.0	2.8	43.9	10.8	36.6	3.8	
Fewer than 2,000 CDD	6.0	26.3	13.7	28.0	2.3	2.4	37.1	9.7	33.0	4.1	
2,000 CDD or More	2.3	9.9	2.7	5.5	1.2	.4	6.8	1.0	3.5	2.4	
West	5.5	24.0	8.7	17.7	1.6	1.1	17.6	4.2	14.3	3.7	
Fewer than 4,000 HDD	2.5	10.9	2.8	5.8	1.1	.4	6.0	1.0	3.3	2.5	
4,000 HDD or More	3.0	13.2	5.8	11.9	1.9	.7	11.6	3.2	11.0	4.4	
<b>Metropolitan Status</b>											
Metropolitan	16.0	69.9	24.5	49.9	1.5	2.8	43.3	10.9	37.1	3.9	
Central City	4.8	20.7	4.2	8.6	.9	.5	7.0	1.4	4.7	3.1	
Outside Central City	11.3	49.1	20.2	41.3	1.8	2.3	36.3	9.5	32.4	4.1	
Non-Metropolitan	6.9	30.1	24.6	50.1	3.6	3.6	56.7	18.5	62.9	5.1	
<b>Weather Zone</b>											
Fewer than 2,000 CDD and--											
More than 7,000 HDD	3.0	13.1	12.2	24.8	4.0	1.4	21.3	9.0	30.5	6.6	
5,500 to 7,000 HDD	5.1	22.4	10.9	22.3	2.1	1.0	15.9	5.6	19.1	5.5	
4,000 to 5,499 HDD	6.6	28.7	13.2	26.9	2.0	1.8	28.3	7.4	25.3	4.1	
Fewer than 4,000 HDD	5.9	25.7	10.1	20.6	1.7	1.8	27.7	6.4	21.6	3.6	
More than 2,000 CDD and											
Fewer than 4,000 HDD	2.3	10.0	2.7	5.5	1.2	.4	6.8	1.0	3.5	2.4	
<b>Measured Heated Area of Residence (square feet)</b>											
Fewer than 600	.6	2.6	1.5	3.0	2.5	.3	4.5	1.2	4.2	4.3	
600 to 999	2.8	12.2	8.0	16.2	2.9	1.3	20.8	5.7	19.3	4.2	
1,000 to 1,599	6.2	27.1	14.8	30.1	2.4	2.3	36.5	10.0	34.1	4.3	
1,600 to 1,999	4.4	19.3	9.1	18.6	2.1	1.1	16.6	5.6	18.9	5.2	
2,000 to 2,399	3.5	15.2	5.9	12.0	1.7	.6	9.0	2.7	9.0	4.6	
2,400 to 2,999	2.6	11.3	4.8	9.9	1.9	.5	8.4	2.7	9.2	5.0	
3,000 or More	2.8	12.3	5.0	10.2	1.8	.3	4.1	1.6	5.3	5.9	
<b>Year of Construction</b>											
1939 or Before	5.4	23.4	14.3	29.2	2.7	2.0	31.4	10.7	36.5	5.3	
1940 to 1949	1.5	6.7	3.9	7.9	2.5	.4	7.0	2.4	8.2	5.4	
1950 to 1959	3.1	13.7	6.2	12.6	2.0	.7	11.0	3.5	11.8	4.9	
1960 to 1964	1.9	8.5	4.1	8.4	2.1	.6	8.8	1.9	6.5	3.4	
1965 to 1969	2.5	10.7	4.6	9.4	1.9	.7	10.5	2.4	8.0	3.5	
1970 to 1974	3.2	14.1	6.1	12.5	1.9	.9	14.4	3.8	12.8	4.1	
1975 to 1979	3.6	15.8	7.2	14.6	2.0	.7	11.1	3.4	11.7	4.8	
1980 or After	1.6	7.2	2.7	5.5	1.6	.4	5.7	1.4	4.6	3.7	
<b>1984 Family Income</b>											
Less than \$5,000	1.1	4.8	4.0	8.1	3.6	.7	10.8	3.5	11.7	5.0	
\$5,000 to \$9,999	1.9	8.4	6.3	12.8	3.3	.9	14.1	4.8	16.2	5.3	
\$10,000 to \$14,999	2.4	10.4	7.1	14.5	3.0	1.0	15.9	4.5	15.1	4.4	
\$15,000 to \$19,999	1.9	8.2	6.1	12.4	3.2	.8	12.5	3.8	13.0	4.8	
\$20,000 to \$24,999	2.0	8.6	4.0	8.1	2.0	.6	9.7	2.4	8.2	3.9	
\$25,000 to \$34,999	4.9	21.3	10.0	20.4	2.1	1.3	20.4	5.7	19.5	4.4	
\$35,000 or More	8.8	38.3	11.5	23.6	1.3	1.1	16.6	4.7	16.1	4.5	

See footnotes at end of table.

**Table 57. U.S. Residential Wood Consumption for the Year Ending November 1984 (Continued)**

Household Characteristics	Households Burning Wood					Households Burning Wood as the Main Heating Fuel				
	Number of Households		Total Number of Cords Burned		Average Number of Cords Burned per Household	Number of Households		Total Number of Cords Burned		Average Number of Cords Burned per Household
	(millions)	(percent)	(millions)	(percent)		(millions)	(percent)	(millions)	(percent)	
<b>Main Heating Fuel</b>										
Natural Gas .....	9.1	39.5	9.0	18.3	1.0	--	--	--	--	--
Fuel Oil or Kerosene .....	2.6	11.4	4.1	8.3	1.6	--	--	--	--	--
Electricity .....	3.6	15.7	3.9	8.0	1.1	--	--	--	--	--
Wood .....	6.4	28.0	29.4	60.0	4.6	6.4	100.0	29.4	100.0	4.6
Fireplace .....	.3	1.5	.9	1.7	2.5	.3	5.4	.9	2.9	2.5
Airtight Stove .....	4.8	21.1	20.5	41.8	4.2	4.8	75.6	20.5	69.7	4.2
Nonairtight Stove .....	.8	3.4	4.5	9.2	5.8	.8	12.1	4.5	15.3	5.8
Furnace/Other .....	.4	1.9	3.6	7.3	8.0	.4	6.9	3.6	12.1	8.0
LPG .....	.7	3.2	1.9	3.8	2.6	--	--	--	--	--
Other .....	.5	2.2	.8	1.6	1.5	--	--	--	--	--
<b>Secondary Heating with Wood</b>										
Yes .....	16.2	70.8	19.0	38.7	1.2	--	--	--	--	--
No .....	6.7	29.2	30.1	61.3	4.5	6.4	100.0	29.4	100.0	4.6
<b>Amount of Wood Burned in Past 12 Months</b>										
Less than 0.5 Cords .....	7.2	31.5	1.4	2.9	.2	.3	4.0	.1	.2	.2
0.5 to 1.4 Cords .....	5.8	25.2	4.2	8.6	.7	.5	8.6	.5	1.5	.8
1.5 to 2.4 Cords .....	2.9	12.7	5.3	10.9	1.8	1.1	16.5	1.9	6.6	1.8
2.5 to 3.4 Cords .....	2.1	9.2	6.1	12.4	2.9	1.0	15.1	2.8	9.5	2.9
3.5 to 4.4 Cords .....	1.3	5.5	4.9	10.1	3.9	.9	13.4	3.4	11.5	3.9
4.5 Cords or More .....	3.6	15.9	27.0	55.1	7.4	2.7	42.4	20.8	70.6	7.7
<b>Any Wood Purchased</b>										
Yes .....	8.9	38.6	21.4	43.6	2.4	2.9	45.2	13.6	46.1	4.7
No/Not Reported .....	14.1	61.4	27.7	56.4	2.0	3.5	54.8	15.9	53.9	4.5

-- Data not applicable.

Q Data withheld because of a large variance.

Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.

**Table 58. U.S. Average Annual Heating Degree-Days by Type of Main Heating Fuel and Region, Secondary Heating, Housing Structure, Year Built, Tenure, Income, Age and Origin of Householder (Annual Heating Degree-Days--April 1984 Through March 1985.)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Fuel Oil or Kerosene	Electricity	Liquefied Petroleum Gas	Wood	Other/None
<b>Total Households</b>	4,686	4,863	5,360	3,541	4,262	5,176	3,556
<b>Census Region and Division</b>							
Northeast	5,834	5,780	5,665	5,987	6,825	7,065	6,001
New England	6,398	6,112	6,432	6,190	Q	7,165	Q
Middle Atlantic	5,663	5,715	5,386	5,920	Q	7,014	5,861
North Central	6,552	6,523	7,150	6,223	6,719	6,593	Q
East North Central	6,524	6,439	7,030	6,335	7,092	6,942	Q
West North Central	6,619	6,721	7,556	5,799	6,227	5,872	Q
South	2,937	3,121	3,287	2,364	2,494	3,663	3,824
South Atlantic	2,951	3,788	3,215	1,850	2,112	3,760	3,810
East South Central	3,651	3,466	4,085	3,792	3,301	3,871	Q
West South Central	2,443	2,471	Q	2,254	2,744	2,494	Q
West	4,094	3,882	6,082	4,422	4,647	5,416	1,464
Mountain	5,728	5,986	Q	3,719	5,751	7,423	Q
Pacific	3,508	3,070	5,520	4,630	3,790	4,775	1,058
<b>Secondary Heating</b>							
Yes	4,626	4,527	5,260	3,904	4,041	5,287	5,303
No	4,727	5,050	5,445	3,296	4,442	4,874	2,710
<b>Housing Structure</b>							
Single-Family Detached	4,634	4,698	5,369	3,472	4,320	5,195	3,700
Single-Family Attached	4,945	5,037	5,326	4,083	Q	Q	Q
Building of 2 to 4 Units	5,039	5,088	5,538	4,113	Q	4,803	Q
Building of 5 or More Units	4,690	5,291	5,224	3,446	Q	Q	Q
Mobile Home	4,314	4,769	5,325	3,487	3,946	4,995	Q
<b>Year of Construction</b>							
1939 or Before	5,324	5,332	5,540	4,914	4,493	5,494	4,660
1940 to 1949	4,317	4,356	5,147	2,165	5,105	4,611	Q
1950 to 1959	4,391	4,534	5,047	2,604	3,133	4,773	2,571
1960 to 1964	4,121	4,187	4,996	2,760	4,429	4,163	Q
1965 to 1969	4,286	4,306	5,501	3,598	3,471	5,153	3,614
1970 to 1974	4,570	5,042	4,660	3,379	5,140	5,459	Q
1975 to 1979	4,689	5,367	5,635	4,040	3,649	5,267	1,802
1980 or After	4,475	5,122	6,835	3,422	3,652	5,658	Q
<b>Status of Unit</b>							
Owned	4,767	4,864	5,506	3,526	4,479	5,315	4,368
Rented	4,540	4,860	5,101	3,562	3,630	4,495	2,328
<b>1984 Family Income</b>							
Less than \$5,000	4,516	4,829	5,137	3,381	3,959	4,236	Q
\$5,000 to \$9,999	4,823	5,035	5,393	3,943	4,581	4,851	3,057
\$10,000 to \$14,999	4,538	4,628	5,447	3,125	4,045	5,559	3,746
\$15,000 to \$19,999	4,753	5,061	5,100	3,260	4,127	5,174	Q
\$20,000 to \$24,999	4,939	5,069	5,507	4,030	4,114	5,774	3,844
\$25,000 to \$34,999	4,696	4,876	5,578	3,561	3,575	5,150	4,643
\$35,000 or More	4,604	4,740	5,269	3,487	5,612	5,380	3,221
<b>Below 100% of Poverty</b>	4,531	4,733	5,139	3,665	4,218	4,608	3,760
<b>Below 125% of Poverty</b>	4,576	4,777	5,245	3,623	4,176	4,616	3,685
<b>Age of Householder</b>							
Under 25 Years	4,590	5,119	4,901	3,403	4,654	4,215	Q
25 to 34 Years	4,639	4,903	5,184	3,526	3,939	5,449	3,316
35 to 44 Years	4,714	4,827	5,359	3,648	4,539	5,239	3,545
45 to 59 Years	4,672	4,699	5,533	3,641	3,803	5,170	4,293
60 Years and Over	4,741	4,902	5,418	3,480	4,502	4,901	3,334
<b>Race of Householder</b>							
White	4,813	5,027	5,480	3,580	4,540	5,272	4,064
Black	3,989	4,171	4,604	3,011	2,587	3,012	Q
Other	4,063	4,035	5,148	3,740	Q	6,472	243

See footnotes at end of table.

**Table 58. U.S. Average Annual Heating Degree-Days by Type of Main Heating Fuel and Region, Secondary Heating, Housing Structure, Year Built, Tenure, Income, Age and Origin of Householder (Continued)**  
**(Annual Heating Degree-Days--April 1984 Through March 1985.)**

Household Characteristics	Total	Main Heating Fuel in November 1984					
		Natural Gas	Fuel Oil or Kerosene	Electricity	Liquefied Petroleum Gas	Wood	Other/None
<b>Householder of Hispanic Descent</b>							
Yes .....	3,640	3,736	5,227	1,830	Q	Q	1,926
No .....	4,741	4,927	5,368	3,622	4,286	5,189	3,775

-- Data not applicable.

Q Data withheld because of a large variance.

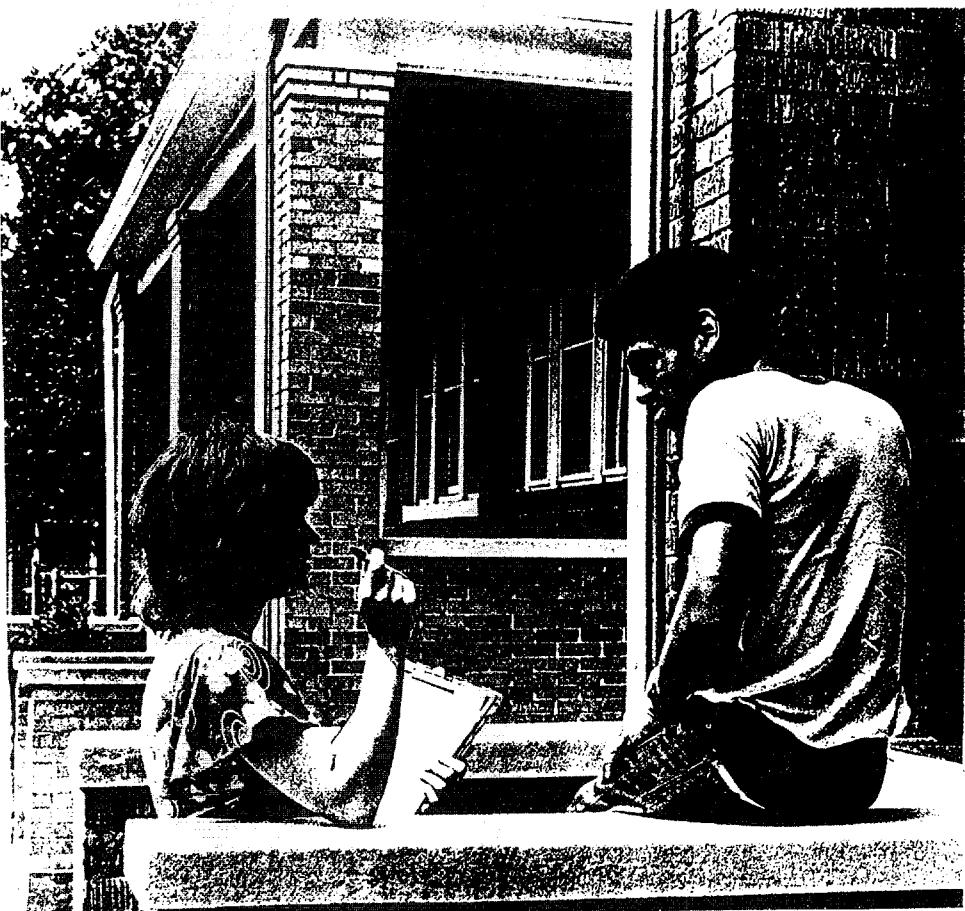
Notes: Because of rounding, data may not sum to totals. Percentages are calculated on unrounded numbers. See glossary for definition of terms used in this report.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Form EIA-457, The 1984 Residential Energy Consumption Survey.



## Appendix A

### How the Survey Was Conducted





# How the Survey Was Conducted

## Introduction

The Residential Energy Consumption Survey (RECS) was designed by the Energy Information Administration (EIA) to provide information concerning energy consumption within the residential sector. Information concerning the housing unit is collected through personal interviews with a representative national sample of households. Data concerning actual energy consumption are obtained from fuel records maintained by the household's fuel suppliers. An inventory of motor vehicles used by the household residents is also obtained at the time of the personal interview.<sup>10</sup>

## Data Collection

The original sample consisted of 7,658 units, of which some 123 either were not used for dwelling purposes or were not habitable. Of the 7,535 habitable housing units, 783 were ineligible for this study due to a current vacancy or seasonal occupancy (the units were not the primary residence for the occupants). Personal interviews were conducted at 5,479 of the 6,752 eligible units, for a response rate of 81.1 percent. Subsequently, mail questionnaires were sent to 1,042 of the 1,273 households that had not participated in personal interviews. Completed questionnaires were returned by 203 of these households, or 19.5 percent of those mailed. Of the total eligible households, responses were received from 84.2 percent (or 5,682 households).

Approximately two-thirds of the personal interviews were completed in October and November 1984; 95 percent were completed by the end of January 1985. Interviewing continued until April 1985 in a few sample locations in which low response rates were experienced. Most of the 203 completed mail questionnaires were received in March and April 1985, with a few additional questionnaires received in May. In keeping with past practice in this series of surveys, November was regarded as the rough midpoint for data-collection activity. Thus, November 1984 was the date for determining the independent estimates of the size of the universe of households used in the ratio estimation of survey results.

## The Interview

The average personal interview which included measurements of the housing unit lasted 52 minutes, with 83 percent of the interviews lasting between 30 and 70 minutes. For a subsample of households in which measurements were not made (584 households) the average interview lasted 49 minutes. The interview with the householder (or his or her spouse) covered structural features of the house related to energy, such as insulation, doors, and windows; the heating and cooling systems, with the fuels used in these systems; use of wood; energy conservation improvements; household appliances; household vehicles; receipt of government assistance for the cost of heating; and demographic data on household members. The questionnaire is reproduced in Appendix D.

<sup>10</sup>Fuel-consumption data for household vehicles are collected in the Residential Transportation Energy Consumption Survey, which uses subsamples from the residential surveys. Data collected for calendar year 1983 are reported in *Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles 1983*, DOE/EIA-0464(83), (Washington, D.C., January 1985). Data for 1985 were collected from households of the 1984 survey.

At the end of the interview, respondents were asked to sign a waiver authorizing the contractor to obtain records of energy consumption from the housing unit's energy supplier(s). At this time, the interviewer also measured the dimensions of certain housing units, using a retractable 50-foot metal tape measure, and recorded the dimensions on a rough-drawn diagram of the floor plan. (See Appendix B for further details on the measurement of housing units.)

## The Interviewers

A total of 319 interviewers completed one or more personal interviews for this study. The type of training received by interviewers for this study depended primarily on the experience of the interviewer on a prior RECS. As shown in Table A1, 190 interviewers (60 percent) had completed interviews on a prior RECS. The remainder were conducting their first RECS, but had interviewing experience either with other survey research organizations, or with the U.S. Bureau of the Census.

**Table A1. Experience and Training of 1984 RECS Interviewers**

Experience on Prior RECS	Training for This RECS*	Number of Interviewers
Yes	Home study	182
Yes	Regional training meeting	8
No	Regional training meeting	109
No	Other training	20
		<b>319</b>

\*All interviewers completed a practice interview and quiz.

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

Two-day regional training meetings were held in 10 locations around the country in September and October 1984. These meetings were attended by 117 interviewers, including most of those who had not interviewed on a prior RECS. Each session was led by a trainer who had attended a 2-day workshop in Princeton, New Jersey. The 2-day training session for interviewers covered general interviewing techniques, background of the Residential Energy Consumption Surveys, the household questionnaire, ways to measure the respondents' homes, the sampling tasks, and administrative requirements.

All interviewers were required to complete a practice interview and quiz on the questionnaire and sampling procedures. These materials were reviewed by the contractor's central office staff. The basic training document for both the regional meetings and home study was an 89-page manual, *Instructions for Interviewers, Residential Energy Consumption Survey, Fall-Winter, 1984-1985*.

Interviewers were paid on an hourly basis for their work on RECS, including time for home study, attendance at training sessions, review of completed interviews, actual interviewing time, and travel time to and from training sessions and sample clusters. Interviewers were also reimbursed at standard mileage rates for use of personal vehicles and other travel expenses. Interviewers working in locations believed to present a hazard to their safety were compensated for use of an escort. Each interviewer conducted an average of 17 interviews. Thirty-five interviewers each completed fewer than six interviews; the average for this group of 35 interviewers was 3.1 completed interviews. Six interviewers completed 50 or more interviews; the average for this group of interviewers was 67.7 completed interviews. Twenty percent of the personal interviews were verified by telephone or mail to ensure that interviews were conducted as intended.

## Sample Design

The universe for this sample design includes all housing units occupied as the primary residence in the 50 States and the District of Columbia. The sample of households used as the basis for the 1984 estimates was selected by using a probability sampling design developed especially for the Residential Energy Consumption Survey. The sample design was used for the first time for the 1980 RECS and was revised prior to the 1984 survey.

In order to accommodate all objectives of the RECS, including provisions for a longitudinal feature of the sample of housing units, the sample for the 1984 RECS was divided into two approximately equal parts. One half of the sample of housing units was selected using the original 1980 sample design; the second half was selected using the revised 1984 design. The plan for subsequent surveys in the RECS series is to use the revised design for the complete sample.

In both the original and revised sample designs, the total land area of the 50 States and District of Columbia was divided into approximately 1,800 Primary Sample Units (PSU's) on the basis of Metropolitan Statistical Areas (MSA's), county and independent city boundary lines, and population characteristics.<sup>11</sup>

Specific objectives of the 1984 sample revisions were to update the information for U.S. counties used in sample selection, to maximize the overlap of specific PSU's selected in 1980 and 1984, and to minimize the restructuring of the sample within PSU's that continued in the revised design. The 1980 design included a requirement for a minimum level of precision of estimates for the 9 geographically defined Census divisions and the 10 Federal regions was included in the 1980 design; the requirement for Census divisions was retained for the 1984 design, but the requirement for Federal regions was dropped. In all other respects the design of sample revisions was based on a continuation of the general plan used for the 1980, 1981, and 1982 RECS.

Three principal sources of information were used to update the data base used for sample revisions: population estimates, metropolitan statistical area definitions, and principal heating fuel (Table A2).

**Table A2. Sources of Data for 1984 RECS Sample Design**

Data Components	Source of Data Used in 1980 Design	Source of New Data Used in 1984 Revisions
Population estimates for counties and equivalent units	July 1978 estimates of the Bureau of the Census	1980 Census of Population
Metropolitan statistical area (MSA) definitions	Lists published by Office of Management and Budget (OMB), current as of early 1980, with some modifications based on estimates of population changes	OMB definitions published June 27, 1983
Principal home-heating fuel	1970 Census of Housing	1980 Census of Housing

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Stratification of PSU's in both the original and revised designs was based on the nine geographically defined Census divisions, metropolitan or nonmetropolitan definitions of PSU's, and to the extent feasible on dominant space-heating fuel and weather conditions. PSU's in the original design were grouped into 131 strata and in the revised design into 129 strata.

<sup>11</sup>Boundary definitions for counties, independent cities, and equivalent units were generally those used by the Censuses of Population and Housing, 1970 and 1980, for the original and revised designs, respectively. There were 3,141 such units in the 1970 Census and 3,135 in the 1980 Census. Prior to 1983, MSA's were referred to as Standard Metropolitan Statistical Areas. The number of PSU's created for the 1980 and 1984 RECS sample designs were, respectively, 1,782 and 1,799. Additional detail on RECS sample design can be found in "The 1984 RECS Sample Design Procedures Manual," prepared by the Orkand Corporation, March 1986.

Some PSU's comprising all or part of large metropolitan areas were large enough in population to be a stratum by themselves; PSU's of this type are called Self-Representing (SR) because the sample from each PSU represents only that PSU. In other strata, one PSU was selected from among two or more PSU's in the stratum. Each of the PSU's selected from these strata is called Non-Self-Representing (NSR) because each PSU also represents the nonselected PSU's in its stratum. The original design included a total of 131 strata, of which 31 were SR PSU's and 100 were NSR. The revised design included 129 strata, of which 32 were SR PSU's and 97 were NSR.

Although both PSU's and strata were often defined somewhat differently in the two designs, the specific procedures used to make probability selections of PSU's for the revised design produced a high degree of overlap in the actual PSU's selected. Of the 129 PSU's in the revised design, 111 continued in the sample from the original design and 18 were newly selected. Thus the 1984 RECS sample was selected from a total of 149 PSU's (131 in the original design plus the 18 newly selected in the revised design).

A number of intermediate probability sampling stages preceded the final selection of RECS households in each half of the 1984 sample.

- Minor Civil Divisions (MCD) such as cities, towns, and other Census units were selected within each PSU. Within the MCD's, census tracts, block groups, or enumeration districts (ED's) were selected. In the RECS design, 1,516 units are selected at this secondary level (tracts or ED's). These tracts and ED's continue in the RECS sample for a number of surveys. Rough field counts in tracts and ED's form the basis for selection of listing segments of 25 or more housing units, with well-defined geographic boundaries.
- A *listing segment* is selected from each tract or ED. Detailed field listings are created for selected segments by field workers who visit the area and identify each housing unit by street address or apartment number or other obvious features.
- A cluster of 25 housing units is selected from each listing. The *ultimate cluster* to be contacted for interviews (averaging about 5 housing units for the 1984 RECS) is systematically selected from the cluster and these housing units constitute the assignments given to interviewers.

## Longitudinal Sample Design

A plan for rotation of sample units from an earlier RECS, first used in the 1982 RECS, was continued in 1984. The primary objective of this rotation plan was to observe changes in a sample of the same housing units over the period between two RECS data-collection cycles. To accomplish this objective in an efficient way, and to set the stage for continuity in the RECS series, systematic random procedures were used to divide the total set of 1,516 tracts and ED's into four subsamples, designated in Table A3 as C, D, E, and F.

**Table A3. Overview of RECS Sample Operations**

Rotation Group	1982	1984	1987*	1990*
C	R	S#	R	N
D	R	N#	R	S
E	S	R	N#	R
F	N	R	S#	R

\*Assumes three-year spacing between surveys starting with 1987 RECS.

R = Housing units returning from 2 years earlier.

S = Selected housing units from the same penultimate clu clusters as had been used 2 years earlier.

N = Selected new segments.

#Revised sample used for the first time for these rotation groups; new tracts/ED's are selected in sample units that do not continue from the original sample.

In the 1984 RECS, Groups E and F were the returning rotation groups in which procedures were designed to interview a sample of the same housing units that had been in the sample in the preceding 1982 RECS. Selection of housing units in these returning rotation groups was based on the original sample design used for the 1980 through 1982 surveys.

Groups C and D constitute the new rotation groups in which housing units were included in the RECS sample for the first time in 1984. Selection of housing units in the new rotation groups was based on the revised sample design used for the first time for this half of the 1984 RECS.

Procedures for updating the sample for new construction and for other changes in the housing unit stock were incorporated in sampling operations so that each rotation group, as well as the total RECS sample, is a probability sample of the population covered by the survey.

### ***Returning Rotation Groups E and F***

The general plan for these sample units (758 of the total of 1,516) was to conduct interviews in the same housing units that had been contacted 2 years earlier--including housing units that had been vacant, as well as noninterviews (refusals, not-at-homes, etc.) and completed units--plus a supplemental sample of housing units in sample clusters believed to include large proportions of low-income households.

Before contacting households for the 1984 RECS, interviewers made visits to sample segments to check 1982 housing unit listings for missed units and to update listings for new construction, demolition, and conversion of structures from one use to another. Newly constructed or converted units, and those missed in the 1982 listings, were sampled at the 1984 RECS sampling rate.

### ***Rotation Groups C and D***

The 758 sample units (at the census tract or ED level) in these rotation groups included 608 that continued in the sample from the original design and 150 newly selected units. In the 150 newly selected units, up-to-date field counts and detailed listings of housing units formed the basis for selection of a listing segment and a cluster of 25 housing units from the listing segment.

In the 608 tracts and ED's that continued in the sample, the first step was to perform a new construction update procedure based on a canvass, primarily by telephone, of local sources of information (such as building-permit-issuing agencies, zoning boards, tax offices, etc.). The objective was to determine whether significant new construction--defined as groups of 25 or more housing units--had occurred within the tracts or ED's in the 1980-1984 period.

In the canvass, significant new construction was found in census tracts and ED's in approximately 130 of the 608 units. New field counts were made and new segments were selected based on the new measures of size.

In census tracts and ED's in which significant new construction (clusters of 25 or more new housing units) was not found, procedures diverged in Rotation Groups C and D.

In Rotation Group C, 1982 RECS housing unit listings were checked and updated (for such things as missed units, new construction) before the start of field contacts for interviews. This step in Rotation Group C was identical to the listing checks carried out for rotation groups E and F. However, housing units for the 1984 RECS sample were selected from among those *not* selected in the earlier RECS.

In Rotation Group D, a new listing segment was selected for the 1984 RECS.

### ***Supplemental Sample***

A feature of the 1984 survey was a supplemental sample of households designed to be merged with the main RECS sample and meet special analytical needs of the Office of Family Assistance, Social Security Administration. The supplemental sample comprised some 1,305 (19.3 percent) of the total sample of 6,752 occupied housing units.

The plan for the supplemental sample included procedures to "oversample" households below poverty level, particularly those using electricity, fuel oil, or kerosene as the main home-heating fuel. Households using these heating fuels

are relatively small proportions of all households. Thus, procedures were designed to increase the sample size for households of these types to the extent feasible.

As a first step in selection of the supplemental sample, interviewers were instructed to rate the general income level of households in the listing segment based on their observations of housing units in the segment and their general knowledge of the area (after completing their listing of housing units in the segment). Interviewers placed each listing segment into one of four groups: Highest 25 percent (well-off or wealthy), upper middle, lower middle, or lowest 25 percent (poor or near-poor). Whenever possible, listing segments that were rated on income were also rated on main home-heating fuel in the sample segment.

The actual selection of supplemental units was accomplished by increasing sampling rates in listing segments that interviewers judged to include large proportions of poor or near-poor households, and in some cases lower-middle income segments were included. **Relative sampling rates** were established for groups of housing units as shown in Table A4.

An additional aspect of the selection of supplemental units was a ceiling on the actual sampling rate that applied to any given sample unit. The ceiling was equal to the highest overall sampling rate used in any Census division in the 1984 RECS sample. Thus, in some cases the relative sampling rates shown in Table A4 were adjusted downward so that the overall sampling rate for housing units did not exceed the ceiling rate for the 1984 RECS.

A relative sampling rate of 1.0 in Table A4 means that the overall sampling rate applied to households in a sample cluster is the rate established for the main sample. Relative sampling rates higher than 1.0 were used for households in the "oversampled" groups shown in Table A4. (For example, a relative sampling rate of 1.5 means that households in the group were sampled at a rate 50 percent higher than the rate established for the main sample.) An estimated 1,305 additional households (that is, households selected as a result of the supplemental sampling process) were selected in 411 segments, and 1,127 interviews were completed in these households (including both personal and mailed questionnaires).<sup>12</sup>

**Table A4. Relative Sampling Rates Based on Income Rating and Main Home-Heating Fuels**

Rotation Group and Main Home Heating Fuel	Income Rating		
	Upper-Middle or Highest	Lower Middle	Poor or Near-Poor
Rotation Groups C, D Electricity or Fuel Oil/Kerosene	1.0	1.5	3.0
All Other Fuels	1.0	1.0	3.0
Rotation Groups E, F Electricity or Fuel Oil/Kerosene	1.0	1.55	3.2
All Other Fuels	1.0	1.0	3.2

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

The outcome of the oversampling procedure is summarized in Table A5. Some 33.6 percent of completed interviews in the supplemental sample were with households below the poverty level, compared with 15.5 percent of completed interviews in the main sample. The corresponding figures for 125 percent of poverty level were 42.9 percent and 21.7 percent of supplemental sample and main sample interviews, respectively.

<sup>12</sup>The estimated numbers of basic sample interviews were derived by multiplying the number of household units in each ultimate cluster by the ratio: Sampling rate for basic sample / Sampling rate for total (basic + supplemental) sample. For example, the ratio above for a sample segment in the E or F rotation groups rated "lower-middle" for income level and "electricity or fuel oil/ kerosene" as main home-heating fuel, in general was equal to 1/1.55. The number of units in the supplemental sample was then equal to the total number of units in the ultimate cluster minus the estimated number in the basic sample.

**Table A5. Poverty Status in 1984 and Home Heating Fuel in 1984 RECS Main and Supplemental Samples\***

Poverty Status and Home Heating Fuel	Basic Sample Households*		Supplemental Sample Households*	
	Number	Percent	Number	Percent
All Households	4,555	100.0%	1,127	100.0%
Below Poverty Level	704	15.5	378	33.6
Electricity	117	2.6	48	4.3
Fuel Oil/Kerosene	95	2.1	56	5.0
Other Fuels	492	10.8	274	24.3
Not Below Poverty Level	3,851	84.5	749	66.4
Below 125 Percent of Poverty Level	987	21.7	484	42.9
Electricity	155	5.4	58	5.1
Fuel Oil/Kerosene	143	3.2	76	6.7
Other Fuels	689	15.1	350	31.1
Not Below 125 Percent of Poverty Level	3,568	78.3	643	57.1

\*Households are classified according to the poverty status of the family or non-family householder. The actual reference period for income reported in the 1984 RECS was the 12 months preceding the ECS interview; the interview date for most households was within the final calendar quarter of 1984. Table shows unweighted numbers and percentages of completed units. See glossary for the definition of "poverty."

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Survey Estimates

Survey estimates were developed to project sample results to the survey universe. The universe includes all households in the 50 States and the District of Columbia. Households on military installations are included. The definition of "household" is the same as that used by the U.S. Bureau of the Census. At the time of the survey, November 1984, the universe was estimated to contain 86,328,000 households, based on Current Population Survey (CPS) estimates of the population.

Weights were calculated for each sample household. A number of steps were involved; each step was carried out separately for the two parts of the 1984 RECS sample--the part that used the original RECS sample design (returning rotation groups), and the part that used the revised sample design (new rotation groups). The household weight reflected the selection probability for that household, and additional adjustments to correct for potential biases arising from the failure to contact all sample housing units and to list all housing units in the sample area. Contacts were not successful with 15.8 percent of the eligible units.

The adjustment for these noninterviews was designed to spread the effects of nonresponse over the interviewed sample of households in the final cluster. The noninterview weight is equal to the number of households in the ultimate cluster (interviews plus noninterviews) divided by the number of interviews. When the weight computed in this way was greater than 2.0, however, that part of the noninterview adjustment that exceeded 2.0 was spread over the remaining ultimate clusters in the PSU.

The failure to list all housing units in the field-listing task is a common problem in surveys of this type. The result is an undercount of housing units in the sample area and, hence, an underestimate of the number of households in the universe. The undercount in the 1984 RECS survey is in the range of 8 to 10 percent. This problem is treated

in two ways in the RECS. One treatment occurs during the interviewing process and the second in the estimation process. During the interviewing stage, unlisted housing units or households are discovered by querying the household where interviews are conducted to determine if other households are present in the unit. In addition, the interviewer is instructed to conduct an interview at all housing units contained in the geographical area between the interviewed household and the next listed address. This tactic reduces the number of missed households but does not completely eliminate the noncoverage problem.

The noncoverage problem is also treated by using ratio estimation to adjust selected estimates of households to official population values. Ratio adjustment took place in two stages for the 1984 RECS. The first stage adjustment was computed from information for PSU's in NSR strata only. A separate factor was created for each of 20 cells (four regions classified by five home-heating-fuel categories). The implementation of this factor reduced somewhat the amount of variance caused by the sampling of PSU's. The first-stage adjustment for Cell "c" is given by:

$$R_{1c} = N_c / M_c \quad (1)$$

where  $N_c$  is the total number of households (1980 Census population) in Cell c for all PSU's in RECS NSR strata, and  $M_c$  is an estimate of  $N_c$  generated by applying RECS PSU sampling weights to 1980 Census household totals for cell c in RECS NSR sample PSU's.

The second-stage factor adjusted data from the survey after nonresponse adjustment and first-stage ratio estimation to independently derived estimates of the number of households in 12 categories shown in Table A6. The second-stage adjustment for Category k is given by:

$$R_{2k} = H_k / G_k \quad (2)$$

where  $H_k$  is an independent estimate of the total, and  $G_k$  is the RECS estimate before the second-stage ratio adjustment of the total number of households in Category k.

The numerator is based on a linear extrapolation of values for each of the 12 cells from Current Population Survey (CPS) estimates for March 1983 and March 1984. The second-stage factor reduced both the between-PSU variance and the within-PSU variance.

An intermediate step was used to adjust RECS estimates approximately to current CPS estimates for numbers of households of each of the following types:

- One-person households, male householder
- One-person households, female householder
- All other households.

The purpose of this intermediate step was to reduce possible bias in the RECS sample due to undercoverage of one-person households, particularly those with male householders.

The procedures related to the second-stage ratio estimate were carried out in three steps: the second-stage ratio estimate was performed, the intermediate adjustment for number of persons in household was carried out, and the second-stage ratio estimate was iterated to produce the final estimates approximately equal to the control totals shown in Table A6.

**Table A6. Population Estimates Used as Controls in Ratio Estimates**

Census Region	Thousand Households			
	MSA--Central City	MSA--Outside Central City	Non-MSA	Total
Northeast .....	6,021	8,400	3,877	18,298
North Central .....	6,163	8,039	7,415	21,617
South .....	7,909	9,269	12,146	29,324
West .....	5,567	7,868	3,654	17,089
Total .....	25,660	33,576	27,092	86,328

Source: Estimates derived from extrapolating data from the March 1983 and March 1984 Current Population Surveys.

## Minimizing Nonresponse

In an effort to maximize the validity of the survey data, a multiwave, multicontact approach was employed. Before the initial contacts, a letter was sent to each household from the Administrator of the EIA, briefly describing the purposes and stressing the importance of the survey. Beginning in October 1984, interviewers made up to seven or more callbacks at different times of the day throughout the week in an effort to minimize the number of uncontacted households. The interviewers also queried neighbors regarding the most opportune times to contact the prospective respondent. By the end of the first wave, 123 addresses were found to be nonresidential and an additional 691 were found to be ineligible. Some 4,659 personal interviews were completed, leaving 2,185 nonrespondents in this wave.

A second wave was initiated in an effort to contact households that were not available during the first wave and to attempt to convince selected first-wave refusals to reconsider. A new set of letters preceded the renewed effort and, in most cases, the sampled housing units were assigned to a different interviewer. Again, up to seven or more attempts were made to contact the prospective respondents. At the end of this wave, an additional 91 addresses were found to be ineligible. As a result of the second wave, an additional 761 interviews were completed, leaving 1,333 nonrespondents.

A third wave was initiated in an effort to reach nonrespondents in a number of locations that had low completion rates. One address was found to be ineligible and an additional 59 personal interviews were completed in the third wave.

In a final attempt to reduce nonresponse, an abbreviated version of the questionnaire (adapted for self-administration) was mailed to most of the remaining nonrespondents. As a result of this effort, 203 additional households responded.

After three waves of personal interview attempts and the mailed questionnaire, 1,070 households or 15.8 percent of all eligible housing units had not responded. These results are displayed in Table A7.

These efforts were successful in accomplishing the following improvements in response:

- Approximately 81 percent of the households were contacted and agreed to be interviewed personally. An additional 3 percent of the sample households completed and returned mailed questionnaires.
- Of the 5,682 responses, 82.0 percent were obtained during the first wave of contacts; 13.4 percent were obtained during the second wave; and 1.0 percent resulted from third-wave contacts. Some 3.6 percent were responses to the mailed questionnaire.
- Of all households that participated in the personal interviews, 35.3 percent required only one visit and 60.4 percent were completed with no more than two callbacks.
- A total of 371 personal interviews were completed in the second and third waves with respondents who had previously refused to participate, representing 6.8 percent of all completed personal interviews. In addition, of the 203 mailed questionnaires that were completed and returned, 155 were from households that previously refused to participate.

**Table A7. Interviews Completed by Stage**

	Personal Interviews			Status After Third Wave		
	First Wave	Second Wave	Third Wave	Mail	Final Status	
Total Listed Units.....	7,658	2,185	1,333	7,658	1,273	7,658
Nonhousing Units						
Business, Other .....	40	0	0	40	--	40
Not Habitable .....	48	0	0	48	--	48
Nonhousing Unit .....	35	0	0	35	--	35
Subtotal .....	123			123		123
Housing Units .....	7,535	2,185	1,333	7,535	1,273	7,535
Ineligible Units						
Vacant .....	536	73	1	610	--	610
Seasonal Vacant .....	155	18	0	173	--	173
Subtotal .....	691	91	1	783		783
Eligible Units .....	6,844	2,094	1,332	6,752	1,273	6,752
Not Completed--Personal						
No One Home .....	761	343	48	169	--	169
Eligible Respondent						
Not Home .....	43	22	2	13	--	13
Refused .....	1,196	671	47	1,004*	--	1,004
Illness .....	22	4	0	13	--	13
Language Barrier .....	31	4	0	12	--	12
Wrong Respondent						
or Unit .....	3	0	0	4	--	4
Not Contacted# .....	94	282	1,176	40	--	40
Other .....	35	5	0	18	--	18
Subtotal .....	2,185	1,333	1,273	1,273		1,273
Not Completed--Mail						
Unusable Address .....	--	--	--	--	91	91
Post Master Return .....	--	--	--	--	69	69
Returned Blank .....	--	--	--	--	19	19
Returned Unusable .....	--	--	--	--	0	0
Not Returned .....	--	--	--	--	751	751
Other Not Mailed .....	--	--	--	--	140	140
Subtotal .....					1,070	1,070
Total Interviews Completed .....	4,659	761	59	5,479	203	5,682

\*A household that refused an interview during any one of the three waves was classified as a "refusal" for the final status even though no one was at home in the second or third wave.

#Includes households that moved after initial contact.

--=Data not applicable.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Response Rates and Household Characteristics

This section of the report compares various response and nonresponse rates across Census region, location type, and structure type. These rates are reported in Table A8.

Several patterns are clear from Table A8. First, personal interviews enjoyed the most success in the South (83.5 percent), in non-MSA areas (86.2 percent), and among residents of mobile homes (83.8 percent). Conversely, the

interviewers had their lowest success rates in the West (79.4 percent), metropolitan areas (central city) (79.4 percent), and in buildings with five or more residential units (79.4 percent). When looking at the categories comprising these groupings it is important to remember that their characteristics are not necessarily independent. Rather, they are very likely to overlap; for example, large apartment buildings are concentrated in metropolitan areas.

The total response-rate patterns with regard to highest and lowest rates generally are not affected by adding the mailed questionnaire responses; however, the overall range from highest to lowest decreases by two to three percentage points. The highest refusal rates correspond to the lowest success rates for the personal interviews. The lowest refusal-rate categories match the highest personal-interview success groups.

Overall response rates are approximately six percentage points higher for new rotation groups (households not contacted for an earlier RECS) than for returning rotation groups. Among the factors that may have contributed to lowering the response rate for returning rotation groups, one factor is known to have done so. That was the request that 1,922 households interviewed for the 1982 RECS check odometer readings and keep records of gasoline purchases as part of the 1983 Residential Transportation Energy Consumption Survey (RTECS). The RTECS appears to have decreased response to the 1984 RECS, as RTECS participants responded to the 1984 RECS at a rate of 75.7 percent versus a rate of 80.6 percent for the 465 non-RTECS participants.

**Table A8. Response Rates by Region, Location, Type of Structure, and Rotation Groups**  
(Percentage of Eligible Housing Units)

Characteristic	Response Rates			Personal Interview Nonresponse Rates	
	Personal Interview	Mail Questionnaire	Total Response	Refuse	Unable to Contact
Total .....	81.1	3.0	84.2	14.9	4.0
Census Region					
Northeast .....	81.2	2.0	83.2	15.1	3.7
North Central .....	79.7	4.1	83.8	16.5	3.8
South .....	83.5	2.1	85.6	12.8	3.7
West .....	79.4	4.0	83.4	15.7	4.8
Location Type					
MSA--Central					
City .....	79.4	3.5	82.9	15.8	4.8
MSA--Outside					
Central City .....	79.3	3.7	83.0	16.7	4.0
Non-MSA .....	86.2	1.4	87.6	10.9	2.9
Structure Type					
Single-Family					
Mobile Home .....	83.8	1.2	85.0	12.2	4.0
Buildings with					
Two to Four					
Units .....	81.4	2.9	84.3	12.7	5.9
Buildings With Five					
or More Units .....	79.4	3.8	83.2	14.4	6.2
Rotation Group					
Returning Rotation					
Group .....	78.2	2.8	81.0	17.6	4.2
New Rotation					
Group .....	84.1	3.2	87.3	12.2	3.7

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

## Adjustments for Item Nonresponse

Item nonresponse occurs when respondents do not know the answer or refuse to answer a question or when an interviewer does not ask a question or does not record an answer. Imputations were made for nonresponse to most items to be used for making national estimates and those having less than 10-percent nonresponse. Items for which national estimates are made but for which imputations were not made include questions on the presence, type, and amount of attic and floor insulation; and the presence of wall insulation. For these items, the number of missing cases was considered large enough so that the imputations would have introduced too much additional error.

Hot-deck imputation was used most frequently. This procedure requires sorting the file of households by variables related to the missing item. A household is then selected that has the same value for the related variables, and this "donor" household supplies the value for the variable that is missing in the "donee" household.

Less frequently used imputation methods included regression estimates, random selection from the distribution of the known values of a variable, and use of modal values. Regression procedures were used to impute the total square footage of the housing unit when actual measurements were missing. The random selection procedure was used only to assign dates (month and/or year) when those responses were missing. Discussion of the regression procedure and other imputations involved in the square footage estimates is found in Appendix B. A few variables were imputed by assigning modal values; this was done when the distribution of available data showed a highly skewed distribution.

The RECS personal interview questionnaire contained 447 items of information. These items were treated as follows with respect to imputations.

<i>Imputation Method</i>	<i>Number of Questionnaire Items</i>
<i>Not Imputed</i>	141
<i>Imputed</i>	306
<i>Hot-deck</i>	253
<i>Random</i>	39
<i>Modal</i>	14
<i>Total</i>	447

Table A9 shows the most frequently imputed items, the number of cases requiring imputation, and the method used.

The incidence of missing data on the 203 mailed questionnaires was considerable because the mailed questionnaire was a small subset of questions from the household interview. For the mailed questionnaire, a modified hot-deck imputation method was used. A hot-deck matrix was created for both mailed-questionnaire and personal-interview households using Census region, type of housing unit structure, space-heating fuel, hot-water fuel, and presence and type of air conditioning. Whenever possible, a donor personal-interview household was chosen for each mailed questionnaire household from the same cell of the hot-deck matrix. For 94 percent of the mailed questionnaires, donors matched on all hot-deck variables.

Because each cell of the matrix usually contained several possible donors, a donor was chosen from the cell on the basis of how closely it matched the mailed questionnaire household on a number of additional variables. These variables were: income, number of household members, number of household vehicles, age of householder, tenure, number of rooms, model year of newest vehicle, and household structure (married couple, other). Except for information on household vehicles, which was taken directly from the mailed questionnaire, the entire set of responses from the donor household was imputed to the mailed questionnaire household. This means that all responses for mailed questionnaire households are imputed except weather data, fuel-consumption data acquired from the household's fuel suppliers, the geographic location of the mailed questionnaire household, information on household vehicles, and those items in the hot-deck imputation process for which an exact match was obtained.

**Table A9. 1984 RECS--Items Most Frequently Imputed**

Imputed Item	Cases Imputed	Percentage of Total Sample* (5,682)	Method of Imputing	Question Number in Appendix D
Protection on Windows				
Without Storm Windows .....	756	13	Hot-deck	54
1984 Family Income .....	698	12	Hot-deck	109
Age of Main Heating Equipment .....	604	11	Hot-deck	16
Year House Was Built .....	537	9	Hot-deck	3
Availability of Natural Gas .....	472	8	Hot-deck	122
Main Fuel Same as in November 1982.....	452	8	Hot-deck	9
Age of Water-Heating Equipment .....	426	7	Hot-deck	36
Square Footage of Housing Unit .....	328	6	(#)	--
Lower Rent Due to Government Aid .....	294	5	Hot-deck	119
Household Completed Highest Grade.....	272	5	Hot-deck	107
Number of Windows With Protection Other than Storm Windows .....	270	5	Hot-deck	55
Roof or Ceiling Insulation Added Since September 1982 .....	207	4	Hot-deck	60
Warm Air Forced Through Ducts .....	154	3	Hot-deck	14
Use of Supplementary Heating Equipment .....	152	3	Modal	13
Public-Housing Status .....	124	2	Hot-deck	118
Times of No Heat Last Winter .....	122	2	Hot-deck	24
Budget-Plan Status .....	121	2	Hot-deck	123
Condominium or Cooperative .....	109	2	Hot-deck	116
Heating System Broken Last Winter.....	98	2	Hot-deck	22d
Power Outage Last Winter .....	96	2	Hot-deck	22f
Presence of Hot Running Water .....	96	2	Modal	35
No Heat from Landlord Last Winter .....	94	2	Hot-deck	22c
Unable To Pay for Heating Fuel Last Winter .....	94	2	Hot-deck	22a
Use of Supplementary Fuel for Heating Water .....	93	2	Modal	33
No Fuel Available Last Winter .....	92	2	Hot-deck	22e
Other Reason No Heat Last Winter .....	91	2	Hot-deck	22h
Unable To Pay for Electricity Last Winter .....	90	2	Hot-deck	22b
Age of Householder .....	77	1	Hot-deck	96
Monthly Rent of Dwelling .....	73	1	Hot-deck	117
Age of Second Household Member .....	70	1	Hot-deck	96
Heating Stove Is Airtight .....	67	1	Hot-deck	15
Month Weatherstripping Was Added .....	64	1	Random	67f
Gas Line Broken Last Winter .....	62	1	Hot-deck	22g
Heated Home Some Way When No Heat Was Available.....	60	1	Hot-deck	25
Government Provided Other Energy Device .....	59	1	Hot-deck	110h
Month Caulking Was Added .....	58	1	Random	67e
Storm Windows Added Since September 1982 .....	58	1	Hot-deck	52
Basement or Crawl Space Heated .....	51	1	Hot-deck	156
Insulation in Walls Added Since September 1982 .....	50	1	Hot-deck	63

\*Mailed questionnaires are not included in the percentage. To account for these, add four percentage points to the percentage points given.

#See Appendix B for details on the square-footage imputations.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Rental-Agent Survey

Telephone or personal interviews were carried out with rental agents and landlords of RECS households living in multiunit dwellings whose occupants did not pay directly to utility companies or fuel suppliers for one or more household fuels. One purpose of the rental agent survey was to verify information from household respondents on fuels used and main heating equipment. Another purpose was to obtain billing data for the buildings containing RECS respondents living in buildings with five or more units.

The interviews with rental agents or their deputies were conducted in the summer of 1985. Altogether, 210 rental agents were interviewed. These interviews covered 549 households in 262 buildings. The 549 households were 66.5 percent of the total of 826 households living in multiunit buildings who had one or more fuels included in their rent.

## Editing Completed Questionnaires

Interviewers mailed completed questionnaires to the contractor, where they were carefully reviewed. The first step in the review process was to verify the accuracy of the basic identifying information. Next, the questionnaires were manually reviewed by two editors to ensure completeness and the logical consistency of selected patterns of responses, and to prepare the questionnaires for translation into machine-readable form. Keypunching of important items was fully verified (overall, 25 percent). Finally, the data were machine edited to further ensure completeness, logical consistency, and the legitimacy of coded values. The computer editing utilized a proprietary software package called EDITOR II.

The contractor attempted to resolve inconsistencies or ambiguities in the data internally, by reference to other parts of the questionnaire. When these efforts failed to resolve an important problem, particularly those involving heating fuels or heating equipment and/or relationships between questionnaire responses and data on fuel consumption, the contractor made telephone contact with a member of the household in question. Telephone contacts of this type were completed with approximately 6 percent of households during the course of data editing for this survey.

Comparisons were made between rental agents' and household respondents' reports on main heating fuel, main heating equipment, supplemental heating fuel, water-heating fuel, and air-conditioning fuel. Each discrepancy was individually examined. Changes were made in the household record whenever it was judged that the rental agent was more knowledgeable than the household respondent on specific fuels and/or equipment.

Editors followed the guideline that the rental agent was the more knowledgeable person when the landlord paid for the fuel and the fuel was used as the main home-heating, water-heating, or air-conditioning fuel. The rental agent's view generally prevailed also when the landlord paid for the main heating fuel and his or her description of the main heating equipment differed from that of the household respondent.

As supplemental heating fuel was more likely to be under the household's control, even in a multiunit dwelling, the respondent's definition of supplemental heating fuel was generally accepted.

The changes in the household records that resulted from these inquiries are given in Table A10.

**Table A10. Changes Made in Household Records on the Basis of Information from Rental Agents**

Type of Changes Made in Household Records	Fuel Paid by Rental Agent	Number with Any Changes Made	Percentage with Changes Made
All Households in Rental-Agent Survey .....	549	178	32
Main Heating Fuel .....	511	75	15
Main Heating Equipment .....	(*)	68	13
Supplementary Heating Fuel .....	(*)	41	8
Water-Heating Fuel .....	531	103	19
Air-Conditioning Fuel .....	119	14	12

\*For the 511 households whose rental agent paid for the main heating fuel, responses of rental agents and household respondents were compared.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Fuel-Supplier Survey

The overall objective of the fuel-supplier survey was to provide data on which to estimate the annual fuel consumption and expenditures of sample households. Five utility fuels were covered in the annualization--electricity, natural gas, fuel oil, kerosene, and LPG.<sup>13</sup> For each of the fuels, the goal was to obtain complete consumption records for the year April 1, 1984, through March 31, 1985.

Toward the end of the household interview, each household reported for each use of the fuel whether or not the fuel was paid for by the household, included in rent, or paid another way. For the households that paid directly, the respondent was asked for the names, addresses, and telephone numbers of the fuel companies supplying the household; these respondents were also asked to sign a waiver, authorizing the contractor to collect consumption data from the suppliers.

Altogether, the fuel-supplier survey included initial contact attempts with 1,124 companies. The number of companies in the survey supplying each fuel and the total number of households supplied are shown in Table A11.

**Table A11. Companies in Fuel-Supplier Survey and Number of Households Supplied**

Fuel Supplier	Number of Companies*	Number of Survey Households Supplied
Electricity .....	281	4,742
Natural Gas .....	152	2,614
Fuel Oil or Kerosene .....	524**	525#
Kerosene .....		188#
LPG .....	230	444#

\*The total number of companies in the survey was 1,124--44 supplied both electricity and natural gas; 1 supplied natural gas and LPG; and 18 supplied fuel oil and LPG.

#The fuel-oil figure excludes 24 households with suppliers unknown and 9 households whose estimates of fuel-oil quantities were based mainly on cash-and-carry purchases.

The kerosene figure excludes 7 households with suppliers unknown and 206 households whose estimates of kerosene quantities were cash-and-carry purchases. The LPG figures excludes 9 households with suppliers unknown.

\*\*Households were asked for names of their "fuel oil or kerosene" suppliers. For those households using both fuels and more than one supplier, it was not possible to determine which fuel was purchased from a given supplier until data were received.

Sources: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Data-Collection Procedures

Data-collection procedures for electricity and natural-gas companies included at least the following steps:

- An initial letter from the Deputy Administrator of the EIA, addressed to the president or other official in the company, outlining the general nature of the request for participation. Enclosures in the letter included a printed statement, "About the Residential Energy Consumption Survey," specimen copies of reporting and authorization forms, and a postage-paid postcard with a checklist of available publications and data tapes.
- A telephone contact to determine the name of the person to whose attention the survey materials should be sent.
- The mailing of survey materials to the person named as contact person.

<sup>13</sup>Households using LPG only for outdoor cooking grills were not included in the LPG data collection; LPG used by these households is excluded from consumption and expenditures estimates. Data on usage of wood fuel were reported by the household, since it was not practical to collect these data from suppliers as is done with the major home fuels. Unless otherwise noted, consumption of wood is not included in the tables for this report.

- A followup telephone contact a few days later to answer questions or discuss survey procedures as necessary.
- Completed forms or copies of records returned by mail.
- A letter from the EIA thanking the company for its effort.

The personal contacts established at an early point largely precluded mailings of materials to an inappropriate person and the delays that might develop from such mailings.

Procedures for fuel-oil or kerosene and LPG dealers were the same as for electric and natural-gas companies up through and including the mailing of survey materials to the company person named as the contact. These companies, however, most often had only one or two households for which information was to be supplied, and data collection was generally completed by telephone. A pretest of the procedure conducted earlier had indicated a somewhat greater likelihood that companies would respond by telephone than as a result of a request to complete and return the forms by mail.<sup>14</sup> Companies that chose to return the forms by mail, however, were not discouraged from doing so. After the company returned the information, additional contact with companies and households was sometimes required to identify the correct record in the company files.

## Energy-Consumption Records

The fuel-supplier survey was conducted for households that paid their own fuel bills directly to the supplier and authorized access to their records. These limitations meant that imputations of fuel consumption were required for households without consumption records (their fuel bills were included in the rent) and for households that did not permit access to their records.

Households lacking consumption records because they do not pay fuel bills directly to fuel suppliers occur most frequently among users of natural gas and fuel oil (see Table A12). These households are 21.0 percent of users of natural gas and 30.9 percent of users of fuel oil.

The proportion of households that did not sign authorization forms (access to records denied) was in the range of 4 to 8 percent for the five fuels. Most households that signed authorization forms did so at the time of the personal interview or at the time of completing the mailed questionnaire. To maximize the number of households with records, however, a followup request was mailed to those who did not sign a form at the time of the personal interview. About 13 percent of this group returned signed forms in response to the mail request and therefore were included in the fuel-supplier survey.

Table A12 shows that factors affecting nonresponse are somewhat different for fuel oil, kerosene, and LPG than they are for electricity and natural gas. For example, the most frequent reason for nonresponse from fuel-oil, kerosene, and LPG dealers was their inability to identify survey households in their company records. Some dealers provide these fuels to households on a cash-and-carry basis and simply do not keep records of individual purchases. A second reason related to fuel oil, kerosene, and LPG was the inability to locate the fuel-oil, kerosene, or LPG dealer. Some companies were no longer in business; others could not be contacted during the survey period even after repeated attempts over a period of several months; and some cash-and-carry customers could not identify their suppliers.

Refusal of companies to participate in the survey was not a significant factor.

Some additional factors related to the usability of fuel records are discussed in the section on imputations and adjustments for missing data.

<sup>14</sup>The test is described in *Residential Energy Consumption Survey: Consumption and Expenditures - April 1980 Through March 1981. Part 1: National Data*, DOE/EIA-0321/1 (Washington, D.C., September 1982, Appendix A) 103.

**Table A12. Energy-Consumption Records and Missing Data for Survey Households Using Electricity, Natural Gas, Fuel Oil, Kerosene, or LPG**  
(Percentage of Households Using the Fuel)

Survey Households	Electricity	Natural Gas	Fuel Oil	Kerosene	LPG
Total Households Using the Fuel (Sample Number) .....	100.0 (5,677)	100.0 (3,599)	100.0 (918)	100.0 (421)	100.0 (525)
Usable Records Received from Fuel Supplier# .....	79.5	70.0	43.2	9.7	58.5
Quantity Estimated by Household** .....	*	*	1.0	49.0	*
Unusable Records Received from Fuel Supplier .....	1.5	1.0	8.9	3.3	13.9
Household Pays Supplier Directly--No Record Available for the Household .....	10.0	8.0	16.0	37.5	21.3
Household Not Identified in Company Records .....	1.9	1.0	4.9	30.6	11.6
Company Refused to Participate .....	0.7	0.6	0.2	0.9	0.6
Company Unknown or Not Located .....	*	*	2.6	1.7	1.7
Authorization Form Not Signed .....	7.4	6.4	8.3	4.3	7.4
Fuel Used Included in Rent or Paid in Other Way## .....	9.0	21.0	30.9	0.5	6.3

#Data were unusable for electricity and natural gas if the records covered less than 5 months, and for fuel oil, kerosene, and LPG if the record covered less than 1 year.

\*\*Households in this group are those that purchased kerosene or fuel oil primarily on a cash-and-carry basis. These households supplied estimated purchases of kerosene and fuel oil by telephone after the end of the 1984-1985 heating season.

##These data include households with mixed payment methods--for one or more uses of a specified fuel a supplier was paid directly, and payment for other uses was included in rent or paid in other way.

\*=Represents or rounds to zero.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Comparison with 1982 RECS

The proportion of households with usable fuel-consumption records is lower in 1984 than it was in 1982. The difference is four percentage points for electricity, four for natural gas, and nine for LPG. Data on usability of fuel records for fuel oil and kerosene are not comparable between the 1982 and 1984 RECS, because those two fuels were combined in the 1982 RECS. The decrease is attributed to a small increase in the proportion of sample households that did not sign authorization forms, an increase in the proportion of unusable LPG records, and an increase in the proportion of sample households whose energy bills are included in their rent. The latter condition was fostered by the intentional oversampling in the 1984 RECS of low-income households, which more often have energy costs included in their rent.

## Data-Collection Dates

The first set of advance letters was mailed to utility companies in mid-April 1985. The cutoff date for receipt of usable information was November 30, 1985.

## Fuel-Consumption Imputations

Not all the fuel records that were collected in the fuel-supplier survey could be used. For example, some records covered too few months of usage; other records were incomplete and it was not possible to determine exactly what information was missing. The extent of these unusable records is shown in Table A12. The problem of unusable records is small for the metered fuels. For electricity and natural gas, not even 2 percent of the records covered fewer than

146 days and therefore were considered unusable. For fuel oil, kerosene, and LPG, however, the problem of unusable records is more serious, inasmuch as 9 percent of fuel-oil, 3 percent of kerosene, and 14 percent of LPG records were unusable. One reason for this is that partial-year records of electricity and natural consumption are considered usable, whereas a partial-year record for the storage fuels (fuel oil, kerosene, LPG) is not acceptable.<sup>15</sup>

A variety of information from household respondents as well as from suppliers is reviewed and used as a basis for declaring a fuel-oil, kerosene, or LPG record complete or incomplete. Questionnaire information from respondents includes the number of suppliers and an estimate of the annual number of deliveries. Suppliers provided dates of onset and termination of service to the household. In addition, followup contacts were made by telephone to some households to obtain estimates of cash-and-carry purchases of kerosene and fuel oil directly from respondents.

Households with unusable records, as described earlier, and households with no records had their fuel consumption imputed using nonlinear regression modeling techniques. The models were developed using RECS sample households for which approximately a full year of data was available and acceptable. Separate regression models were developed for the five fuels: electricity, natural gas, fuel oil, kerosene, and LPG.

The strategy for modeling consumption varied across fuels for two reasons. First, fuels differ in the number of ways they can be used. Electricity, for example, is used for a large number of appliances, water heating, space heating, and space cooling. Kerosene, on the other hand, is used almost exclusively for space heating. As a result, the model for electricity includes a larger number of terms to represent all of the possible end uses.

The number of sample cases also influences the modeling strategy. For the electric and utility gas models, there were a large number of sample cases, allowing us to model the influence of fuel consumption on a greater number of factors. For example, the electricity models included an income variable.

The kerosene model was further divided into two separate models. The model for households that used kerosene as a main heating fuel was very similar to the heating portion of the fuel-oil model. The model for households that used kerosene as a supplementary heating fuel was much less complex.

For the 1982 RECS, special adjustments were also made in consumption imputations for those respondents living in apartment buildings whose electricity and natural-gas usage was included in their rent. New imputation models applied to the 1984 RECS appear to have eliminated the bias in consumption imputations for these households. No adjustment factors were applied to 1984 RECS imputations.

Fuel expenditures were imputed by applying a cost factor to the imputed consumption. The cost factor for electricity and utility gas was derived from the fuel-consumption records of households in the same neighborhood or geographic area as the household for which data were missing; the cost factor for fuel oil and LPG was based on regression fits for cost versus quantity for all fuel users.

The consumption data were standardized to a 365-day period. For fuel oil, kerosene, and LPG, no adjustment was necessary, since the annual consumption data were the accumulation of all delivery records between April 1, 1984, and March 31, 1985. For electricity and natural gas, an adjustment was made for records covering 330 days or more. For those covering fewer than 330 days and cases requiring regression imputations, the imputed quantity was for a 365-day period.

For a small proportion of households, 12-month fuel-consumption quantities were scaled down in accordance with respondent-supplied information as to the proportion of the fuel used for nonhousehold purposes such as for drying grain or operating a commercial welding shop. This adjustment was made to the consumption and expenditures for 2 percent of the households using electricity, 2 percent using LPG, 1 percent using natural gas, and 1 percent using fuel oil, and 1 percent using kerosene.

A final adjustment was made to all imputed fuel quantities. To maintain the variance structure of the unimputed fuel-consumption data, rather than impute a single value for all households that may be equivalent on the independent variables in the regression model, an error term was added to the predicted fuel consumption. This allowed estimates for sampling error to be calculated without separating imputed from unimputed data.

Table A13 shows the availability of consumption records by the type of housing structure. Usable records were most often obtained for single-family units, more often for electricity (87.8 percent of the units) and natural gas (87.8 percent) than for fuel oil (66.1 percent), kerosene (62.4 percent) or LPG (65.7 percent). The problems inherent in collecting

<sup>15</sup>The number of households with partial-year records, as a proportion of total households using the fuel, is 8.6 percent for electricity and 6.3 percent for natural gas.

data for the storage fuels were described earlier: multiple suppliers, "cash-and-carry" customers, companies supplying purchase data instead of usage data, and economic instability of the supplying companies.

**Table A13. Energy-Consumption Records and Missing Data for Surveyed Households, by Fuels Used and Type of Housing Structure (Percent)**

Type of Fuel Used	Total Households Using the Fuel	Mobile Home	Single-Family	Two to Four Units	Five or More Units
Electricity (Sample Number)	100.0 (5,677)	100.0 (362)	100.0 (3,706)	100.0 (753)	100.0 (856)
Usable Record	79.5	79.3	87.8	68.5	53.2
Unusable Record #	1.5	2.2	0.7	2.1	3.9
Records Not Available	10.0	7.7	9.7	11.3	11.4
Fuel Used Is Included in Rent or Paid in Other Ways **	9.0	10.8	1.8	18.1	31.5
Natural Gas (Sample Number)	100.0 (3,599)	100.0 (119)	100.0 (2,281)	100.0 (610)	100.0 (589)
Usable Record	70.0	77.3	87.8	52.5	17.8
Unusable Record #	1.0	1.7	1.1	1.3	0.3
Records Not Available	8.0	9.2	9.2	7.4	3.8
Fuel Used Is Included in Rent or Paid in Other Ways **	21.0	11.8	1.9	38.8	78.1
Fuel Oil (Sample Number)	100.0 (918)	100.0 (23)	100.0 (563)	100.0 (149)	100.0 (183)
Usable Record	44.2	39.1	66.1	14.1	1.6
Unusable Record #	8.9	13.1	11.0	11.4	*
Records Not Available	16.0	43.5	20.9	12.1	0.6
Fuel Used Is Included in Rent or Paid in Other Ways **	30.9	4.3	2.0	62.4	97.8
Kerosene (Sample Number)	100.0 (421)	100.0 (65)	100.0 (311)	100.0 (33)	100.0 (12)
Usable Record	58.7	60.0	62.4	27.3	(5)
Unusable Record #	3.3	13.8	1.6	*	*
Records Not Available	37.5	26.2	35.7	69.7	(7)
Fuel Used Is Included in Rent or Paid in Other Ways **	0.5	*	0.3	3.0	*
LPG (Sample Number)	100.0 (525)	100.0 (137)	100.0 (367)	100.0 (14)	100.0 (7)
Usable Record	58.5	44.5	65.7	(5)	*
Unusable Record #	13.9	16.1	12.5	(5)	*
Records Not Available	21.3	27.0	19.6	(3)	*
Fuel Used Is Included in Rent or Paid in Other Ways **	6.3	12.4	2.2	(1)	(7)

#Data were unusable for electricity and natural gas if the records covered fewer than 5 months and for fuel oil, kerosene, and LPG if the record covered less than 1 year.

\*\*Includes households with mixed payment methods: one or more uses of a specified fuel paid directly to a supplier, and other uses included in rent or paid in another way.

\*=Represents or rounds to zero.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

Most of the consumption and expenditures data for large apartment buildings, especially natural gas and fuel oil, are imputed data. Usable records were obtained for only 17.8 percent of the apartments in large buildings that used natural gas and for only 1.6 percent of those using fuel oil. Liquefied petroleum gas and kerosene are infrequently used in large apartment buildings. Electricity data for these apartments were obtained in 53.2 percent of the cases.

The reason data on consumption and expenditures are so often imputed for multiunit structures is that energy use is not directly metered for individual apartments. A master meter registers the usage for a number of units in the building. Under these circumstances, there is no way to measuring the consumption of individual apartments directly.

Other segments of the data for which the lack of usable records may lead to an imputation bias include natural gas and fuel oil for apartments in smaller buildings (two to four units per building) and fuel oil and LPG used in mobile homes. Usable records in these segments were obtained for between 14.1 percent and 52.5 percent of the households.

## **Supplemental Data Collection**

Portions of the 1984 RECS data set and analyses are based on three supplemental data collections carried out mainly by telephone between mid-1985 and early 1986. The primary purpose of one of these followup activities was to obtain estimates of kerosene use as a home-heating fuel during the 1982-1983 heating season. The other two supplemental activities were designed primarily to collect additional information of interest to the Social Security Administration on government assistance to low-income households.

### **Followup Survey on Kerosene Consumption**

A very large majority of households using kerosene as a supplemental home-heating fuel made cash-and-carry purchases of kerosene in small quantities, usually less than 10 gallons at a time. Records of such purchases are generally not maintained by fuel suppliers. Thus, the normal procedure of obtaining delivery or sales records from fuel suppliers can be followed only for a small fraction of these households.

Use of kerosene as a supplemental home-heating fuel increased in the period from 1982 to 1984. Followup telephone calls were made to households in the 1984 RECS sample to obtain estimates of kerosene used during the 1984-1985 heating season directly from a knowledgeable person in the household. Those who reported cash-and-carry purchases of fuel oil were also included in the followup survey.

Followup contacts were attempted in July and August 1985 for 438 households. This group included 422 households in the 1984 RECS who reported that they used a portable kerosene heater or did not report the name of their kerosene supplier, 14 households who reported cash-and-carry fuel-oil purchases, and 2 households who reported cash-and-carry purchases of both fuel oil and kerosene. Of those 438 households, 263 (60.0 percent) were interviewed by telephone. Nonrespondents included those who could not be reached by telephone and those who had refused to participate in earlier contacts. The 263 telephone interviews resulted in use of household-provided quantity estimates for 206 kerosene households and 9 fuel-oil households. Those interviews not used for quantity estimates included households for whom usable records were received from fuel suppliers and those who were unable to provide estimates.

If followup respondent estimates were not obtained, regression estimates were calculated and then adjusted in such a way that overall average imputations matched the average estimate of followup respondents.

### **Followup Data Collection for the Social Security Administration**

The first of two supplemental data collections was carried out entirely by telephone in January 1986. Telephone contacts for this purpose were combined whenever possible with a portion of the data collection for the 1985 Residential Transportation Energy Consumption Survey (RTECS). Information was collected on government assistance to low-income households to pay heating or cooling costs for the 12-month period ending in September 1985, and on family income for 1985.

The population of interest for this supplemental data collection was defined as all households in the 1984 RECS with a reported or imputed annual family income of under \$30,000 in the 12 months preceding the 1984 RECS interview. Of the total of 4,145 households included in this group, followup interviews were completed with 2,633, or 63.5 percent. Non-respondents include those who could not be reached by telephone for this special purpose as well as households that had refused to participate in earlier Transportation Study contacts.

The second supplemental data collection was carried out by telephone in April 1986. Information was collected on government assistance to low-income households to pay heating costs during the period from October 1985 to April 1986, and on family income for the 12-month period ending in April 1986.

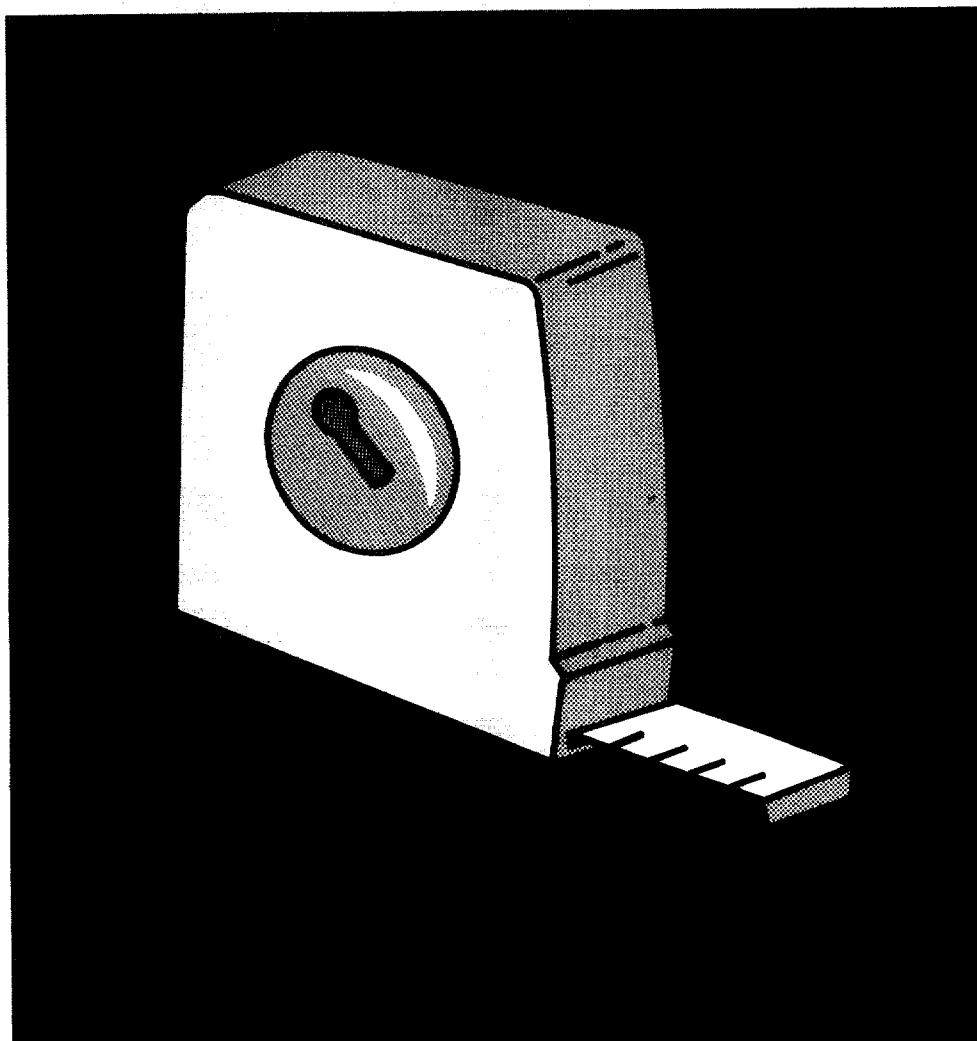
The population of interest for the April survey was similar to that for the January survey. Of the 4,145 households with reported or imputed income of under \$30,000 for the 12 months preceding the 1984 RECS interview, 120 had reported 1985 income of \$35,000 or more during the January 1986 data collection; these were removed from the sample. Another 120 households that had income of \$30,000 or more for 1983 but reported income of less than \$25,000 during the January 1986 RTECS data collection were added to the sample; these households had not been asked the home-heating-assistance questions in January.

Of the total of 4,145 eligible households, followup interviews were completed in April with 2,483, or 59.9 percent. Nonrespondents included those who could not be reached by telephone as well as households that had refused to participate in earlier contacts.



## **Appendix B**

### **Estimates of the Size of U.S. Housing Units in Square Feet**





# Estimates of the Size of U.S. Housing Units in Square Feet

## Introduction

Interviewers for the 1984 Residential Energy Consumption Survey were given 50-foot tape measures to ascertain the dimensions of housing units. The instructions were to measure the "area enclosed from the weather." This included garages attached to the house, attics either heated or finished, and basements enclosed from the weather (see *Square Feet* in Glossary for further definition). Interviewers also recorded the dimensions of areas that were heated and unheated. This finer breakdown into heated and unheated areas more closely measures the area of the housing unit that places the demand on the heating system and, therefore, is the figure that may prove to be more useful in analyzing residential energy consumption. All measurements were rounded to the nearest foot by the interviewer or in the editing process. Interviewers were given an option of measuring the home from the inside, taking into account the thickness of inside walls, or from the outside.

Interviewers were instructed to measure all housing units in new Rotation Groups C and D. Housing units in the returning Rotation Groups E and F, which did not have complete measurements taken in the 1982 RECS, were also to be measured. Additionally, a subsample of one-fourth of the returning rotation groups, which were completely measured in the 1982 RECS, was selected to be measured again in the 1984 RECS. This subsample will serve as the basis for methodological analyses of differences between 1982 RECS and 1984 RECS measurements.

Interviewers were instructed to skip the measurement step for the remaining three-quarters of the returning rotation groups with complete measurements in the 1982 RECS, provided that the housing unit was occupied by the same family as in the 1982 RECS, and that no changes had been made in the structure or in heated square feet. For these 584 households, measurements taken during the 1982 RECS are used in the 1984 RECS data file.

Interviewers attempted to measure the size of 4,895 housing units. In 94 percent of the cases, usable measurements were acquired. In 6 percent, the measurements either were not usable or were not made. Although most cases contained the basic information, some imputations were required to produce a final set of three figures for each housing unit:

HOME AREA = total square footage of area enclosed from the weather

HEATED = total square footage of heated area

UNHEATED = HOME AREA - HEATED = total square footage of unheated area.

Table B1 indicates the number of cases with missing data. The imputations required standardizing all measurements to outside measurements when the measurement was made from inside the home, characterizing a measurement as inside or outside when this was unknown, apportioning the total space between heated and unheated when this proportion was unknown or partially known, and estimating the total square footage when the measurements were not made or not usable.

## Scaling Up Inside Measurements

As shown in Table B1, 2,743 homes had complete dimensions for the total area, the heated area, and the unheated area. The only adjustment required was to scale up the measurement for the 1,368 homes that were measured on the inside. The inside measurements were standardized to outside dimensions. The scaling value was determined for each housing unit as a quadratic function of outside HOME AREA for the housing unit.

$$\text{SCALE} = .980 + 1.017\text{E-}04 \times \text{HOME AREA} - 1.532\text{E-}08 \times (\text{HOME AREA})^2$$

This formula indicates that the larger the HOME AREA, the larger the scaling-up value. These scale values, which increased the inside measurements, ranged from 7.16 to 14.91 percent, depending on the size of the INSIDE AREA. For any case in which INSIDE AREA was less than 1,000, SCALE was set to 1.07; for INSIDE AREA greater than 2,885, SCALE was set to 1.15.

The equation was developed in the following manner: Regression prediction equations were developed independently for homes measured from the inside and homes measured from the outside. Both equations were used to generate estimates of floor space for homes measured from the outside. The relationship between the ratio of predicted "outside" to "inside" floor space and the actual outside floor space for these homes was fitted in a quadratic equation.

**Table B1. Completeness of Data on Square Footage of Housing Units**

Amount of Information Collected	Number of Households	Percent
Complete Set of Dimensions .....	2,743	56
Outside measurement of home .....	1,375	28
Inside measurement of home .....	1,368	28
Partial Information		
Information available on heated and unheated areas. Unknown whether dimensions are for inside or outside of home .....	1,550	32
Total area known, but information on heated and unheated areas is missing. Also may be unknown whether dimensions are for inside or outside of home .....	137	3
Basement dimensions missing .....	97	2
Complete set of dimensions for all floors except basement. Basement total area known, but information on heated and unheated areas for basement is missing .....	54	1
All dimensions missing or unusable .....	314	6
Total .....	4,895	100

Note: The floor area for the 203 households responding by mail was imputed through a hot-deck procedure. The mail questionnaires are not included in this table. Also excluded from the table are 584 households for which measurements were taken from the 1982 RECS data file.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Treatment of Housing Units with Some Missing Data

The 1,550 cases lacking information as to whether the measurements were inside or outside, or in which the measurements may have been a combination of inside and outside, were treated as though measurements were outside. This

was because average predictions based on regression models using homes measured outside matched average totals for this group very closely, while predictions based on regression models using homes measured inside were seriously biased on the low side.

The 137 cases lacking information on the ratio of heated to unheated space borrowed that ratio from housing units with complete data, on a PSU-by-PSU basis. For most of these cases, information was also lacking as to whether the measurements were inside or outside, and measurements were again assumed to be outside.

For the 97 cases with missing basement dimensions, the basement area was imputed by using a simple regression based on the area of the first floor. The heated and unheated areas were determined or imputed and then added to known totals for the remaining floors. The total area was then scaled up to outside dimensions, if necessary.

There were 54 cases in which the ratio of heated to unheated space for the basement was unknown. This ratio was imputed by using an appropriate empirical distribution of heated to unheated ratios. Three such distributions were used: one for single-family homes with basements only; one for homes with a basement plus crawl space and/or slab; and one for basements of homes in buildings with two to four units.

## Regression Model

A regression equation was used for the 314 cases with no usable data. After HOME AREA had been imputed by using the regression model, the ratio of heated to unheated space was imputed using the same procedures described above for housing units for which that ratio was missing.

The prediction equations for outside dimensions were used in the imputations because regression models based on cases with inside measurements did not yield substantially better fits. This procedure eliminated the need to scale up these estimates to outside dimensions.



## Appendix C

### Quality of the Data

$$RSE(X/Y) = \sqrt{RSE^2(X) + RSE^2(Y)}$$



# Quality of the Data

## Introduction

Data from the 1984 Residential Energy Consumption Survey (RECS) are subject to many sources of sampling error, nonsampling error, and bias. Sampling error is a measure of the variability in the data because a sample of households was surveyed, rather than the entire population. Because the survey used probability sampling techniques, sampling errors of the survey estimates can be estimated and used as a guide in making inferences from the sample estimates to the total population.

Nonsampling error and bias are measures of variability due to the conduct of the survey. They can include population undercoverage during sampling, response bias and variance, interviewer error, coding and/or keypunching error, and nonresponse bias. The wording and format of survey questionnaires, the procedures used to select and train interviewers, and the quality control built into the data-collection, receipt, and processing operations were all designed to minimize these sources of error (for discussion of these procedures, see Appendix A, "How the Survey Was Conducted"). In addition, response adjustments and ratio estimations were incorporated into the survey estimator to help reduce both sampling and nonsampling error. These procedures are discussed in Appendix A also.

## Nonsampling Error

## Completeness of Data

**Noncovered Housing Units.** Data are not collected for the following two types of housing units:

- **Vacant housing units.** These units may have minimal heating for protection from the weather and lighting for security. They also may not be vacant all year long. The Annual Housing Survey (AHS) estimated that there were 5.5 million vacant, year-round housing units in 1983.
- **Second homes for the owner's use.** The AHS estimates there were 1.5 million year-round units "held for occasional use" in 1983.

These two types of units are not included primarily because of the difficulty in acquiring data and limitations in the availability of funds. The RECS data are collected by interviewing someone who knows the housing unit and who may sign an authorization form for release of fuel records from the fuel supplier. That type of person does not usually live in these types of unit.

**Noncovered Energy.** Energy used in the noncovered housing units is not included in reports of the RECS. Some energy used in covered housing units is excluded also. The energy used in common areas in multiple-unit buildings (lighting, air conditioning, elevators, etc.) is not included in the consumption and expenditures. A previous study<sup>16</sup> suggested that this energy was on the order of 5 to 10 percent of the energy used in multiple-unit buildings.

<sup>16</sup>Lou McClelland, "Resident Utility Billing System," Institute of Behavioral Science, University of Colorado, Boulder, Colorado 80309.

## Quality of Specific Data Items

**Square Feet of Floor Space.** The longitudinal design of the RECS made it possible to measure a subsample of the housing units twice. Analysis of 300 housing units measured in 1980 and in 1982 showed a median percentage difference of 11.7 percent for total square feet (heated and unheated). The difference for heated square feet was 15.6 percent. The percentage difference was the absolute value of the difference between the two measurements as a percentage of the average of the two measurements. The comparison is described in Appendix C of the reports on the 1982 Residential Energy Consumption Survey--(DOE/EIA-0314(82), DOE/EIA-0321/1(82), or DOE/EIA-0321/2(82)).

**Indoor Temperatures.** The data on indoor temperatures are believed to be generally accurate for the purpose of ordering households along a temperature gradient. The following limitations, however, are causes for further study of the role these data play in residential energy consumption. The questionnaire asked respondents for indoor temperatures during sleeping hours and during the day when the home was occupied and when it was unoccupied; the questionnaire did not ask for temperatures on a specific day. The implication was that typical temperatures were being requested. The reported temperatures, especially for some respondents, are impressions of typical temperatures and may not represent the actual temperatures, or the averages of actual temperatures, in the home. The tendency to give impressions is more likely to occur for households that turn off their heat during the day or night. Indoor temperatures for these households may not be known or may not follow a typical pattern, since the outdoor weather conditions and the thermal characteristics of the housing unit will determine the indoor temperature.

Other factors likely to make these reports unreliable indicators of the actual temperatures include the following: respondents may not check temperatures or thermostat settings on a regular basis or may not have thermostats that are marked with degree settings; temperatures may differ from thermostat settings (a home can become warmer than the thermostat setting); thermostats may need to be recalibrated; and finally, disagreement may exist among household members as to the typical temperature. The unreliability of these data for some respondents was highlighted in 1982 when a small number of households were called back to inquire about nighttime temperatures that exceeded daytime temperatures. Many of these households changed their reports by 5 to 10 degrees or more.

**Recent Conservation Improvements.** The household interview covered recent conservation improvements made to the housing unit. Most of the improvements mentioned in the questions were those covered by the Federal legislation providing residential energy-conservation tax credits. Questions in the interview asked about each conservation improvement--had it been installed since September 1, 1982, and if so, in what month and year was the work completed. The household interview was conducted in the fall of 1984, so the recall period was about 2 years. (See questions 48 through 49, 52, 53, 60, 61, 63, 64, 66 through 69 of the household questionnaire in Appendix D for the exact wording and the item covered.)

The 1984 RECS included a question on whether any conservation improvements had been made and paid for in 1983 (Question 72 in the household questionnaire in Appendix D). The improvements were the same ones asked about in the detailed questions. Question 72 was included as a filter question to identify households that would be asked several following questions on Federal tax credits for energy-conservation improvements. A comparison between the results of this question and the detailed questions should show consistency, since they were measuring similar phenomena.

When answers to question 72 were compared with answers from the earlier questions, considerable inconsistency appeared (Table C1).

**Table C1. Consistency of Responses to Question 72 and Detailed Questions on Individual Conservation Improvements**  
(Unweighted Households)

Consistency with Detailed Questions	Yes to Question 72	
	Number	Percent
Consistent . . . . .	761	57.3
Inconsistent . . . . .	567	42.7
Total . . . . .	1,328	100.0

**Note:** The inconsistent cases were those not answering "1983" to questions 49a, 49b, 53, 61, 64, 67a-67f, 69a-69d, and 69f.

**Source:** Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

About 43 percent of households responding "Yes" to Question 72 did not give 1983 as an answer to any of the detailed questions on individual conservation improvements. The problem with this type of inconsistency appears to lie with the way Question 72 was designed and administered. Question 72 was complex, as a number of subquestions were imbedded in it, and interviewers noted difficulties in administering it. The detailed questions were simpler in form, but this is not to suggest that the detailed questions did not also contribute to the inconsistencies through the unreliability of dating when improvements were made.

In some cases the inconsistency may have occurred because only the most recent date was recorded for improvements done more than once between September 1, 1982, and the date of the interview. For example, if caulking had been installed in 1983 and in 1984, only 1984 was recorded, but Question 72 could be answered "Yes" on the basis of the unrecorded installation of caulking in 1983.

The reader should note that the problems of accurately identifying which households made a conservation improvement that may have been eligible for a Federal tax credit in 1983 could affect the data in unknown ways.

## Sampling Error

The form of the sampling error that is presented here is the relative standard error (RSE). The RSE is also known as the coefficient of variation. For a given survey statistic,  $Y$ , the relative standard error,  $RSE(Y)$ , is given by

$$RSE(Y) = (S_Y/Y) \times 100. \quad (3)$$

Thus the standard error of  $Y$  is given by

$$S_Y = RSE(Y) \times Y / 100. \quad (4)$$

This section provides generalized procedures and examples for use in calculating relative standard errors for several types of statistics from the 1984 RECS survey.<sup>17</sup> The generalized procedures involve the use of tables that relate the RSE of a statistic to the number of households over which the statistic applies. These tables are based on regression equations developed using RSE's computed by a half-sample replication procedure. They were developed for the 1984 RECS data and will change for subsequent surveys. Generalized procedures are provided for household counts, percentages based upon counts, aggregate totals, and averages.

<sup>17</sup>The source of data for the calculation of relative standard errors is the 1984 Residential Energy Consumption Survey.

## Determination of Relative Sampling Errors for Household Counts

Procedures are presented here for determining relative sampling errors (RSE) for statistics that are counts of households. The counts can be obtained from this report, other reports of the 1984 RECS, or the public-use data tape for the 1984 RECS. For some household counts, the RSE is zero. Household counts with a zero RSE are called control totals. A simplified method for determining RSE's for household counts that are not control totals is presented, followed by a more complete, longer method. The simplified method can be used for any household count, but it will produce overestimates of sampling errors in some cases.

**Control Totals.** The number of households that live in each of the four Census regions were used as design parameters for the 1984 RECS. These household counts are listed in Table C4. The counts will have zero RSE's or sampling error in the RECS. They are based on results of the Current Population Survey (CPS) compiled by the U.S. Bureau of the Census. The CPS surveys are subject to their own sampling variances. Any errors in these numbers can be considered to be biases of the 1984 RECS. In this report, these household counts or sums of these counts are referred to as control totals.

**Simplified Method.** For a household count that is not a control total, read or extrapolate its RSE value from Table C2. (The RSE's listed in Table C2 can be obtained by using the first equation listed in Table C9.)

**Table C2. Relative Standard Errors for Survey Estimates of the Number of Households**

Million Households	One Relative Standard Error (Percent)	Million Households	One Relative Standard Error (Percent)
0.1	43.7	1.0	17.0
0.2	33.4	1.5	14.2
0.3	28.4	2.0	12.4
0.4	25.2	3.0	10.3
0.5	22.9	4.0	8.9
0.6	21.2	5.0	8.0
0.7	19.9	10.0	5.7
0.8	18.7	20.0	4.0
0.9	17.8	40.0	2.7

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

The value should be adjusted by multiplying by the appropriate value or values for  $10^B$  from Table C3.

If the characteristic of the statistic being considered is not listed in Table C3, use  $B=0$  ( $10^B = 1$ ), or use a value for a characteristic that has similar clustering tendencies. If two characteristics define the statistic, multiply by both values of  $10^B$  from Table C3. If more than two characteristics define the variable, choose no more than two and select the two that are the least correlated.

**Table C3. Clustering Factors for Calculation of Relative Standard Errors for Survey Estimates of the Number of Households**

Cell Definition	Value of $10^B$
Weather Zone .....	1.93
MSA (1980) .....	1.24
Housing Structure .....	1.20
Origin (Race) .....	1.13
Natural Gas Is Water- or Space-Heating Fuel .....	1.11
Electricity Is Water- or Space-Heating Fuel .....	1.09
Year of Construction .....	1.09
Payment Method for Utilities .....	1.08
Air-Conditioning Equipment Present .....	1.05
Kerosene Heat (main or secondary) .....	1.05
LPG Is Water- or Space-Heating Fuel .....	1.04
Number of Doors .....	1.02
Wood Is Main Space-Heating Fuel .....	1.00
Hispanic Descent .....	1.00
Own/Rent .....	0.97
Poor--125 Percent .....	0.97
Main Heating Equipment .....	0.96
Wood Is Burned .....	0.96
Fuel Oil Is Water- or Space-Heating Fuel .....	0.96
Add Caulking .....	0.96
Secondary Heating Equipment .....	0.95
Types of Appliances Used .....	0.95
Have Vehicle at Home .....	0.95
Add Weatherstripping .....	0.92
Number of Windows .....	0.92
Number of Storm Windows .....	0.91
Family Income .....	0.91
Number of Heated Square Feet .....	0.90
Sex of Householder .....	0.90
Age of Householder .....	0.90
Number of Household Members .....	0.86

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

**Longer Method.** The second method for calculating sampling errors for household counts uses the control totals listed in Table C4.

- Step 1: Find the appropriate control for the statistic from Table C4. The control total is the number of households in the Census region for which the sampling error is being determined. The control may be the sum of several control totals provided. If the correct control is not obvious, use the larger of several, which may be correct. If the household count is a control total, set the RSE equal to zero; otherwise, proceed to Step 2.
- Step 2: If the household count is less than one-half of its control total, use method one (described earlier). If not, compute a control complement for the household count and proceed to Step 3. Control complement = (control total - household count).
- Step 3: Use the control complement as the new household count. Then read or extrapolate its RSE value from Table C2. Multiply this value by the appropriate  $10^B$  value or values from Table C3. Denote this as CCRSE.
- Step 4: Multiply the CCRSE value from Step 3 by the control complement and divide by the household count. This calculation will be: RSE = CCRSE x (control complement) / (household count).

**Table C4. Relative Standard Error Control Totals**  
(Million Households)

Type of Aggregate	Control Totals	Upper Bound for Direct Application of Formula or Table
National .....	86.3	43.2
Census Region		
Northeast .....	18.3	9.1
North Central .....	21.6	10.8
South .....	29.3	14.7
West .....	17.1	8.5

Note: The MSA control parameters do not appear in this table. The reason for this is that the control parameters were based on 1970 definitions of MSA's, but this report contains tabulations based on 1983 definitions of MSA's.

Source: Estimates derived from the March 1983 and 1984 Current Population Surveys, U.S. Bureau of the Census.

Consider the computation of sampling error for the estimate that 16.4 million households heat with natural gas in the North Central region.

- Step 1: From Table C4, the control total is 21.6 million, the number of households that live in the North Central region.
- Step 2: The number 16.4 million is more than one-half of 21.6. Its control complement then is 21.6 - 16.4 = 5.2.
- Step 3: Extrapolating from Table C2, the RSE for 5.2 is 7.9 percent. Multiply 7.9 by the values for  $10^B$  from Table C3 for household counts over categories restricted to households whose main space-heating fuel is natural gas ( $7.9 \times 1.11 = 8.7$  percent).
- Step 4: Multiply CCRSE by the control complement divided by the household count ( $RSE = 8.7 \times 5.2/16.4 = 2.8$  percent).
- Step 5: To calculate the standard error, multiply the RSE by the household count ( $2.8/100 \times 16.4 = 0.5$ ). The standard error is the same for the control complement also.

## Determining Relative Standard Errors for Percentages Based upon Household Counts

Let  $X$  be an estimate of the number of households having characteristics  $C_1$  and  $C_2$ . Let  $Z$  be an estimate of the number of households that have characteristic  $C_1$  but do not have characteristic  $C_2$ . Set  $Y$  equal to  $X + Z$ . Then  $Y$  is an estimate of the number of households that have characteristic  $C_1$ . Set  $p$  equal to  $100 X/Y$ . Then  $p$  is an estimate of the percentage of households that have characteristic  $C_2$  among all households that have characteristic  $C_1$ . The RSE of  $p$  can be approximated by means of the following calculation:

$$RSE(p) = \sqrt{RSE^2(X) - RSE^2(Y)}. \quad (5)$$

This approximation works best when  $RSE(X)$  and  $RSE(Y)$  are estimated by means of a generalized variance equation. The approximation may differ greatly from the correct value if  $RSE(X)$  and  $RSE(Y)$  are half sample estimates. This equation may also produce inaccurate approximations when it is applied to percentages that are not based on household counts or are based on ratios of household counts that cannot be characterized by the format.

## Determining Relative Standard Errors for Average and Aggregate Statistics

The RSE's of statistics that give the aggregate total of heated area (in square feet) or wood burned or the average per household for heated areas, heating degree-days, indoor winter temperature, indoor summer temperature, wood burned, storm doors, storm windows, doors, and windows can be approximated by using Tables C5 through C8. The RSE's listed in Tables C5 through C8 can be obtained using the equations listed in Table C9.

The tables give the RSE of a statistic as a function of the number of households for over which the statistic applies. The number of households can be obtained from either the same table as the statistic or a corresponding table. Care must be taken in determining the appropriate number of households. For instance, the number of households for statistics in Table 54 can be obtained from Table 55.

When calculating the RSE of a statistic giving total heated square footages or total square footage (heated and unheated), the column in Table C5 or C6 that should be used depends on whether the number of households is a control total or not. If it is a control total, use the column corresponding to the mean. For all other cases involving RSE's for total square footage (heated only or heated and unheated), use the column corresponding to the total square footage. The reason for this is that when the number of households is a control total, then the number is a design parameter of the survey and is not subject to sampling error. In these cases, the RSE of the total square footage is the same as the RSE of the mean. For all other cases, the error in the estimate of the number of households is part of the error in the estimate of the total square footage.

For example, consider the Northeast Census region. The weights for the observations used in the RECS were adjusted so that the number of households in the Northeast Census region equals 18.3 million. This adjustment makes this number of households a control total. When calculating the RSE of the total heated square footage in the Northeast Census region, use the column for mean heated square footage per housing unit. Extrapolating from Table C5 yields an RSE of 2.4 percent (using the equation in Table C9 yields an RSE of 2.37 percent). Next consider the 25.2 million housing units that were built in 1939 or earlier. This number of households is not a control total. When calculating the RSE of the total heated square footage for all housing units that were built in 1939 or earlier, use the column for total heated square footage. Extrapolating from Table C5 yields an RSE of 4.3 percent.

When calculating the RSE of averages, it is not necessary to worry about whether the number of households is a control total or not. It is necessary to carefully determine the number of households. For example, consider the calculation of the RSE of the average number of cords of wood burned over all households that burn wood and live in the Northeast Census region. There are 4.4 million households in this group. Use this number in determining the RSE, not the number of households in the Northeast Census region. Extrapolating from Table C6 yields an RSE of 10.2 percent.

When calculating the RSE for average annual heating degree-days in Table 58, the equation in Table C9 must be used. A table is not provided for extrapolating RSE's for this statistic. The equation involves the average heating degree-days as well as the number of households. A table displaying RSE's for statistics that are average annual heating degree-days would need to be two dimensional--one dimension for number of households and another dimension for average heating degree-days.

**Table C5. Relative Standard Errors for Statistics of Heated Square Footage of the Housing Unit**

Million Households	One Relative Standard Error (Percent)		
	Total Heated Square Footage	Mean Heated Square Feet	Mean Heated Square Feet
		Per Housing Unit	Per Household Member
0.1	51.6	21.8	28.2
0.2	37.6	16.2	20.8
0.3	31.3	13.7	17.3
0.4	27.4	12.1	15.2
0.5	24.7	11.0	13.8
0.6	22.8	10.2	12.7
0.7	21.2	9.5	11.9
0.8	20.0	9.0	11.2
0.9	18.9	8.6	10.6
1.0	18.0	8.2	10.1
1.5	15.0	6.9	8.5
2.0	13.1	6.1	7.4
3.0	10.9	5.1	6.2
4.0	9.6	4.5	5.5
5.0	8.6	4.1	5.0
10.0	6.3	3.1	3.6
20.0	4.6	2.3	2.7
40.0	3.3	1.7	2.0
86.3	2.4	1.2	1.4

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

**Table C6. Relative Standard Errors for Statistics of Square Footage of Housing Unit (Heated and Unheated), Wood Burned, and Indoor Temperatures**

Million Households	One Relative Standard Error (Percent)					
	Total Square Footage (Heated and Unheated)	Mean Square Footage Per Housing Unit (Heated and Unheated)	Total Cords of Wood Burned	Average Cords Burned Per Household	Winter Indoor Daytime Temperature When Someone Is Home	Summer Indoor Temperature of Air-Conditioned Area
					Winter Indoor Daytime Temperature When Someone Is Home	Summer Indoor Temperature of Air-Conditioned Area
0.1	52.0	23.2	58.3	46.0	2.3	2.7
0.2	37.9	17.2	44.6	35.0	1.7	2.1
0.3	31.4	14.4	38.1	29.8	1.4	1.7
0.4	27.6	12.8	34.1	26.5	1.2	1.5
0.5	24.9	11.6	31.3	24.3	1.1	1.4
0.6	22.9	10.7	29.2	22.6	1.0	1.3
0.7	21.3	10.0	27.5	21.3	1.0	1.2
0.8	20.1	9.5	26.1	20.2	0.9	1.2
0.9	19.0	9.0	24.9	19.2	0.9	1.1
1.0	18.1	8.6	23.9	18.5	0.8	1.1
1.5	15.0	7.2	20.5	15.7	0.7	0.9
2.0	13.2	6.4	18.3	14.0	0.6	0.8
3.0	11.0	5.4	15.6	11.9	0.5	0.7
4.0	9.6	4.7	14.0	10.6	0.5	0.6
5.0	8.7	4.3	12.8	9.7	0.4	0.5
10.0	6.3	3.2	9.8	7.4	0.3	0.4
20.0	4.6	2.4	7.5	5.6	0.2	0.3
40.0	3.3	1.8	5.7	4.3	0.2	0.2
86.3	2.4	1.3	(*)	(*)	0.1	0.2

\*Exceeds maximum number of households for this statistic.

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

**Table C7. Relative Standard Errors for Statistics of Average Number of Doors**

Million Households	One Relative Standard Error (Percent)						
	Sliding Glass Doors	Standard Doors	Doors (Standard and Sliding Glass)	Storm Doors			Sliding Glass and Standard
				Sliding Glass	Standard	Sliding Glass	
0.1	80.7	17.3	16.7	118.9	52.4	51.1	
0.2	61.2	13.1	12.8	89.0	38.3	37.1	
0.3	52.1	11.2	10.9	75.2	31.9	30.8	
0.4	46.4	10.0	9.8	66.7	28.0	26.9	
0.5	42.5	9.1	9.0	60.7	25.3	24.3	
0.6	39.5	8.5	8.4	56.3	23.3	22.3	
0.7	37.1	8.0	7.9	52.8	21.8	20.8	
0.8	35.2	7.6	7.5	49.9	20.5	19.6	
0.9	33.6	7.2	7.2	47.5	19.4	18.5	
1.0	32.2	6.9	6.9	45.5	18.5	17.7	
1.5	27.4	5.9	5.9	38.4	15.4	14.6	
2.0	24.4	5.3	5.3	34.1	13.6	12.8	
3.0	20.8	4.5	4.5	28.8	11.3	10.6	
4.0	18.5	4.0	4.0	25.5	9.9	9.3	
5.0	16.9	3.6	3.7	23.3	9.0	8.4	
10.0	12.9	2.8	2.8	17.4	6.6	6.1	
20.0	9.7	2.1	2.2	13.0	4.8	4.4	
40.0	7.4	1.6	1.7	9.8	3.5	3.2	
86.3	5.4	1.2	1.2	7.1	2.5	2.3	

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

**Table C8. Relative Standard Error for Statistics of Average Number of Windows, Inches of Insulation, and Number of Storm Windows or Storm Doors Added**

Million Households	One Relative Standard Error (Percent)						
	Windows	Storm Windows	Batts	Inches of Insulation			Storm Doors Added
				Loose Fill	Batts and Loose Fill	Storm Window Added	
0.1	20.7	49.3	22.8	26.6	18.8	36.3	18.3
0.2	15.5	35.7	16.2	19.3	13.8	26.8	13.7
0.3	13.1	29.6	13.3	16.0	11.5	22.4	11.6
0.4	11.6	25.8	11.5	14.0	10.1	19.7	10.3
0.5	10.6	23.3	10.3	12.7	9.2	17.9	9.4
0.6	9.8	21.4	9.4	11.6	8.4	16.5	8.7
0.7	9.2	19.9	8.8	10.8	7.9	15.4	8.2
0.8	8.7	18.7	8.2	10.2	7.4	14.5	7.7
0.9	8.2	17.7	7.7	9.7	7.0	13.8	7.3
1.0	7.9	16.9	7.3	9.2	6.7	13.2	7.0
1.5	6.7	14.0	6.0	7.6	5.6	11.0	5.9
2.0	5.9	12.2	5.2	6.7	4.9	9.7	5.3
3.0	5.0	10.1	4.3	5.5	4.1	8.1	4.5
4.0	4.4	8.8	3.7	4.9	3.6	7.2	3.9
5.0	4.0	8.0	3.3	4.4	3.3	(*)	(*)
10.0	3.0	5.8	2.4	3.2	2.4	(*)	(*)
20.0	2.2	4.2	1.7	2.3	(*)	(*)	(*)
40.0	1.7	3.0	1.2	(*)	(*)	(*)	(*)
86.3	1.3	2.3	(*)	(*)	(*)	(*)	(*)

\*Exceeds maximum number of households for this statistic.

Note: For inches of insulation, "million households" equals the number that report having that type of insulation. For storm windows or doors added, "million households" equals the number adding storm windows or doors.

Source: Energy Information Administration, Office of Energy Markets and End Use,  
The 1984 Residential Energy Consumption Survey.

**Table C9. Relative Standard Error Equations**

Type of Statistic	Generalized Variance Equation
Million Households .....	$\text{Log(RSE)} = 1.230 - 0.443 \times \text{Log(NHSLD)}$ - 0.033 x 0(Log(NHSLD))2E.
Total Heated Square Footage .....	$\text{Log(RSE)} = 1.256 - 0.457 \times \text{Log(NHSLD)}$ .
Mean Heated Square Feet Per Housing Unit .....	$\text{Log(RSE)} = 0.913 - 0.426 \times \text{Log(NHSLD)}$ .
Mean Heated Square Feet Per Household Member .....	$\text{Log(RSE)} = 1.006 - 0.445 \times \text{Log(NHSLD)}$ .
Total Square Footage (Heated and Unheated) .....	$\text{Log(RSE)} = 1.258 - 0.458 \times \text{Log(NHSLD)}$ .
Mean Square Footage Per Housing Unit (Heated and Unheated) .....	$\text{Log(RSE)} = 0.934 - 0.431 \times \text{Log(NHSLD)}$ .
Annual Heating Degree-Days (April 1984 Through March 1985) .....	$\text{Log(RSE)} = 1.485 - 0.361 \times \text{Log(NHSLD)}$ - 0.145 x (AVEHDD/1,000).
Total Cords of Wood Burned .....	$\text{Log(RSE)} = 1.379 - 0.387 \times \text{Log(NHSLD)}$ .
Average Cords Burned Per Household .....	$\text{Log(RSE)} = 1.266 - 0.397 \times \text{Log(NHSLD)}$ .
Indoor Winter Daytime Temperatures When Someone Is Home .....	$\text{Log(RSE)} = -0.079 - 0.439 \times \text{Log(NHSLD)}$ .
Indoor Summer Temperature of Air-Conditioned Area .....	$\text{Log(RSE)} = 0.022 - 0.416 \times \text{Log(NHSLD)}$ .
Average Per Household	
Sliding Glass Doors .....	$\text{Log(RSE)} = 1.508 - 0.399 \times \text{Log(NHSLD)}$ .
Standard Doors .....	$\text{Log(RSE)} = 0.840 - 0.398 \times \text{Log(NHSLD)}$ .
Doors (Sliding Glass and Standard) .....	$\text{Log(RSE)} = 0.837 - 0.385 \times \text{Log(NHSLD)}$ .
Sliding Glass Storm Doors .....	$\text{Log(RSE)} = 1.658 - 0.417 \times \text{Log(NHSLD)}$ .
Standard Storm Doors .....	$\text{Log(RSE)} = 1.268 - 0.451 \times \text{Log(NHSLD)}$ .
Storm Doors (Sliding Glass and Standard) .....	$\text{Log(RSE)} = 1.247 - 0.461 \times \text{Log(NHSLD)}$ .
Windows .....	$\text{Log(RSE)} = 0.897 - 0.420 \times \text{Log(NHSLD)}$ .
Storm Windows .....	$\text{Log(RSE)} = 1.227 - 0.466 \times \text{Log(NHSLD)}$ .
Inches of Batt Insulation .....	$\text{Log(RSE)} = 0.866 - 0.491 \times \text{Log(NHSLD)}$ .
Inches of Loose Fill Insulation .....	$\text{Log(RSE)} = 0.964 - 0.461 \times \text{Log(NHSLD)}$ .
Inches of Batts and Loose Fill Insulation .....	$\text{Log(RSE)} = 0.827 - 0.448 \times \text{Log(NHSLD)}$ .
Storm Windows Added .....	$\text{Log(RSE)} = 1.120 - 0.440 \times \text{Log(NHSLD)}$ .
Storm Doors Added .....	$\text{Log(RSE)} = 0.847 - 0.416 \times \text{Log(NHSLD)}$ .

Note: •NHSLD is the number of households in millions. •Logarithms are calculated to the base 10. •AVEHDD is the Average Annual Heating Degree-Days.

Source: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

## Appendix D

## **Survey Forms**



## Appendix D

# Survey Forms

This Appendix contains copies of the survey forms used in the 1984 Residential Energy Consumption Survey.

- EIA-457A Housing Unit Record Sheet (actual form was pink).
- EIA-457B Household Questionnaire (actual form had a tan cover).
- EIA-457E Electricity Utility Form (actual form was yellow).
- EIA-457F Natural Gas Utility Form (actual form was pink).
- EIA-457G Fuel Oil/Kerosene Supplier Form (actual form was green).
- EIA-457H Liquefied Petroleum Gas Supplier Form (actual form was blue).

HOUSING UNIT RECORD SHEET

<p>Use questionnaire that does <u>not</u> have a red dot on the cover for this housing unit.</p>	
<p>Address (or description)</p>	<p>State _____ Zip _____</p>
<p>Post Office (city or town)</p>	

## INTRODUCTION

Hello! I'm from Response Analysis, a survey organization in Princeton, New Jersey. We are working on a national survey for the U.S. Department of Energy. May I speak to the head of household, please?

**CONTINUE WITH ROSENBERGER, ONE OF FOUNDER'S UK SPONSOR/PARTNER.**  
We would like to ask some questions about your home, about heating related topics.

**HAND PRIVACY ACT NOTICE TO RESPONDENT.** This notice explains that by the Privacy Act of 1974 and will remain confidential.

CONTINUE WITH INTERVIEW

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UNIVERSITY PRESS

- MOBILE HOME OR TRAILER

ONE-FAMILY HOUSE--DETACHED

ONE-FAMILY HOUSE--ATTACHED ON ONE SIDE (SEMI-DETACHED)

ONE-FAMILY HOUSE--ATTACHED ON TWO SIDES

DETACHED HOUSES WITH ONE OR MORE UNITS ATTACHED ON ONE SIDE ARE NOT CLASSIFIED AS SEMI-DETACHED.

HOUSE OR BUILDING WITH 2-4 HOUSING UNITS--ATTACHED ON ONE SIDE  
 HOUSE OR BUILDING WITH 2-4 HOUSING UNITS--ATTACHED ON TWO SIDES

PRINTED ON TWO SIDES  
MARK ANSWERS:  
NUMBER OF HOUSING UNITS: \_\_\_\_\_  
NUMBER OF FLOORS (STOREYS): \_\_\_\_\_

11.1 [ ] OTHER--DESCRIBE IN DETAIL ANY STRUCTURE THAT DOES NOT FIT ONE OF ABOVE. (INCLUDE NUMBER OF UNITS AND FLOORS)

### Interviewer

<b>(2) TYPE OF OCCUPANCY OF HOUSING UNIT</b>															
<table border="1"> <tr> <td><input type="checkbox"/> <b>YEAR-ROUND UNIT</b></td> <td colspan="3">MARK ANSWER WHETHER HOUSING UNIT IS OCCUPIED OR VACANT - SEE P.13 OF INSTRUCTION BOOKLET FOR INTERVIEWERS.</td> </tr> <tr> <td><input type="checkbox"/> <b>SEASONAL UNIT</b></td> <td colspan="3"></td> </tr> <tr> <td><input type="checkbox"/> <b>MIGRATORY UNIT</b></td> <td colspan="3"></td> </tr> </table>				<input type="checkbox"/> <b>YEAR-ROUND UNIT</b>	MARK ANSWER WHETHER HOUSING UNIT IS OCCUPIED OR VACANT - SEE P.13 OF INSTRUCTION BOOKLET FOR INTERVIEWERS.			<input type="checkbox"/> <b>SEASONAL UNIT</b>				<input type="checkbox"/> <b>MIGRATORY UNIT</b>			
<input type="checkbox"/> <b>YEAR-ROUND UNIT</b>	MARK ANSWER WHETHER HOUSING UNIT IS OCCUPIED OR VACANT - SEE P.13 OF INSTRUCTION BOOKLET FOR INTERVIEWERS.														
<input type="checkbox"/> <b>SEASONAL UNIT</b>															
<input type="checkbox"/> <b>MIGRATORY UNIT</b>															
<b>(3) RECORD OF VISITS TO HOUSING UNIT</b>															
Visit number	Time of day (include AM or PM)	Date	Day of Week												
			Result or Comments												

**(4) USE THIS SPACE FOR ADDITIONAL NOTES OR COMMENTS ABOUT VISITS TO THIS HOUSEHOLD.  
DESCRIBE FULLY IF REFUSAL OR OTHER NONINTERVIEW.**

**(5) NAME AND PHONE NUMBER OF HOUSEHOLDER (OR ONE OF HOUSEHOLDERS)**

Name	Phone number
	Area Code ( )

**(6) INTERVIEWER'S NAME AND I.D. NUMBER**

Interviewer	I.D. number
-------------	-------------

TIME INTERVIEW STARTED  
AM  
PM

Form Approved  
OMB No. 1905-0092 - EIA 4578  
(Expires August 31, 1986)

This survey is voluntary and authorized under the Federal Energy Administration Act of 1974 (Public Law 93-275) as amended. Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

## Residential Energy Consumption Survey

Fall-Winter • 1984-1985



## Energy Information Administration

U.S. Department of Energy

1. In what year did your family move into this (house/apartment)?
- |    |                                      |    |                                    |
|----|--------------------------------------|----|------------------------------------|
| 01 | <input type="checkbox"/> BEFORE 1940 | 08 | <input type="checkbox"/> 1977-1979 |
| 02 | <input type="checkbox"/> 1940-1949   | 09 | <input type="checkbox"/> 1980      |
| 03 | <input type="checkbox"/> 1950-1959   | 10 | <input type="checkbox"/> 1981      |
| 04 | <input type="checkbox"/> 1960-1964   | 11 | <input type="checkbox"/> 1982      |
| 05 | <input type="checkbox"/> 1965-1969   | 12 | <input type="checkbox"/> 1983      |
| 06 | <input type="checkbox"/> 1970-1974   | 13 | <input type="checkbox"/> 1984      |
| 07 | <input type="checkbox"/> 1975-1976   | 14 | <input type="checkbox"/> 1985      |
- IF "1984" OR "1985", ASK:
2. In which month did you move in?  
(SPECIFY MONTH AND ENTER LAST DIGIT  
OF YEAR.)

123-124

YEAR: 198 —

3. In what year was this (house/building) built?  
Just your estimate.
- |    |                                      |    |                                    |
|----|--------------------------------------|----|------------------------------------|
| 01 | <input type="checkbox"/> BEFORE 1940 | 08 | <input type="checkbox"/> 1977-1979 |
| 02 | <input type="checkbox"/> 1940-1949   | 09 | <input type="checkbox"/> 1980      |
| 03 | <input type="checkbox"/> 1950-1959   | 10 | <input type="checkbox"/> 1981      |
| 04 | <input type="checkbox"/> 1960-1964   | 11 | <input type="checkbox"/> 1982      |
| 05 | <input type="checkbox"/> 1965-1969   | 12 | <input type="checkbox"/> 1983      |
| 06 | <input type="checkbox"/> 1970-1974   | 13 | <input type="checkbox"/> 1984      |
| 07 | <input type="checkbox"/> 1975-1976   | 14 | <input type="checkbox"/> 1985      |

4. Altogether (counting all) areas that are used as year-round living space, how many rooms do you have in your living quarters? Do not count bathrooms, unheated porches, foyers, or hallways. (SEE INSTRUCTION BELOW.)
5. How many complete bathrooms and how many half-bathrooms do you have? (A complete bathroom is a room with a flush toilet, bathtub or shower, and a sink/washbasin with running water. A half-bath has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.)

NUMBER OF  
ROOMS:

127-128

NUMBER OF COMPLETE BATHROOMS:	<input type="checkbox"/>
NUMBER OF HALF BATHROOMS:	<input type="checkbox"/> NONE
[ ] NONE	129
[ ] NONE	130

## INTERVIEWER INSTRUCTIONS:

Q. 4 -- Generally count any room as long as it is a comfortable place to rest, read, study, etc., year-round.

Do not count laundry rooms, unfinished attics or basements, open porches, or unfinished space used for storage.

**HAND RESPONDENT EXHIBIT 6/7/10**

6. What is the main fuel used for heating your home?  
(SEE INSTRUCTIONS BELOW.)

	MAIN FUEL (MARK ONLY ONE)	Q. 6 MAIN FUEL (MARK ONLY ONE)	Q. 7 MARK ALL THAT APPLY
GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD	02 [ ]	02 [ ]	131- 132
LPG GAS (BOTTLED OR TANK GAS)	02 [ ]	02 [ ]	133
FUEL OIL	03 [ ]	03 [ ]	134
KEROSENE OR COAL OIL	04 [ ]	04 [ ]	135
ELECTRICITY	05 [ ]	05 [ ]	136
COAL OR COKE	06 [ ]	06 [ ]	137
WOOD	07 [ ]	07 [ ]	138
SOLAR COLLECTORS	08 [ ]	08 [ ]	139
OTHER (SPECIFY):	21 [ ]	21 [ ]	140
DON'T KNOW	96 [ ]	96 [ ]	141
NO HEATING FUEL USED -- TAKE BACK EXHIBIT 6/7/10; SKIP TO Q. 32. . . . .	00 [ ]		142
NO ADDITIONAL FUEL -- SKIP TO Q. 9 . . . . .			143

7. What other fuels, if any, are used to heat your home -- including those that are used to provide heat just occasionally?

**MARK ALL THAT APPLY --  
(IF NONE, MARK "NO ADDITIONAL FUEL")**

**IF ONE OR MORE ADDITIONAL FUELS MENTIONED IN Q. 7. ASK:**

8. Does your main heating fuel -- (FUEL NAMED IN Q. 6) -- provide almost all of the heat for your home, about three-fourths, or closer to half of the heat for your home?

- 1 [ ] ALMOST ALL (MORE THAN 95%)  
2 [ ] ABOUT THREE-FOURTHS (67-90%)  
3 [ ] CLOSER TO HALF (60% OR LESS)

144

9. In November of 1982 was the main fuel used to heat this (house/apartment)? The same as it is now?

- 1 [ ] YES -- SKIP TO Q. 12  
0 [ ] NO -- ASK Q. 10  
5 [ ] NO FUEL USED IN 1982-- SKIP TO Q. 12  
6 [ ] DON'T KNOW -- SKIP TO Q. 12

10. What was the main fuel used to heat this (house/apartment) in November of 1982?

- 1 [ ] GAS FROM UNDERGROUND PIPES  
SERVING THE NEIGHBORHOOD  
02 [ ] LPG GAS (BOTTLED OR TANK GAS)  
03 [ ] FUEL OIL  
04 [ ] KEROSENE OR COAL OIL  
05 [ ] ELECTRICITY  
06 [ ] COAL OR COKE  
07 [ ] WOOD  
08 [ ] SOLAR COLLECTORS  
22 [ ] OTHER (SPECIFY):

95 [ ] NO FUEL USED

96 [ ] DON'T KNOW

11. In what month and year was the main heating fuel changed?

- MONTH: 198 \_\_\_\_\_  
YEAR: 198 \_\_\_\_\_

148-149

150-151

**INTERVIEWER INSTRUCTIONS:**

- Q. 6 -- If two or more heating fuels are used, the main heating fuel is one that provides most of the heat for the home.  
Q. 6-7 -- If household recently converted to a different fuel, or is in the process of conversion, mark answer for fuel(s) in use for winter of 1984-1985.

TURN TO EXHIBIT 12/13

12. What is the main heating equipment used with your main heating fuel? HOT WATER PIPES RUNNING THROUGH A SLAB FLOOR (RADIANT HEATING)
- Q. 12 MAIN EQUIPMENT MARK  
ALL THAT 152-  
ONLY ONE APPLY 153
- 154 [ ] 155 [ ] 156 [ ] 157 [ ] 158 [ ] 159 [ ] 160 [ ] 161 [ ] 162 [ ] 163 [ ] 164 [ ] 165 [ ] 166 [ ] 167 [ ]
18. At what temperature do you usually keep your home during the day in the wintertime when someone is at home? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 173-174
19. At what temperature do you usually keep your home during the day in the wintertime when no one is at home? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 175-176
20. At what temperature do you usually keep your home during sleeping hours in the wintertime? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 177-178

14. For the central warm-air furnace, is the warm air forced through the ducts by a fan? IF "CENTRAL WARM-AIR FURNACE" MENTIONED IN Q. 12 OR Q. 13, ASK:
- 1 [ ] YES  
0 [ ] NO  
6 [ ] DON'T KNOW
15. Is the heating stove airtight? IF "HEATING STOVE BURNING WOOD, COAL, COKE" MENTIONED IN Q. 12 OR Q. 13, ASK:
- 2 [ ] YES  
0 [ ] NO  
6 [ ] DON'T KNOW
16. How old is your main heating equipment, just approximately? IF SINGLE FAMILY HOME OR MOBILE HOME, ASK Q. 16. OTHERWISE SKIP TO Q. 17.
- (INTERVIEWER: PROBE FOR BEST GUESS.)
- 1 [ ] LESS THAN 2 YEARS OLD  
2 [ ] 2-4 YEARS OLD  
3 [ ] 5-9 YEARS OLD
- 4 [ ] 10-14 YEARS OLD  
5 [ ] 15 YEARS OLD OR OLDER  
6 [ ] DON'T KNOW

17. Does the main equipment for heating your home also heat one or more other apartments, households or businesses? IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 17. OTHERWISE SKIP TO Q. 18.
- 0 [ ] NO, RESPONDENT'S HOME ONLY  
1 [ ] YES, HOME HEATING EQUIPMENT IS FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
6 [ ] DON'T KNOW
18. At what temperature do you usually keep your home during the day in the wintertime when someone is at home? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 171
19. At what temperature do you usually keep your home during the day in the wintertime when no one is at home? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 172
20. At what temperature do you usually keep your home during sleeping hours in the wintertime? (SEE INSTRUCTION BELOW.)
- DEGREES FAHRENHEIT: 173
21. Please look at this list and tell me the ways, if any, you use to adjust the temperature in your home during the heating season. (MARK ALL THAT APPL.)
- 1 [ ] THERMOSTAT FOR MAIN HEATING EQUIPMENT  
2 [ ] THERMOSTAT FOR SUPPLEMENTAL HEATING EQUIPMENT  
3 [ ] OPENING AND CLOSING WINDOWS OR DOORS  
4 [ ] OPENING AND CLOSING HOT AIR VENTS  
5 [ ] TURN HEATER ON OR OFF (UP OR DOWN)  
6 [ ] TURN RADIATORS OR CONVECTORS ON OR OFF  
7 [ ] ADJUST DRAFT OR AMOUNT OF FUEL FOR WOOD OR COAL FIRE  
8 [ ] USE COOKING STOVE, OVEN, OR RANGE TO HEAT HOME  
9 [ ] OTHER (SPECIFY): OTHER (SPECIFY):  
10 [ ] NO WAY TO ADJUST THE TEMPERATURE

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### INTERVIEWER INSTRUCTIONS:

- Q. 18-20 -- If respondent keeps different sections of the house at different temperatures, we want to know the temperature in the part of the house where the people are. If, for example, the heat is turned off upstairs during the day because the family is downstairs, we want the downstairs temperature.
- If the respondent doesn't know temperature, but does know thermostat setting, record thermostat setting. Otherwise, probe for best estimate.

## TURN TO EXHIBIT 22/23

22.. During the last winter -- from October 1983 to April 1984 -- was there any period of 2 hours or more when you wanted to use your main source of heat but could not use it for any of these reasons? (INTERVIEWER: READ AND MARK "YES" OR "NO" FOR EACH ITEM. SEE INSTRUCTION BELOW IF RESPONDENT REPORTS LIVING AT ANOTHER ADDRESS DURING ALL OR PART OF THE OCTOBER 1983 TO APRIL 1984 PERIOD.)

- a. Unable to pay for heating fuel . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- b. Unable to pay for electricity to start main in heating equipment . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- c. Landlord did not provide heat . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- d. Heating system was broken or under repair . . . . . . . . . . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- e. Fuel shortage in your area (company had no fuel to sell) . . . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- f. Power outage . . . . . . . . . . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- g. Gas line was broken. . . . . . . . . . . .  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS
- h. Other reason (Specify): \_\_\_\_\_  YES  NO \_\_\_\_\_ HOURS OR \_\_\_\_\_ DAYS

## FOR EACH "YES" MARKED ABOVE, ASK:

23. Now think of all the times you were without your main source of heat because (REPEAT ITEM FROM Q. 22). Altogether about how many hours or days were you without heat for that reason? \_\_\_\_\_

TAKE BACK EXHIBIT 22/23

## IF ONE OR MORE ITEMS MARKED "YES" IN Q. 22, ASK:

24. How many different times were you without your main source of heat during the last winter -- from October 1983 to April 1984?

25. During the time your home was without your main source of heat, were you able to heat your home in some other way? \_\_\_\_\_

26. How were you able to heat your home? \_\_\_\_\_  
(INTERVIEWER, WRITE DOWN WHATEVER RESPONDENT REPORTS.)

## IF "YES" OR "OTHER ANSWER", ASK:

26. How were you able to heat your home?  
(INTERVIEWER, WRITE DOWN WHATEVER RESPONDENT REPORTS.)

## 27. Has any wood been burned in your home in the past 12 months?

- YES  
 NO -- SKIP TO Q. 32

248

249

## IF "YES" HAND RESPONSENT EXHIBIT 28, AND ASK:

28. This exhibit illustrates about one cord of wood. Did your household burn less than this amount, or about this amount or more? \_\_\_\_\_
- IF "LESS THAN ONE CORD," ON Q. 28, TURN TO EXHIBIT 29 AND ASK:
29. Which of these is most nearly the amount of wood burned in your household in the past 12 months?
- A FEW LOGS OR SCRAPS OF WOOD
  - 1/4 TO 1/3 OF A CORD
  - 1/2 CORD (ABOUT ONE PICK-UP TRUCK OF WOOD)
  - OVER 1/2 CORD BUT LESS THAN A FULL CORD

TAKE BACK EXHIBIT 29; SKIP TO Q. 31

## IF "ONE CORD OR MORE" ON Q. 28, TURN TO EXHIBIT 30 AND ASK:

30. This exhibit shows wood piles of different sizes. Just using these as general reference points, about how many cords of wood did you burn in your household in the past 12 months? (SEE INSTRUCTION BELOW.)

TAKE BACK EXHIBIT 30; ASK Q. 31

251-253

NUMBER OF CORDS: \_\_\_\_\_

- YES  
 NO

254

247

## INTERVIEWER INSTRUCTIONS:

- Q. 30 -- Exhibit 30 is intended only for general reference. Probe for respondent's best estimate of number of cords burned -- this, of course, will ordinarily be a number different from the specific quantities shown on the exhibit. Record answer to nearest cord, or cord plus fraction, as given by respondent (for example: 1, 1-1/2, 4, 10, 12, and so on).

HAND RESPONDENT EXHIBIT 32/34

32. Which fuel is used most for heating water (other than just for cooking purposes)?
- 01 [ ] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD  
 02 [ ] LPG GAS (BOTTLED OR TANK GAS)
- 03 [ ] FUEL OIL  
 04 [ ] KEROSENE OR COAL OIL  
 05 [ ] ELECTRICITY  
 06 [ ] COAL OR COKE  
 07 [ ] WOOD  
 08 [ ] SOLAR COLLECTORS  
 21 [ ] OTHER (SPECIFY): \_\_\_\_\_

00 [ ] NO FUEL USED -- TAKE BACK EXHIBIT  
 32/34 SKIP TO Q. 38

96 [ ] DON'T KNOW

IF ONE-FAMILY HOUSE OR MOBILE HOME, ASK:  
 36. About how old is your water heater, just approximately? (INTERVIEWER: PROBE FOR BEST GUESS.)

261  
 1 [ ] LESS THAN 2 YEARS  
 2 [ ] 2 - 4 YEARS  
 3 [ ] 5 - 9 YEARS  
 4 [ ] 10 - 14 YEARS  
 5 [ ] 15 YEARS OR MORE  
 6 [ ] DON'T KNOW  
 0 [ ] DO NOT HAVE A HOT WATER HEATER

33. In addition to your main fuel, do you use any other fuel for heating water (other than just for cooking purposes)?

IF "YES," ASK:

34. What is the additional fuel?

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses? OTHERWISE SKIP TO Q. 38

262  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

263  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

264  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

265  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

266  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

267  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

268  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

269  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

270  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

271  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

272  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

273  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

274  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

275  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

276  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

277  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

278  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

279  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

37. Does the equipment for heating water for your home also heat water for one or more other apartments, houses, or businesses?

280  
 0 [ ] NO; HOT WATER EQUIPMENT IS FOR RESPONDENT'S HOME ONLY  
 1 [ ] YES; HOT WATER EQUIPMENT HEATS WATER FOR ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 6 [ ] DON'T KNOW

38. Do you have air-conditioning equipment, either a central system or individual window or wall units? (MARK ALL THAT APPLY.)
- YES, CENTRAL SYSTEM  
 YES, INDIVIDUAL (WINDOW/WALL) UNITS  
 NO -- SKIP TO Q. 45

IF "INDIVIDUAL (WINDOW/WALL) UNITS" ON Q. 38, ASK:  
 39. How many individual window or wall units do you have?

- 263  
 YES, CENTRAL SYSTEM  
 YES, INDIVIDUAL (WINDOW/WALL) UNITS  
 NO -- SKIP TO Q. 45
- 264  
 YES, INDIVIDUAL (WINDOW/WALL) UNITS  
 NO -- SKIP TO Q. 45

HAND RESPONDENT EXHIBIT 43

40. Does the central air-conditioning system use electricity, gas from underground pipes, or LPG?
- ELECTRICITY  
 GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD  
 LPG GAS (BOTTLED OR TANK GAS)  
 DON'T KNOW

- IF "CENTRAL SYSTEM" ON Q. 38, ASK:  
 41. Does the air conditioning equipment that cools your home also cool other apartments, houses, or businesses?
- NO, A/C IS FOR RESPONDENT'S HOME ONLY  
 YES, A/C COOLS ONE OR MORE OTHER APARTMENTS, HOUSES, OR BUSINESSES  
 DON'T KNOW

- 267  
 YES, INDIVIDUAL (WINDOW/WALL) UNITS  
 NO -- SKIP TO Q. 46
- 265-

NUMBER OF UNITS:

45. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)
- NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

307-308:03  
 311-312

311-312

46. Please look at this exhibit of different kinds of doors. How many of each of these types of doors do you have?

- Q. 46  
 NUMBER OF DOORS  
 NUMBER WITH STORM DOOR OR INSULATING GLASS  
 Q. 47  
 NUMBER OF STORMY INSULATING DOORS PUT IN SINCE SEPT. 1, 1982  
 Q. 49  
 MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

a. Sliding glass doors  
 NONE 313   NONE 314

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

b. Other doors to the outside  
 NONE 320   NONE 321

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

47. (Does/How many of the doors) have (a storm door/ storm doors) or insulating glass?

FOR EACH TYPE OF STORM DOOR OR DOOR WITH INSULATING GLASS, ASK:

48. How many of the (stormy/insulated glass) doors were put in your home since September 1, 1982? \_\_\_\_\_

IF ONE OR MORE, ASK:

49. In what month and year (was it/were they) installed? \_\_\_\_\_

45. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

315  
 316-319

316  
 319

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

50. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

323-326  
 323-326

323  
 324

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

51. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

52. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

53. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

54. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

55. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

56. How many doors do you have in your home that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NONE -- SKIP TO Q. 50

NUMBER OF DOORS:

322  
 322

MONTH: \_\_\_\_\_  
 YEAR: 198 \_\_\_\_\_

### INTERVIEWER INSTRUCTIONS:

- Q. 44 -- If respondent keeps different sections of the house at different temperatures, we want to know the temperature in the part of the house where the people are. If, for example, the air conditioning is turned off upstairs during the day because the family is downstairs, we want the downstairs temperature.
- If the respondent doesn't know temperature, but does know thermostat setting, record thermostat setting. Otherwise, probe for best estimate.

50. How many windows do you have in your home? Please include basement, attic, garage, and porch windows only if these areas are heated. (SEE INSTRUCTION BELOW.)

Q. 50 NUMBER OF WINDOWS	Q. 51 NUMBER WITH STORM WINDOWS OR INSULATING GLASS	Q. 52 NUMBER OF STORM WINDOWS PUT IN SINCE SEPT. 1, 1982
<input type="checkbox"/> NONE 327-328	<input type="checkbox"/> NONE 329-330	MONTH: 198 YEAR: 331-332 [ ] IN PROCESS 333-336

51. How many of the windows have storm windows or insulating glass? (SEE INSTRUCTION BELOW.)

IF ONE OR MORE WINDOWS WITH STORM WINDOWS OR INSULATING GLASS, ASK:

52. How many of the storm windows or windows with insulating glass were put in your home since September 1, 1982?

IF ONE OR MORE ASK:

53. In what month and year were they put in?

↑

↑

IF THE NUMBER OF WINDOWS IN Q. 50 IS GREATER THAN THE NUMBER OF WINDOWS WITH STORM WINDOWS OR INSULATING GLASS IN Q. 51, ASK:

54. You have mentioned that one or more of your windows does not have a storm window or insulating glass. For any of these windows without storm windows or insulating glass, do you use insulating drapes, plastic sheets or other protection?

IF "YES," ASK:

55. Thinking now only of your windows without storm windows or insulating glass, about how many windows have insulating drapes, plastic sheets or other protection?

NUMBER WITH PROTECTION:  336-339

#### INTERVIEWER INSTRUCTIONS:

Q. 50 -- Each window that opens separately should be counted as one window. Also count windows that are fixed in place. Do not include windows (glass panel(s) in doors).

Q. 51 -- Windows made of double glass and other types of insulating glass count the same as storm windows.

Q. 52 -- Count as "In Process" any work started but not yet completed. Do not count work done before this household moved in.

IF ONE-FAMILY HOUSE OR MOBILE HOME, ASK Q. 56ff. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 72 ON PAGE 17.

56. Do you have roof or ceiling insulation in your home?

IF "YES," HAND RESPONDENT EXHIBIT 57 AND ASK:

57. About how much of the roof or ceiling area is insulated?

IF "YES," ASK:

TURN TO EXHIBIT 58

58. This exhibit shows different kinds of insulation. Please tell me whether or not you have each one in your roof or ceiling area.

1 [ ] YES	6 [ ] DON'T KNOW -- SKIP TO Q. 62	340
0 [ ] NO	5 [ ] SKIP TO Q. 62	
5 [ ] 1/4 ( 5 - 33%)	1 [ ] 1/2 ( 34 - 66%)	342
2 [ ] 3/4 ( 67 - 95%)	3 [ ] ALL ( 96 - 100%)	
		343-344
		345
		346-347

FOR EACH "YES," ASK:

59. About how many inches of (INSULATION TYPE) do you have in your roof or ceiling area?

TAKE BACK EXHIBIT 58

60. Was any of the roof or ceiling insulation added or installed in your home since September 1, 1982?

INTERVIEWER: COUNT AS "IN PROCESS" ANY WORK STARTED BUT NOT YET COMPLETED. DO NOT COUNT ANY CHANGES MADE BEFORE THIS HOUSEHOLD MOVED IN. IF "YES," ASK:

61. In what month and year was the work completed?

MONTH: 198  
YEAR: 198  
[ ] IN PROCESS 358-361

CONTINUE IF ONE FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 65

62. Do you have insulation in all, some, or none of the outside walls of your home?

- 1 [ ] ALL  
2 [ ] SOME  
0 [ ] NONE -- SKIP TO Q. 65  
6 [ ] DON'T KNOW -- SKIP TO Q. 65
- IF "ALL" OR "SOME," ASK:
63. Was any of the insulation in the outside walls added or installed in your home since September 1, 1982?  
(SEE INSTRUCTION AT BOTTOM OF FACING PAGE.)

IF "YES," ASK:

64. In what month and year was the work completed?  
(SEE INSTRUCTION AT BOTTOM OF FACING PAGE.)

HAND RESPONDENT EXHIBIT 65

65. Please look at this list and as I read each item, tell me which, if any, you have in your home:

Q. 65	Q. 66	Q. 67
HAVE SOME IN HOME	INSTALLED SINCE SEPTEMBER 1, 1982	MONTH/YEAR INSTALLED
1 [ ] YES	1 [ ] YES	0-67
0 [ ] NO	0 [ ] NO	MONTH: YEAR: 198
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	[ ] IN PROCESS
	368	370-373
1 [ ] YES	1 [ ] YES	369
0 [ ] NO	0 [ ] NO	MONTH: YEAR: 198
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	[ ] IN PROCESS
	374	375-379
1 [ ] YES	1 [ ] YES	407-
0 [ ] NO	0 [ ] NO	408-
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	404
	412	413-416
1 [ ] YES	2 [ ] YES	412-
0 [ ] NO	0 [ ] NO	MONTH: YEAR: 198
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	[ ] IN PROCESS
	417	418-422
1 [ ] YES	1 [ ] YES	423
0 [ ] NO	0 [ ] NO	MONTH: YEAR: 198
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	[ ] IN PROCESS
	424	425-428
1 [ ] YES	2 [ ] YES	425-
0 [ ] NO	0 [ ] NO	MONTH: YEAR: 198
6 [ ] DON'T KNOW	2 [ ] IN PROCESS	[ ] IN PROCESS
	429	431-434

FOR EACH "YES" ON Q. 65, ASK:

66. Was any of the -- (SPECIFIED ITEM) -- added or installed since September 1, 1982?  
(SEE INSTRUCTION AT BOTTOM OF FACING PAGE.)
- IF "YES," ASK:
67. In what month and year was the work completed?  
(SEE INSTRUCTION AT BOTTOM OF FACING PAGE.)

FOR EACH "YES," ASK:

68. Please look at this list and as I read each item tell me which, if any, have been added or installed in your home since September 1, 1982. (SEE INSTRUCTION AT BOTTOM OF PAGE.)
- TURN TO EXHIBIT 68
69. In what month and year was the work completed?  
(SEE INSTRUCTION BELOW.)

TAKE BACK EXHIBIT 68

### INTERVIEWER INSTRUCTIONS:

- Was item added or installed since September 1, 1982 (Q. 63,66,68) -- Mark "Yes," "No," or "In Process" for each item. Count as "In Process" any work started but not yet completed. Do not count any changes made before this household moved in. Month/year installed (Q. 64,67,69) -- If household has done item more than once, write down the most recent date.

CONTINUE IF ONE-FAMILY HOUSE OR MOBILE HOME. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 72

507-

508-5

70. Do you have a heated swimming pool, hot tub or jacuzzi? (DO NOT COUNT A CHILDREN'S WADING POOL AS A SWIMMING POOL.)

YES  NO

YES  NO

YES  NO

YES  NO

71. What fuel is used to heat the water?  
(IF MORE THAN ONE FUEL IS USED, CHECK FUEL USED MOST.)

GAS FROM UNDERGROUND PIPES  
SERVING THE NEIGHBORHOOD

LPG GAS (BOTTLED OR TANK GAS)

FUEL OIL

KEROSENE OR COAL OIL

ELECTRICITY

COAL OR COKE

WOOD

SOLAR COLLECTORS

OTHER (SPECIFY): \_\_\_\_\_

511-513

IF "YES" ON HEATED SWIMMING POOL, HOT TUB  
OR JACUZZI, ASK:

HAND RESPONDENT EXHIBIT 71

514-

515

72. This next question is a summary for calendar year 1983 only -- I have asked about some of this in the last few questions, but just to sum up, did your household pay for the cost of any of these items that were added or installed in your home between January and December 1983? (MARK "YES" IF HOUSEHOLD PAID FOR EITHER MATERIALS OR LABOR.)

YES

NO (NONE PAID FOR, OR NONE INSTALLED) --

TAKE BACK EXHIBIT 72  
AND SKIP TO Q. 76

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ASK EVERYONE

Now some suggestions about cars:

6. How many members of your household can drive a car?

NUMBER OF  
DRIVERS:

525-
526

HAND RESPONDENT EXHIBIT 77

7. Do you or other members of your household own or have the regular use of any cars, trucks, vans, or similar vehicles? (DO NOT INCLUDE MOTORCYCLES OR MOPEDS. SEE INSTRUCTION

IE "YES" ASX:

78. How many do you have?

9. Which type(s) do you have?  
(SEE INSTRUCTION BELOW.)

TAKE BACK EXHIBIT 77

Please tell me the make and model year (of each one). ENTER LAST

MAKE	534-535	557-558	615-616	638-639
MODEL	19	19	19	19
YEAR	536-537	559-560	617-618	640-641
MODEL NAME				

## INTERVIEWEE INSTRUCTIONS.

Q. 77 -- "Regular use" means keeping the vehicle at home.

Q. 79 -- If household has more than four vehicles, mark answers for the four vehicles used most.

Q. 81 -- For pickup trucks and vans, be sure to set a specific model name (examples: Chevrolet Luv, Ford Courier, GMC 1500, or Nissan 620, etc.) [If respondent does not know model name, probe for 1/2-ton, 3/4-ton, etc.]

CONTINUE IF ONE OR MORE VEHICLES ON 078 OTHERWISE SKIP TO 086

ASK Q'S. 82-85 FIRST ABOUT FIRST VEHICLE, THEN  
SECOND, THIRD, AND FOURTH.

USE COLUMNS FOR VEHICLE NUMBERS  
CORRESPONDING TO THOSE ON PRECEDING PAGE

These next questions are about your (first/second/third/fourth) vehicle.

82. Did you get this vehicle within the past 12 months or did you have it before that?

200

ASK ABOUT EACH VEHICLE.

2. WHICH TYPE(S) DO YOU HAVE?  
(SEE INSTRUCTION BELOW.)

STATION WAGON	Q1 [ ]	530-	Q1 [ ]	555-	Q1 [ ]	511-	Q1 [ ]	634-
AUTOMOBILE	Q2 [ ]	531	Q2 [ ]	554	Q2 [ ]	612	Q2 [ ]	635
TRAILER VEHICLE	Q3 [ ]							
PASSENGER VAN OR MINIBUS	Q4 [ ]							
CARGO VAN	Q5 [ ]							
PIPERCRAFT TRUCK	Q6 [ ]							
OTHER TRUCK	Q7 [ ]							
MOTOR HOME	Q8 [ ]							
R (SPECIFY):	22 [ ]		21 [ ]		21 [ ]		21 [ ]	
and model) R LAST MAKE	532-533		555-556		613-614		636-637	
MODEL YEAR	534-535		557-558		615-616		638-639	
MODEL NAME	536-537		559-560		617-618		640-641	

TAKE BACK EXHIBIT 77

Model Name				
Model Year	19	536-337	559-560	617-618
Model	19	19	19	19
Year	536-337	559-560	617-618	640-641
Make	534-535	557-558	615-616	638-639
Last	532-533	555-556	613-614	636-637
Model				

**INTERVIEWER INSTRUCTIONS:**

Q. 77 -- "Regular use" means keeping the vehicle at home.

Q. 79 -- If household has more than four vehicles, mark answers for the four vehicles used most.

Q. 81 -- For pick-up trucks and vans, be sure to give a specific model name (examples: Chevrolet Luv, Ford Courier, GMC 61500, or Datsun 620, etc.) If respondent does not know model name of truck, probe for size (1/2 ton, 3/4 ton, etc.)

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These next questions are about household appliances.

86. Do you have a refrigerator in your home that you use regularly or occasionally?  YES 1 [ ] YES  
 NO 0 [ ] NO -- SKIP TO Q. 89

IF "YES," ASK:

87. Do you have one refrigerator or more than one that is presently in use? (How many altogether?)  
 ONE 2 [ ] ONE  
 TWO 2 [ ] TWO  
 THREE OR MORE 3 [ ] THREE OR MORE

ASK ABOUT EACH REFRIGERATOR -- FIRST ASK ABOUT REFRIGERATOR USED MOST: (SEE INSTRUCTION BELOW.)

HAND RESPONDENT EXHIBIT 88

REFRIGERATOR #1	REFRIGERATOR #2
659	660

88. Which of these best describes your refrigerator? (MARK ONE)

- Freezer section (or ice cube section) must be defrosted periodically
- Freezer section defrosts automatically after frost builds up (catch pan must be emptied)
- Full frost-free (frost does not build up)
- No working freezer section

TAKE BACK EXHIBIT 88

HAND RESPONDENT EXHIBIT 89

89. Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range and with small appliances, which fuel is used most?

- GAS FROM UNDERGROUND PIPES 02 [ ] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD

- LPG GAS (BOTTLED OR TANK GAS) 02 [ ] LPG GAS (BOTTLED OR TANK GAS)

- FUEL OIL 03 [ ] FUEL OIL

- KEROSENE OR COAL OIL 04 [ ] KEROSENE OR COAL OIL

- ELECTRICITY 05 [ ] ELECTRICITY

- COAL OR COKE 06 [ ] COAL OR COKE

- WOOD 07 [ ] WOOD

- OTHER (SPECIFY): 22 [ ] OTHER (SPECIFY):

00 [ ] NO COOKING DONE -- SKIP TO Q. 91

TURN TO EXHIBIT 90

90. Which of these are used for cooking here in your (house/apartment)?

- ELECTRIC STOVE-TOP OR ELECTRIC BURNERS 1 [ ] YES 0 [ ] NO

- GAS STOVE-TOP OR GAS BURNERS 1 [ ] YES 0 [ ] NO

- MICROWAVE OVEN 1 [ ] YES 0 [ ] NO

- ELECTRIC OVEN OTHER THAN MICROWAVE 1 [ ] YES 0 [ ] NO

- GAS OVEN 1 [ ] YES 0 [ ] NO

- OUTDOOR GAS GRILL 1 [ ] YES 0 [ ] NO

- OUTDOOR GAS GRILL (USING GAS FROM UNDERGROUND PIPES) 1 [ ] YES 0 [ ] NO

- OUTDOOR GAS GRILL (USING LPG-BOTTLED OR TANK GAS) 1 [ ] YES 0 [ ] NO

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**INTERVIEWER INSTRUCTIONS:**

Q. 88 -- If respondent has more than two refrigerators, ask about two used most.

## TURN TO EXHIBIT 91.

91. Please look at this list and, as I read each item, tell me which of these you use here in your (house/apartment)?

AUTOMATIC CLOTHES WASHER

YES     NO    670

WINGER WASHING MACHINE (ELECTRIC)

YES     NO    671

ELECTRIC DISHWASHER

YES     NO    672

ELECTRIC CLOTHES DRYER

YES     NO    673

GAS CLOTHES DRYER

YES     NO    674

OUTDOOR GAS LIGHT

YES     NO    675

ELECTRIC DEHUMIDIFIER

YES     NO    676

ELECTRIC HUMIDIFIER

YES     NO    677

EVAPORATIVE COOLER (SWAMP COOLER)

YES     NO    678

"WHOLE HOUSE" COOLING FAN  
(IN ATTIC OR ENTRANCE TO ATTIC)

YES     NO    679

WINDOW OR CEILING FAN

YES     NO    680-709-07

ELECTRIC BLANKET

YES     NO    711

WATER BED WITH HEATER

YES     NO    712

(SEPARATE APPLIANCE FROM REFRIGERATOR)

YES     NO    713

MANUAL DEFROST FREEZER  
(SEPARATE APPLIANCE FROM REFRIGERATOR)

YES     NO    714

BLACK AND WHITE TELEVISION SET

YES     NO    NUMBER: 715

COLOR TELEVISION SET

YES     NO    NUMBER: 716

IF "YES" FOR BLACK AND WHITE TV SET, ASK:  
92. How many black and white television sets do you use here in your home?

IF "YES" FOR COLOR TV SET, ASK:  
93. How many color television sets do you use here in your home?

94. Do you have any other kinds of equipment that use a lot of energy that we have not mentioned?  
 YES     NO    717

IF "YES" ON Q. 94, ASK:  
95. Please describe the equipment and how you use it.

TAKE BACK EXHIBIT 91.

96. Now I have some questions about the people who live here. Please tell me who they are, just in relation to (HOUSEHOLDER). I would also like to know their ages on their last birthdays. Please begin with (HOUSEHOLDER). (SEE INSTRUCTIONS BELOW.)

PERSON NUMBER	WHO IS RESPONSIBLE?	RELATIONSHIP TO HOUSEHOLDER	SEX		0-101 - FULL TIME EMPLOYED (AGE 14+)
			FEMALE	MALE	
1		1[ ]	2[ ]	2[ ]	0[ ]
2		1[ ]	2[ ]	2[ ]	0[ ]
3		1[ ]	2[ ]	2[ ]	0[ ]
4		1[ ]	2[ ]	2[ ]	0[ ]
5		2[ ]	2[ ]	2[ ]	0[ ]
6		1[ ]	2[ ]	2[ ]	0[ ]
7		1[ ]	2[ ]	2[ ]	0[ ]
8		1[ ]	2[ ]	2[ ]	0[ ]
9		1[ ]	2[ ]	2[ ]	0[ ]
10		1[ ]	2[ ]	2[ ]	0[ ]
11		1[ ]	2[ ]	2[ ]	0[ ]
12		1[ ]	2[ ]	2[ ]	0[ ]

96. Now I have some questions about the people who live here. Please tell me who they are, just in relation to (HOUSEHOLDER). I would also like to know their ages on their last birthdays. Please begin with (HOUSEHOLDER). (SEE INSTRUCTIONS BELOW.)	FOR OFFICE USE ONLY:
	USE ONLY: <input type="checkbox"/> 742-747
	<input type="checkbox"/> 752-757
	<input type="checkbox"/> 761-767
	<input type="checkbox"/> 771-777
	<input type="checkbox"/> 807-809-08
	<input type="checkbox"/> 811-817
	<input type="checkbox"/> 822-827
	<input type="checkbox"/> 831-837
	<input type="checkbox"/> 841-847
	<input type="checkbox"/> 851-857
	<input type="checkbox"/> 861-867

97. Any babies or small children?	YES (ADD TO LISTING)  NO
98. Any lodgers, boarders, or persons in your employ who live here?	YES (ADD TO LISTING)  NO
99. Anyone who usually lives here but is away traveling or in the hospital? (SEE INSTRUCTION BELOW.)	YES (ADD TO LISTING)  NO
100. Anyone else staying here who does not have a regular residence elsewhere?	YES (ADD TO LISTING)  NO

96. Now I have some questions about the people who live here. Please tell me who they are, just in relation to (HOUSEHOLDER). I would also like to know their ages on their last birthdays. Please begin with (HOUSEHOLDER). (SEE INSTRUCTIONS BELOW.)	FOR OFFICE USE ONLY:
	USE ONLY: <input type="checkbox"/> 742-747
	<input type="checkbox"/> 752-757
	<input type="checkbox"/> 761-767
	<input type="checkbox"/> 771-777
	<input type="checkbox"/> 807-809-08
	<input type="checkbox"/> 811-817
	<input type="checkbox"/> 822-827
	<input type="checkbox"/> 831-837
	<input type="checkbox"/> 841-847
	<input type="checkbox"/> 851-857
	<input type="checkbox"/> 861-867

## INTERVIEWER INSTRUCTIONS:

In general, the householder is the person (or one of the persons) in whose name the home is owned or rented.

For questions on this and the following pages, where the term "HOUSEHOLDER" is inserted, use the appropriate designation -- you, your husband, wife, partner -- depending on who is the householder and whom you are interviewing.

Q. 96 -- Be sure to list relationships, not names. Include members of a second family that share the housing unit. Check box to indicate which household member is the respondent.

Q. 99 -- Persons who are normally members of the household but who are now living away from home (e.g., college students or members of the Armed Forces) should not be listed.

102. Does another family share your home with you?

- YES (SEE INSTRUCTION BELOW.)  
 NO

**INTERVIEWER: MARK ANSWER ASK, IF NECESSARY.**

<b>HOUSEHOLDER'S MARRITAL STATUS</b>	<b>103. Which of the following best describes (HOUSEHOLDER): now married, widowed, divorced or separated, or never married?</b>	<b>871</b>
	1 <input type="checkbox"/> NOW MARRIED	2 <input type="checkbox"/> DIVORCED
	2 <input type="checkbox"/> DIVORCED	3 <input type="checkbox"/> SEPARATED
	3 <input type="checkbox"/> SEPARATED	4 <input type="checkbox"/> NEVER MARRIED

HAND RESPONDENT EXHIBIT 104

104. Which of the groups on this exhibit best describes (HOUSEHOLDER)?

- WHITE  
 BLACK OR NEGRO  
 AMERICAN INDIAN, ALASKAN NATIVE  
 ASIAN, PACIFIC ISLANDER  
 OTHER (SPECIFY): \_\_\_\_\_

TAKE BACK EXHIBIT 104

105. Is (HOUSEHOLDER) of Spanish or Hispanic origin or descent?

- YES  
 NO

106. What is the highest grade (or year) (HOUSEHOLDER) attended in school?

- NEVER ATTENDED SCHOOL  
 SKIP TO Q. 108
- COLLEGE (ACADEMIC YEARS)**
- FIRST  
 SECOND  
 THIRD  
 FOURTH  
 FIFTH  
 SIXTH  
 SEVENTH  
 EIGHTH  
 NINTH  
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 ELEVENTH  
 TWELFTH

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106. Did (HOUSEHOLDER) finish that grade (or year)?

- YES  
 NO

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907-908:09

108. In the past 12 months, did you or any member of your family living here receive any income or benefits from: (INTERVIEWER: READ AND MARK "YES" OR "NO" FOR EACH ITEM.)

- a. Wages or salaries. . . . .  
 YES  
 NO
- b. Self-employment from business or farm. . . . .  
 YES  
 NO
- c. Aid to Families with Dependent Children (AFDC). . . . .  
 YES  
 NO
- d. Supplemental Security Income (SSI). . . . .  
 YES  
 NO
- e. General Assistance or other public assistance. . . . .  
 YES  
 NO
- f. Food Stamps. . . . .  
 YES  
 NO
- g. Social Security or Railroad Retirement. . . . .  
 YES  
 NO
- h. Unemployment compensation. . . . .  
 YES  
 NO

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**INTERVIEWER INSTRUCTIONS:**

Q. 102 -- If answer is "YES," check whether the additional family (or unrelated individual) has a separate room or apartment that is defined by our rules as separate living quarters. Separate living quarters are those in which the occupants (1) live and eat separately from other persons in building, and (2) have direct access from outside the building or through a common hall.

Separate living quarters should be listed separately on your housing unit address list for this location. See sampling instructions as to whether an additional interview should be completed.

If the second family's space does not meet the rules for separate living quarters, that space should be excluded from the information obtained in this interview. Go back over this interview to make corrections if necessary.

If the second family's space does not meet the definition of separate living quarters, be sure that the members of the second family are included in the list of household members in Q. 96.

TURN TO EXHIBIT 109

109. Now let's look at this list of income groups. Please tell me which group letter best describes the total combined income in the last 12 months of all members of your family living here, from all sources -- wages, dividends, Social Security, and so forth -- before taxes and deductions. (Family includes all related persons living in this household.)

CIRCLE LETTER FOR INCOME GROUP

01 A	LESS THAN \$ 3,000	20 J	\$11,000 - \$12,499	19 Q	\$27,500 - \$29,999
02 B	\$ 3,000 - \$ 3,999	21 J	\$12,500 - \$13,999	20 R	\$30,000 - \$32,499
03 C	\$ 4,000 - \$ 4,999	21 K	\$14,000 - \$14,999	21 S	\$32,500 - \$34,999
04 D	\$ 5,000 - \$ 5,999	24 L	\$15,000 - \$17,499	22 T	\$35,000 - \$39,999
05 E	\$ 6,000 - \$ 7,499	25 M	\$17,500 - \$19,999	23 U	\$40,000 - \$49,999
07 F	\$ 7,500 - \$ 8,999	26 N	\$20,000 - \$22,499	24 V	\$50,000 - \$14,999
08 G	\$ 9,000 - \$ 9,999	27 O	\$22,500 - \$24,999	25 W	\$25,000 OR OVER
09 H	\$10,000 - \$10,999	18 P	\$25,000 - \$27,499	96 [ ]	DON'T KNOW
		97 [ ]	REFUSED		

TAKE BACK EXHIBIT 109

IF ANSWER TO Q. 109 IS GROUP P THROUGH W (INCOME \$25,000 OR OVER), SKIP TO Q. 115 ON PAGE 28.  
IF ANSWER TO Q. 109 IS GROUP A THROUGH O (INCOME UNDER \$25,000), "DON'T KNOW", OR "REFUSED", CONTINUE WITH Q. 110.

HAND RESPONDENT EXHIBIT 110

110. Between October 1, 1983, and September 30, 1984, did your household receive any of the following services free or at reduced cost from the federal, state, or local government? (INTERVIEWER: READ AND MARK "YES" OR "NO" FOR EACH ITEM.)

- a. Insulation in the attic, outside wall, or basement/crawl space below the floor of the house . . . . . 1 [ ] YES o [ ] NO 921
- b. Insulation around the hot water heater . . . . . 1 [ ] YES o [ ] NO 922
- c. Repair of broken windows or doors to keep out the cold or hot weather . . . . . 1 [ ] YES o [ ] NO 923
- d. Weather stripping or caulkng around any windows or doors to the outside . . . . . 1 [ ] YES o [ ] NO 924
- e. Storm doors or windows added . . . . . 1 [ ] YES o [ ] NO 925
- f. Repair of broken furnace . . . . . 1 [ ] YES o [ ] NO 926
- g. Furnace tuneup and/or modifications . . . . . 1 [ ] YES o [ ] NO 927
- h. Other home energy-saving devices  
(Specify): \_\_\_\_\_ 1 [ ] YES o [ ] NO 928

TURN TO EXHIBIT 111

111. The government has a home energy assistance program that helps pay heating and cooling costs. This assistance can be received directly by the household or it can be paid directly to the electric or gas company or fuel dealer.

919-920  
Between October 1, 1983 and September 30, 1984 did your household receive government energy assistance (either directly or through the utility company or fuel dealer) for any of the following:

111a. Help in paying home heating costs . . . . . 1 [ ] YES o [ ] NO 929

111b. Help in paying home cooling costs . . . . . 1 [ ] YES o [ ] NO 930

111c. Help in paying other home energy costs. . . . . 1 [ ] YES o [ ] NO 931

IF "YES" ON Q. 111c, ASK:  
112. Please describe this other assistance.

IF "YES" ON Q. 111a (ASSISTANCE TO HELP PAY HOME HEATING COSTS), TURN TO EXHIBIT 113 AND ASK:

113. Were heating assistance payments made in the form of checks, coupons, or vouchers sent to this household or were the payments sent directly to the utility company or fuel dealer? (MARK "YES" OR "NO" FOR EACH ITEM.)
  - a. Check to household . . . . . 1 [ ] YES o [ ] NO 932
  - b. Coupon/voucher to household . . . . . 1 [ ] YES o [ ] NO 933
  - c. Assistance sent directly to electric or gas company, or fuel dealer . . . . . 1 [ ] YES o [ ] NO 934
114. Altogether, how much government energy assistance to help pay heating costs has been provided directly to this household and/or provided on behalf of this household to a utility company or fuel dealer, between October 1, 1983 and September 30, 1984? (PROBE FOR BEST ESTIMATE). NUMBER OF DOLLARS \$ \_\_\_\_\_ .00

935-938

TAKE BACK EXHIBITS

## ASK EVERYONE

## HAND RESPONDENT EXHIBIT 120

120. He may have covered some of these points before, but just to be sure, please look at this exhibit and tell me whether these fuels are used for these purposes in your household.

		PAID BY HOUSEHOLD		NOT USED		INCLUDED IN RENT		OTHER (SPECIFY)	
		1	0	1	0	2	1	5	0
2		1	0	1	0	2	1	5	0
3		1	0	1	0	2	1	5	0
4		1	0	1	0	2	1	5	0
5		1	0	1	0	2	1	5	0
6		1	0	1	0	2	1	5	0
7		1	0	1	0	2	1	5	0
8		1	0	1	0	2	1	5	0
9		1	0	1	0	2	1	5	0
10		1	0	1	0	2	1	5	0
11		1	0	1	0	2	1	5	0
12		1	0	1	0	2	1	5	0
13		1	0	1	0	2	1	5	0
14		1	0	1	0	2	1	5	0
15		1	0	1	0	2	1	5	0
16		1	0	1	0	2	1	5	0
17		1	0	1	0	2	1	5	0
18		1	0	1	0	2	1	5	0
19		1	0	1	0	2	1	5	0
20		1	0	1	0	2	1	5	0
21		1	0	1	0	2	1	5	0
22		1	0	1	0	2	1	5	0
23		1	0	1	0	2	1	5	0
24		1	0	1	0	2	1	5	0
25		1	0	1	0	2	1	5	0
26		1	0	1	0	2	1	5	0
27		1	0	1	0	2	1	5	0
28		1	0	1	0	2	1	5	0
29		1	0	1	0	2	1	5	0
30		1	0	1	0	2	1	5	0
31		1	0	1	0	2	1	5	0
32		1	0	1	0	2	1	5	0
33		1	0	1	0	2	1	5	0
34		1	0	1	0	2	1	5	0
35		1	0	1	0	2	1	5	0
36		1	0	1	0	2	1	5	0
37		1	0	1	0	2	1	5	0
38		1	0	1	0	2	1	5	0
39		1	0	1	0	2	1	5	0
40		1	0	1	0	2	1	5	0
41		1	0	1	0	2	1	5	0
42		1	0	1	0	2	1	5	0
43		1	0	1	0	2	1	5	0
44		1	0	1	0	2	1	5	0
45		1	0	1	0	2	1	5	0
46		1	0	1	0	2	1	5	0
47		1	0	1	0	2	1	5	0
48		1	0	1	0	2	1	5	0
49		1	0	1	0	2	1	5	0
50		1	0	1	0	2	1	5	0
51		1	0	1	0	2	1	5	0
52		1	0	1	0	2	1	5	0
53		1	0	1	0	2	1	5	0
54		1	0	1	0	2	1	5	0
55		1	0	1	0	2	1	5	0
56		1	0	1	0	2	1	5	0
57		1	0	1	0	2	1	5	0
58		1	0	1	0	2	1	5	0
59		1	0	1	0	2	1	5	0
60		1	0	1	0	2	1	5	0
61		1	0	1	0	2	1	5	0
62		1	0	1	0	2	1	5	0
63		1	0	1	0	2	1	5	0
64		1	0	1	0	2	1	5	0
65		1	0	1	0	2	1	5	0
66		1	0	1	0	2	1	5	0
67		1	0	1	0	2	1	5	0
68		1	0	1	0	2	1	5	0
69		1	0	1	0	2	1	5	0
70		1	0	1	0	2	1	5	0
71		1	0	1	0	2	1	5	0
72		1	0	1	0	2	1	5	0
73		1	0	1	0	2	1	5	0
74		1	0	1	0	2	1	5	0
75		1	0	1	0	2	1	5	0
76		1	0	1	0	2	1	5	0
77		1	0	1	0	2	1	5	0
78		1	0	1	0	2	1	5	0
79		1	0	1	0	2	1	5	0
80		1	0	1	0	2	1	5	0
81		1	0	1	0	2	1	5	0
82		1	0	1	0	2	1	5	0
83		1	0	1	0	2	1	5	0
84		1	0	1	0	2	1	5	0
85		1	0	1	0	2	1	5	0
86		1	0	1	0	2	1	5	0
87		1	0	1	0	2	1	5	0
88		1	0	1	0	2	1	5	0
89		1	0	1	0	2	1	5	0
90		1	0	1	0	2	1	5	0
91		1	0	1	0	2	1	5	0
92		1	0	1	0	2	1	5	0
93		1	0	1	0	2	1	5	0
94		1	0	1	0	2	1	5	0
95		1	0	1	0	2	1	5	0
96		1	0	1	0	2	1	5	0
97		1	0	1	0	2	1	5	0
98		1	0	1	0	2	1	5	0
99		1	0	1	0	2	1	5	0
100		1	0	1	0	2	1	5	0
101		1	0	1	0	2	1	5	0
102		1	0	1	0	2	1	5	0
103		1	0	1	0	2	1	5	0
104		1	0	1	0	2	1	5	0
105		1	0	1	0	2	1	5	0
106		1	0	1	0	2	1	5	0
107		1	0	1	0	2	1	5	0
108		1	0	1	0	2	1	5	0
109		1	0	1	0	2	1	5	0
110		1	0	1	0	2	1	5	0
111		1	0	1	0	2	1	5	0
112		1	0	1	0	2	1	5	0
113		1	0	1	0	2	1	5	0
114		1	0	1	0	2	1	5	0
115		1	0	1	0	2	1	5	0
116		1	0	1	0	2	1	5	0
117		1	0	1	0	2	1	5	0
118		1	0	1	0	2	1	5	0
119		1	0	1	0	2	1	5	0
120		1	0	1	0	2	1	5	0

121. Is that paid for by your household, included in your rent, or do you get it some other way?		122. Is gas from underground pipes available in this neighborhood?	
123. Is gas from underground pipes available in this neighborhood?		124. Is gas from underground pipes available in this neighborhood?	

TAKE BACK EXHIBIT 120

FOR EACH USE OF EACH FUEL, ASK:  
 121. Is that paid for by your household, included in your rent, or do you get it some other way?

122. Is gas from underground pipes available in this neighborhood?

123. Is gas from underground pipes available in this neighborhood?

124. Is gas from underground pipes available in this neighborhood?

125. Is gas from underground pipes available in this neighborhood?

126. Is gas from underground pipes available in this neighborhood?

INTERVIEWER: IF USE OF ANY FUEL IS "PAID BY HOUSEHOLD" IN QUESTIONS ON PRECEDING PAGE, CONTINUE BELOW. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 147 ON PAGE 37.

HAND RESPONDENT EXHIBIT 123

123. A budget plan is a plan under which the utility company or fuel dealer and household agree that each month for a number of months, is your household on a budget plan for any of the fuels used by your household?

1 YES

0 NO -- TURN TO EXHIBIT 125/126 AND ASK Q. 125

IF "YES" ON Q. 123 ASK:

124. Which fuel bills are paid on a budget plan?
- ELECTRICITY  
 GAS FROM UNDERGROUND PIPES  
 LPG GAS (BOTTLED OR TANK GAS)  
 FUEL OIL  
 KEROSENE

TURN TO EXHIBIT 125/126

125. Do any of your household fuel bills include costs of fuel used for purposes other than for your own living quarters, such as farm buildings or machinery, the house or apartment of another household, a business or office, or office, or anything else?

IF "YES," ASK:  
 126. For which of the purposes listed on the exhibit are costs of fuel included in your household fuel bills?  
 (INTERVIEWER: MARK ALL THAT APPLY.)

- FARM BUILDINGS OR MACHINERY  
 THE HOUSE OR APARTMENT OF ANOTHER HOUSEHOLD  
 A BUSINESS OR OFFICE  
 OTHER PURPOSES (SPECIFY): \_\_\_\_\_

1031

1032

1033

1034

IF "YES" ON Q. 125, CONTINUE BELOW

127. Which fuel bills include costs of fuel used for purposes other than your own living quarters? (MARK AS MANY AS APPLY.)

- ELECTRICITY  
 GAS FROM UNDERGROUND PIPES  
 LPG GAS (BOTTLED OR TANK GAS)  
 FUEL OIL  
 KEROSENE

TURN TO EXHIBIT 128/132

IF "ELECTRICITY" ON Q. 127, ASK:

128. Over the period of a year, about how much of your household's electricity bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?
- VERY LITTLE (LESS THAN 5%)  
 1/4 ( 5 - 33%)  
 1/2 (34 - 66%)  
 3/4 (67 - 95%)

IF "GAS FROM UNDERGROUND PIPES" ON Q. 127, ASK:

129. Over the period of a year, about how much of your household's gas bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?
- VERY LITTLE (LESS THAN 5%)  
 1/4 ( 5 - 33%)  
 1/2 (34 - 66%)  
 3/4 (67 - 95%)

IF "LPG GAS" ON Q. 127, ASK:

130. Over the period of a year, about how much of your household's LPG bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?
- VERY LITTLE (LESS THAN 5%)  
 1/4 ( 5 - 33%)  
 1/2 (34 - 66%)  
 3/4 (67 - 95%)

IF "FUEL OIL" ON Q. 127, ASK:

131. Over the period of a year, about how much of your household's fuel oil bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?
- VERY LITTLE (LESS THAN 5%)  
 1/4 ( 5 - 33%)  
 1/2 (34 - 66%)  
 3/4 (67 - 95%)

IF "KEROSENE" ON Q. 127, ASK:

132. Over the period of a year, about how much of your household's kerosene bill is used for non-household uses, such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?
- VERY LITTLE (LESS THAN 5%)  
 1/4 ( 5 - 33%)  
 1/2 (34 - 66%)  
 3/4 (67 - 95%)

TAKE BACK EXHIBIT 128/132

IF HOUSEHOLD USES AND PAYS FOR LPG GAS (SEE QUESTIONS 120-121 PARTS 1-q), ASK Q. 133ff., OTHERWISE, SKIP TO INSTRUCTION FOR Q. 136.

133. About how many deliveries of LPG does your household usually get in a year?

NUMBER OF  
DELIVERIES:

1045-  
1046  
94 [ ] CASH AND CARRY, PICK UP AT STORE  
95 [ ] LIVED HERE LESS THAN 1 YEAR

134. Did you buy LPG for this (house/apartment) in the past 12 months from one company or from more than one company?

IF "MORE THAN ONE COMPANY," ASK:

135. How many different companies?

2 [ ] TWO  
3 [ ] THREE  
4 [ ] FOUR OR MORE

IF HOUSEHOLD USES AND PAYS FOR KEROSENE (SEE QUESTIONS 120-121 PARTS u-w), ASK Q. 140ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 144.

140. About how many deliveries of kerosene does your household usually get in a year?

NUMBER OF  
DELIVERIES:

1045-  
1046  
94 [ ] CASH AND CARRY, PICK UP AT STORE  
95 [ ] LIVED HERE LESS THAN 1 YEAR

141. Did you buy kerosene for this (house/apartment) in the past 12 months from one company or store, or from more than one company or store?

IF "MORE THAN ONE," ASK:

142. How many different companies or stores?

2 [ ] TWO  
3 [ ] THREE  
4 [ ] FOUR OR MORE

IF HOUSEHOLD USES AND PAYS FOR FUEL OIL (SEE QUESTIONS 120-121 PARTS r-t), ASK Q. 136, OTHERWISE, SKIP TO INSTRUCTION FOR Q. 140.

136. About how many deliveries of fuel oil does your household usually get in a year?

NUMBER OF  
DELIVERIES:

1049-  
1050  
94 [ ] CASH AND CARRY, PICK UP AT STORE  
95 [ ] LIVED HERE LESS THAN 1 YEAR

137. Did you buy fuel oil for this (house/apartment) in the past 12 months from one company or from more than one company?

IF "MORE THAN ONE," ASK:

138. How many different companies?

2 [ ] TWO  
3 [ ] THREE  
4 [ ] FOUR OR MORE

143. About how much kerosene does your household use in a year -- which of these groups would it be, just approximately? PROBE FOR BEST ESTIMATE.

1 [ ] LESS THAN 25 GALLONS PER YEAR  
2 [ ] 25- 49 GALLONS PER YEAR  
3 [ ] 50- 99 GALLONS PER YEAR  
4 [ ] 100-499 GALLONS PER YEAR  
5 [ ] 500-999 GALLONS PER YEAR  
6 [ ] 1000 OR MORE GALLONS PER YEAR

HAND RESPONDENT EXHIBIT 139

139. About how much fuel oil does your household use in a year -- which of these groups would it be, just approximately? PROBE FOR BEST ESTIMATE.

1 [ ] LESS THAN 100 GALLONS PER YEAR  
2 [ ] 100-499 GALLONS PER YEAR  
3 [ ] 500-999 GALLONS PER YEAR  
4 [ ] 1000 OR MORE GALLONS PER YEAR

TAKE BACK EXHIBIT 139



**SECOND GAS COMPANY**

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) - CITY AND STATE

TELEPHONE NUMBER: \_\_\_\_\_

AREA CODE: \_\_\_\_\_

GAS  
LPG (bottled  
or tank gas)**THIRD GAS COMPANY**

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) - CITY AND STATE

TELEPHONE NUMBER: \_\_\_\_\_

AREA CODE: \_\_\_\_\_

FUEL OIL  
or KEROSENE**SECOND FUEL OIL/KEROSENE COMPANY**

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) - CITY AND STATE

TELEPHONE NUMBER: \_\_\_\_\_

AREA CODE: \_\_\_\_\_

FUEL OIL  
or KEROSENE**THIRD FUEL OIL/KEROSENE COMPANY**

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) - CITY AND STATE

TELEPHONE NUMBER: \_\_\_\_\_

AREA CODE: \_\_\_\_\_

FUEL OIL  
or KEROSENEIF HOUSEHOLD HAS ONE OR MORE FUELS "INCLUDED IN RENT" OR "OTHER" (SEE Q. 121), ASK Q. 147  
OTHERWISE, SKIP TO Q. 148.

147. We may be needing some additional information about fuels used in this building (house). May I have the name of the person or company to whom you pay rent or who is responsible for paying the fuel bills for this building (house)?

NAME: \_\_\_\_\_

TELEPHONE NUMBER: (AREA CODE: \_\_\_\_\_)

STREET ADDRESS: \_\_\_\_\_

CITY OR TOWN/STATE/ZIP CODE: \_\_\_\_\_

ASK EVERYONE

148. For interview verification purposes, may I have your name, phone number, and mailing address please?

RESPONDENT'S NAME: \_\_\_\_\_

TELEPHONE NUMBER: (AREA CODE: \_\_\_\_\_)

STREET ADDRESS: \_\_\_\_\_

CITY OR TOWN/STATE/ZIP CODE: \_\_\_\_\_

IF APARTMENT, MOBILE HOME/TRAILER COMPLEX AND THE NAME OF THE COMPLEX IS NOT INCLUDED IN THE ADDRESS ABOVE, ASK:

149. Does this (building/development/complex/park) have a name? \_\_\_\_\_

[ ] YES  
[ ] NOIF "YES," ASK:  
NAME: \_\_\_\_\_

151. INTERVIEWER: MARK TYPE OF HOUSING UNIT2  MOBILE HOME OR TRAILER --

1064-

1065

SKIP TO Q. 155

2  ONE-FAMILY HOUSE

1065

- 1  ONE STORY  
2  TWO STORY  
3  THREE STORY  
4  SPLIT-LEVEL  
5  OTHER (SPECIFY):

- 3  HOUSE OR BUILDING WITH 2 TO 4 UNITS --  
SKIP TO Q. 158  
4  APARTMENT BUILDING OR OTHER  
STRUCTURE WITH 5 OR MORE UNITS --  
SKIP TO Q. 161

CONTINUE IF ONE-FAMILY HOUSE

152. Do you have a garage attached to your living  
space or under your house?

- 1  YES  
0  NO -- SKIP TO Q. 155

1066

IF "YES" ON Q. 152, ASK:

153. Can the garage be heated during the  
winter months?

- 1  YES  
0  NO -- SKIP TO Q. 155

1067

IF "YES" ON Q. 153, HAND RESPONDENT  
EXHIBIT 154 AND ASK:154. How frequently is the garage heated  
during the winter months?

- 4  ALWAYS  
3  USUALLY  
2  OCCASIONALLY  
1  ALMOST NEVER  
0  NEVER  
5  OTHER (SPECIFY):

TAKE BACK EXHIBIT 154

CONTINUE WITH Q. 155 ON NEXT PAGE

IF ONE-FAMILY HOME OR MOBILE HOME, ASK Q. 155.

HAND RESPONDENT EXHIBIT 155

- 1  ONE-FAMILY  
HOUSE, MARK STYLE  
BASED ON GENERAL  
APPEARANCE FROM  
OUTSIDE

IF ONE-FAMILY  
HOUSE, MARK STYLE  
BASED ON GENERAL  
APPEARANCE FROM  
OUTSIDE

- 1069  
1  BASEMENT  
2  CRAWL SPACE -- ENCLOSED  
3  CRAWL SPACE -- OPEN TO THE OUTSIDE  
4  CONCRETE SLAB -- SKIP TO Q. 161  
5  COMBINATION (MARK ALL THAT APPLY.)

TAKE BACK EXHIBIT 155

IF "CRAWL SPACE," OR COMBINATION, ASK:

- 1070  
1  BASEMENT  
2  CRAWL SPACE -- ENCLOSED  
3  CRAWL SPACE -- OPEN TO THE OUTSIDE  
4  CONCRETE SLAB  
5  COMBINATION (MARK ALL THAT APPLY.)
- 1071  
1  ALL -- SKIP TO Q. 161  
2  PART  
0  NONE
- 1072  
1  ALL -- SKIP TO Q. 161  
2  PART  
0  NONE
- 1073  
1  ALL -- SKIP TO Q. 161  
2  PART  
0  NONE

TAKE BACK EXHIBIT 157 -- SKIP TO Q. 161

IF THIS IS A BUILDING WITH 2 TO 4 HOUSING UNITS, ASK Q. 158. OTHERWISE, SKIP TO Q. 161	
158. Does this building have a basement?	<p>1 [ ] YES 0 [ ] NO -- SKIP TO Q. 161</p> <p>IF "YES," ASK:</p> <p>159. Is any part of the basement for the exclusive or primary use of your household?</p> <p>IF "YES," ASK:</p> <p>160. Thinking of the basement space used by your household -- about how much of that space is warm enough to sit, work or play in during the winter months -- all, part, or none?</p>

ASK EVERYONE HAND RESPONDENT EXHIBIT 161	
1076	1107- 1108:11
161. Since September 1982, have any of the kinds of things listed on this exhibit been done to your home -- that is, anything that has either increased or decreased the total number of square feet of space, or that has changed the number of square feet of heated space?	<p>1 [ ] YES 0 [ ] NO -- SKIP TO Q. 166</p> <p>IF "YES" TO Q. 161 ASK:</p> <p>162. Did the <u>total</u> number of square feet of space increase, decrease, or remain the same?</p> <p>163. Did the amount of heated space increase, decrease, or remain the same?</p> <p>164. Please give me a description of the work that was done.</p>
1077	1112-
1078	1113
1079	1114- 1115
1080	1116-
1081	1119

166. So far, we've been talking about things in your household that affect your energy use. What we need also is a measure of your year-round living space. With your permission, I would like to measure your home. I can do it from the inside or the outside. With your home, I think it would be most accurate to do it on the (inside/outside).

### INTERVIEWER INSTRUCTIONS:

In general, measure all parts of the housing unit enclosed from the weather.

#### Basements or cellars

Include basements or cellars in one-family houses.

Include basement space in buildings with 2 to 4 housing units, if it is for the exclusive or primary use of household for this interview. See Q. 159.

Exclude basements and cellars in buildings with 5 or more units.

Exclude crawl spaces.

#### Attics

Include attics if heated or finished.

Exclude attics if unheated and also unfinished.

#### Garages, sheds, or barns

Include garages if attached to house and enclosed from the weather.

Exclude garages, sheds, or barns if not attached to house or if open to the weather.

#### Porches

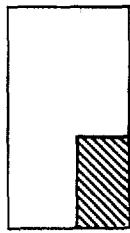
Include porches if enclosed from the weather.

Exclude porches if open to the weather.

Buildings with 2 or more housing units: Measure only the space used by household for this interview (do not measure the entire building).

Unheated areas: Within the housing unit that you measure, indicate unheated area(s) in the diagrams with lines. Give dimensions of unheated area(s).

Indicate unheated areas this way →



RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

START HERE

if this household has a basement or cellar (see instruction on facing page for page for basements and cellars)	BASEMENT MEASUREMENTS		DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
	<input type="checkbox"/> FULL BASEMENT	<input type="checkbox"/> HALF BASEMENT	
RECTANGULAR SHAPE	[ ]		
[ ]			

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

START HERE

if this household does not have a basement or cellar	FIRST STORY MEASUREMENTS		DRAW DIAGRAM, IF OTHER THAN RECTANGULAR
	<input type="checkbox"/> FULL STORY	<input type="checkbox"/> HALF STORY	
RECTANGULAR SHAPE	[ ]		
[ ]			

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

FOR OFFICE USE ONLY

Floor Codes	Unit A	Unit B	Unit C	Unit D	# of Units
1120	21	22	23	24-25	26-27
				28	29-30
				31-32	33
				34-35	36-37
				38	39-40
					41-42
					43
B					
1144	45	46	47	48-49	50-51
				52	53-54
				55-56	57
				58-59	60-61
				62	63-64
				65-66	67
1					

USE BACKS OF MEASUREMENT PAGES FOR ADDITIONAL SPACE AS NEEDED, FOR SKETCHES AND MEASUREMENTS.

IF NO SECOND OR THIRD STORY TO MEASURE, GO TO Q. 167

RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

SECOND STORY MEASUREMENTS	<input type="checkbox"/> FULL STORY RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR [ ]
	<input type="checkbox"/> HALF STORY RECTANGULAR SHAPE	[ ]

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

THIRD STORY MEASUREMENTS	<input type="checkbox"/> FULL STORY RECTANGULAR SHAPE	DRAW DIAGRAM, IF OTHER THAN RECTANGULAR [ ]
	<input type="checkbox"/> HALF STORY RECTANGULAR SHAPE	[ ]

INTERVIEWER: HAVE YOU MARKED WITH LINES AND GIVEN DIMENSIONS OF UNHEATED AREAS IN DIAGRAM ABOVE?

FOR OFFICE USE ONLY

FIR Codes	Unit A	Unit B	Unit C	Unit D	# of Units
1268 69	70 71	72-73	74-75	76	77-78
					79-80
1222 23	24 25	26-27	28-29	30	31-32
					33-34
					35 36-37
					38-39
					40 41-42
					43-44
					45

2 3

Heated	Unheated	OK Htd/Unhtd
1246-1250	1251-1255	1256-1260

167. One part of my task is to mark on my diagram any parts of your home that are not heated during the heating season.  
TELL RESPONDENT WHAT PARTS OF HOME, IF ANY, YOU HAVE MARKED AS NOT HEATED DURING HEATING SEASON. THEN ASK:

Is that correct -- have I missed any unheated areas?

REVISE SKETCHES AS NECESSARY;  
THEN MARK APPROPRIATE BOX AT  
RIGHT.

- 1670  
[ ] NO UNHEATED AREAS  
[ ] ALL UNHEATED AREAS HAVE BEEN  
MARKED WITH LINES [ ]

2 [ ] ENTIRE UNIT IS UNHEATED (NO HEATING EQUIPMENT)

- 02 [ ] MEASURED INSIDE  
02 [ ] MEASURED OUTSIDE  
03 [ ] COMBINATION OF INSIDE AND  
OUTSIDE MEASUREMENTS  
04 [ ] RESPONDENT GAVE TOTAL  
SQUARE FEET FROM PLAN

- 05 [ ] RESPONDENT'S ESTIMATES  
22 [ ] OTHER MEASUREMENT  
PROCEDURE (SPECIFY): \_\_\_\_\_

TURN PAGE TO COMPLETE INTERVIEW

FOR OFFICE USE ONLY	
FL	LOT

1263-1265

## INTERVIEWER REPORT ON MEASUREMENT OF YEAR-ROUND LIVING SPACE

169. WHAT PROBLEMS, IF ANY, DID YOU HAVE IN MEASURING THIS (HOUSE/APARTMENT)?

170. WHAT EFFECT, IF ANY, DID THESE PROBLEMS HAVE ON THE ACCURACY OF YOUR MEASUREMENTS?

1266-1268		
TIME INTERVIEW COMPLETED:	AM	LENGTH OF INTERVIEW:
	PM	MINUTES
INTERVIEWER'S SIGNATURE	DATE:	
INTERVIEWER'S I.D. #:	1269-1274	

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U.S. DEPARTMENT OF ENERGY  
1984-1985 RESIDENTIAL ENERGY CONSUMPTION SURVEY  
RESPONSE  
Consumer  
Marketing  
Corporation  
P.O. Box  
5000  
Washington, D.C.  
20007  
Household  
Power  
Law  
64-275  
and  
64-368



OMB NO. 1905-0092  
(Expires 8/31/86)  
ETA-457F F445-7-07

U.S. DEPARTMENT OF ENERGY  
1984-1985 RESIDENTIAL ENERGY CONSUMPTION SURVEY

RESPONSE  
Consumer  
Marketing  
Corporation  
P.O. Box  
5000  
Washington, D.C.  
20007  
Household  
Power  
Law  
64-275  
and  
64-368



OMB NO. 1905-0092  
(Expires 8/31/86)  
ETA-457F F445-7-06

If the customer account number is not shown, please enter it.

If you have any questions, please call collect to Ms. Lucy Raum at (609) 921-3333

HOUSEHOLD:

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

ELECTRICITY USAGE FROM MARCH 1, 1984 TO THE PRESENT

UTILITY GAS USAGE FROM MARCH 1, 1984 TO THE PRESENT				
Time Period	Consumption Period		Quantity Used*	(Circle One)
	Beginning Date	Ending Date		
1				A - Actual E - Estimated R - Read by Customer
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

\*The quantity used is expressed in terms of: (Mark one)

Thermals  
 Cubic Feet  
 Hundreds of Cubic Feet (CCF)  
 Thousands of Cubic Feet (KCF)  
 Other (Please specify):

\*Please include state and local taxes. Exclude merchandise, repair, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by \_\_\_\_\_

(Name) \_\_\_\_\_ (Telephone Number) \_\_\_\_\_ (Date)

\*Please include state and local taxes. Exclude merchandise, repair, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by \_\_\_\_\_

(Name) \_\_\_\_\_ (Telephone Number) \_\_\_\_\_ (Date)

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

CONSUMPTION PERIOD

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

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OMB NO. 1905-0092  
(Expires 8/31/86)  
EIA-4576 F4457-09

**U.S. DEPARTMENT OF ENERGY**  
**1984-1985 RESIDENTIAL ENERGY CONSUMPTION SURVEY**

Conducted by  
RESPONSE ANALYSIS CORPORATION  
Research Park, Route 206  
P. O. Box 158  
Princeton, New Jersey 08542

**FUEL OIL OR KEROSENE**  
**HOUSEHOLD**

If you have any questions, please  
call collect to Luci Raham at  
(609) 321-3333.

**FUEL OIL AND KEROSENE USAGE**

Please provide information on all deliveries to this household from January 1, 1984 to the present date. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Date of Delivery	Column 1		Column 2 Fuel Sold Was:	Column 3 Gallons Delivered	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Was tank completely filled: Yes No Don't Know (DK) (Circle one)
		(Circle one)	1 2 K 0					
1		1	2	K	0			YES NO DK
2		1	2	K	0			YES NO DK
3		1	2	K	0			YES NO DK
4		1	2	K	0			YES NO DK
5		1	2	K	0			YES NO DK
6		1	2	K	0			YES NO DK
7		1	2	K	0			YES NO DK
8		1	2	K	0			YES NO DK
9		1	2	K	0			YES NO DK
10		1	2	K	0			YES NO DK
11		1	2	K	0			YES NO DK
12		1	2	K	0			YES NO DK
13		1	2	K	0			YES NO DK
14		1	2	K	0			YES NO DK
15		1	2	K	0			YES NO DK
16		1	2	K	0			YES NO DK
17		1	2	K	0			YES NO DK
18		1	2	K	0			YES NO DK

PLEASE CONTINUE ON PAGE 4 IF NECESSARY.

Please include state and local taxes, where applicable. INCLUDE metropolitan, rural, or service charges.

**FUEL, OIL AND KEROSENE**

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold:  
 NOT APPLICABLE
2. What is the capacity of this household's storage tank?  
 CAPACITY: \_\_\_\_\_ GALLONS

3. Was this household your customer as of January 1, 1984?

- NO  
 YES

If "NO," approximately when did this household become a customer of your company?

APPROXIMATE DATE:

- DON'T KNOW  
 NEVER A CUSTOMER

4. Is this household presently your customer?

- NO  
 YES

If "NO," approximately when did this household stop being a customer of your company?

APPROXIMATE DATE:

- DON'T KNOW  
 NEVER A CUSTOMER

5. The information presented here is from:

- COMPANY RECORDS  
 AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE  
 INFORMATION SECURED FROM THE CUSTOMER

6. This information has been supplied by:

(Name) \_\_\_\_\_ (Company) \_\_\_\_\_ (Telephone) \_\_\_\_\_ (Date)

**FUEL, OIL AND KEROSENE**

Column 1 Date of Delivery	Column 2 Fuel Sold Net Fuel oil #1 (1) Fuel oil #2 (2) Kerosene (K) Other (O)	Column 3 Gallons (Circle one)	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Has tank completely filled? Yes No Don't know (DK) (Circle one)
19		1 2 K 0			YES NO DK
20		1 2 K 0			YES NO DK
21		1 2 K 0			YES NO DK
22		1 2 K 0			YES NO DK
23		1 2 K 0			YES NO DK
24		1 2 K 0			YES NO DK
25		1 2 K 0			YES NO DK
26		1 2 K 0			YES NO DK
27		1 2 K 0			YES NO DK
28		1 2 K 0			YES NO DK
29		1 2 K 0			YES NO DK
30		1 2 K 0			YES NO DK

\*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

geo 91-08



OMB NO. 1905-0092  
(Expires 8/31/86)  
EIA-457/H F4457-08

HOUSEHOLD:

**U.S. DEPARTMENT OF ENERGY**  
**1984-1985 RESIDENTIAL ENERGY CONSUMPTION SURVEY**

Conducted by  
RESPONSE ANALYSTS CORPORATION  
Research Park, Route 206  
P. O. Box 158  
Princeton, New Jersey 08542

**LIQUEFIED PETROLEUM GAS (LP-GAS)**

HOUSEHOLD

**LIQUEFIED PETROLEUM GAS USAGE**

Please provide information on all deliveries to this household from January 1, 1984 to the present date. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Date of Delivery	Column 1 Fuel Sold Was: Propane P Butane B Other 0 (Circle one)	Column 2 Fuel Sold Was: Propane P Butane B Other 0 (Circle one)	Column 3 Quantity Delivered	Column 4 Price per Unit	Column 5 Total Dollar Amount*	Column 6 Has tank/cylinder completely filled? Yes No Don't Know (DK) (Circle one)
1		P B 0					YES NO DK
2		P B 0					YES NO DK
3		P B 0					YES NO DK
4		P B 0					YES NO DK
5		P B 0					YES NO DK
6		P B 0					YES NO DK
7		P B 0					YES NO DK
8		P B 0					YES NO DK
9		P B 0					YES NO DK
10		P B 0					YES NO DK
11		P B 0					YES NO DK
12		P B 0					YES NO DK
13		P B 0					YES NO DK
14		P B 0					YES NO DK
15		P B 0					YES NO DK
16		P B 0					YES NO DK
17		P B 0					YES NO DK
18		P B 0					YES NO DK

These data will be combined with similar data throughout the country to show the use of LP-Gas in U.S. homes.

This research is being conducted by Response Analysis Corporation under U.S. Department of Energy Contract Number DE-AC01-82EI-11557. This survey is mandatory as authorized by the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended by the Energy Conservation and Production Act (Public Law 94-385).

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

PLEASE CONTINUE ON PAGE 4 IF NECESSARY.

\*Please include state and local taxes, where applicable. Exclude merchandise, repairs, or service charges.  
GPO 9-2-037

3

4

LIQUEFIED PETROLEUM GAS (LPG)

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold?  NOT APPLICABLE

2. Please mark unit of measure for deliveries reported on page 2.

POUNDS       CUBIC METERS  
 GALLONS       DECIHERMS  
 CUBIC FEET       OTHER (Please specify): \_\_\_\_\_

3. What is the capacity of this household's storage tank(s)?  
 Capacity is \_\_\_\_\_ and is measured in number of:

POUNDS

GALLONS

OTHER UNIT (Please specify): \_\_\_\_\_

4. Were you supplying this household on January 1, 1984?

YES       NO

IF "NO," approximately when did this household become a customer of your company?

APPROXIMATE DATE

DON'T KNOW  
 NEVER A CUSTOMER

5. Is this household presently your customer?

YES       NO

IF "NO," approximately when did this household stop being a customer of your company?

APPROXIMATE DATE

DON'T KNOW  
 NEVER A CUSTOMER

6. The information reported here is from:

COMPANY RECORDS  
 AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE  
 INFORMATION SECURED FROM THE CUSTOMER

7. This information has been supplied by:

(Name) \_\_\_\_\_ (Company) \_\_\_\_\_ (Telephone) \_\_\_\_\_ (Date) \_\_\_\_\_

\*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

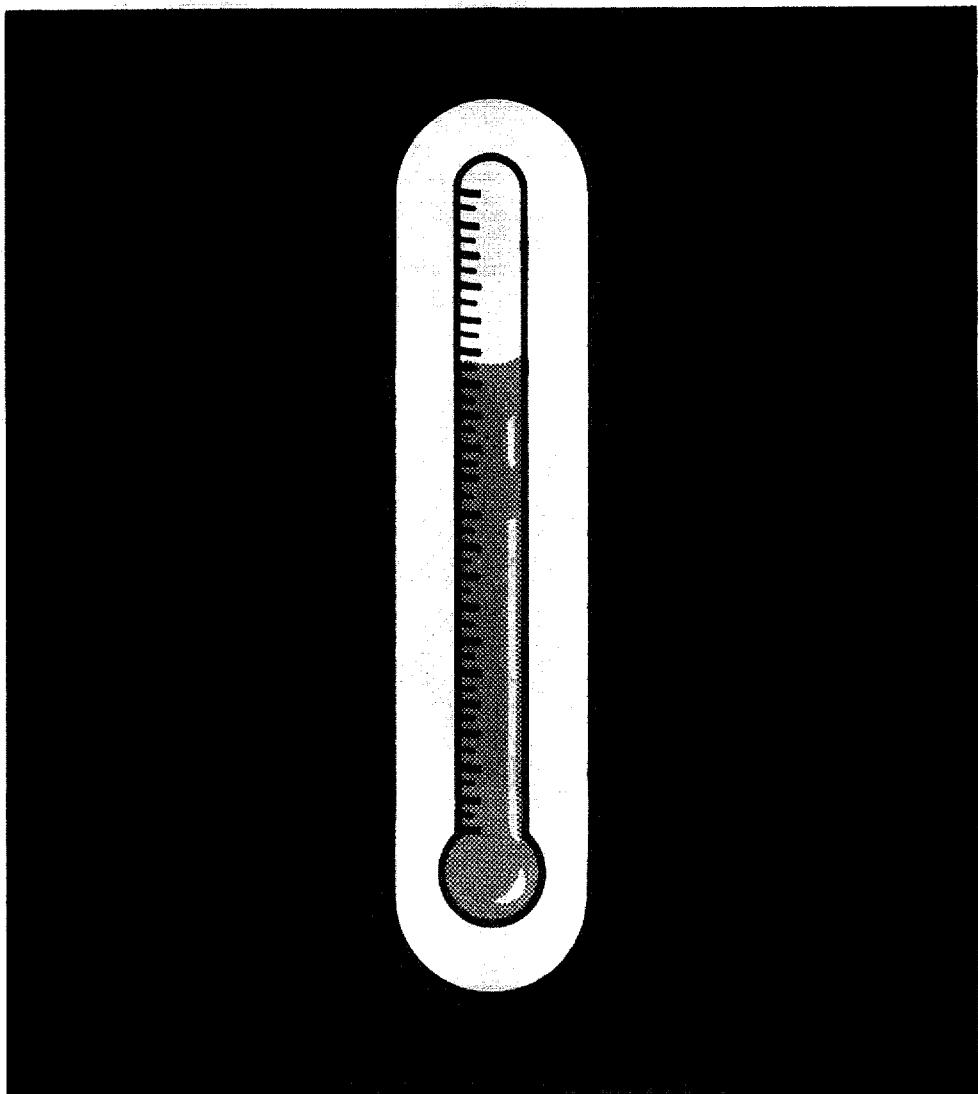
PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

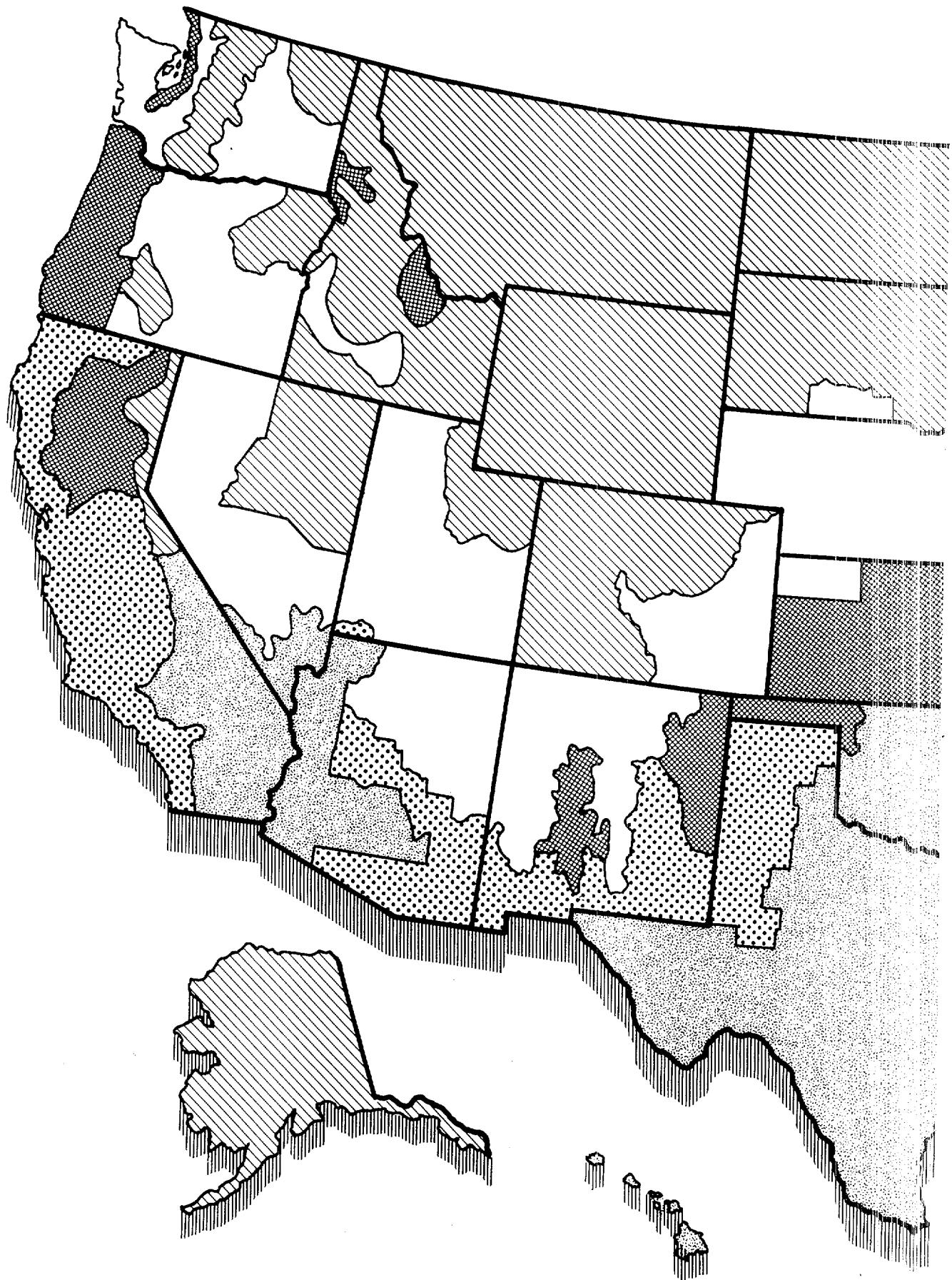
Del. #	Date of Delivery	Fuel Sold Was: Propane Butane Other (Circle one)	Quantity Delivered	Price per Unit	Total Dollar Amount*	Column 5	Column 6
						Column 1	Column 2
19		P B 0				YES	NO OK
20		P B 0				YES	NO OK
21		P B 0				YES	NO OK
22		P B 0				YES	NO OK
23		P B 0				YES	NO OK
24		P B 0				YES	NO OK
25		P B 0				YES	NO OK
26		P B 0				YES	NO OK
27		P B 0				YES	NO OK
28		P B 0				YES	NO OK
29		P B 0				YES	NO OK
30		P B 0				YES	NO OK

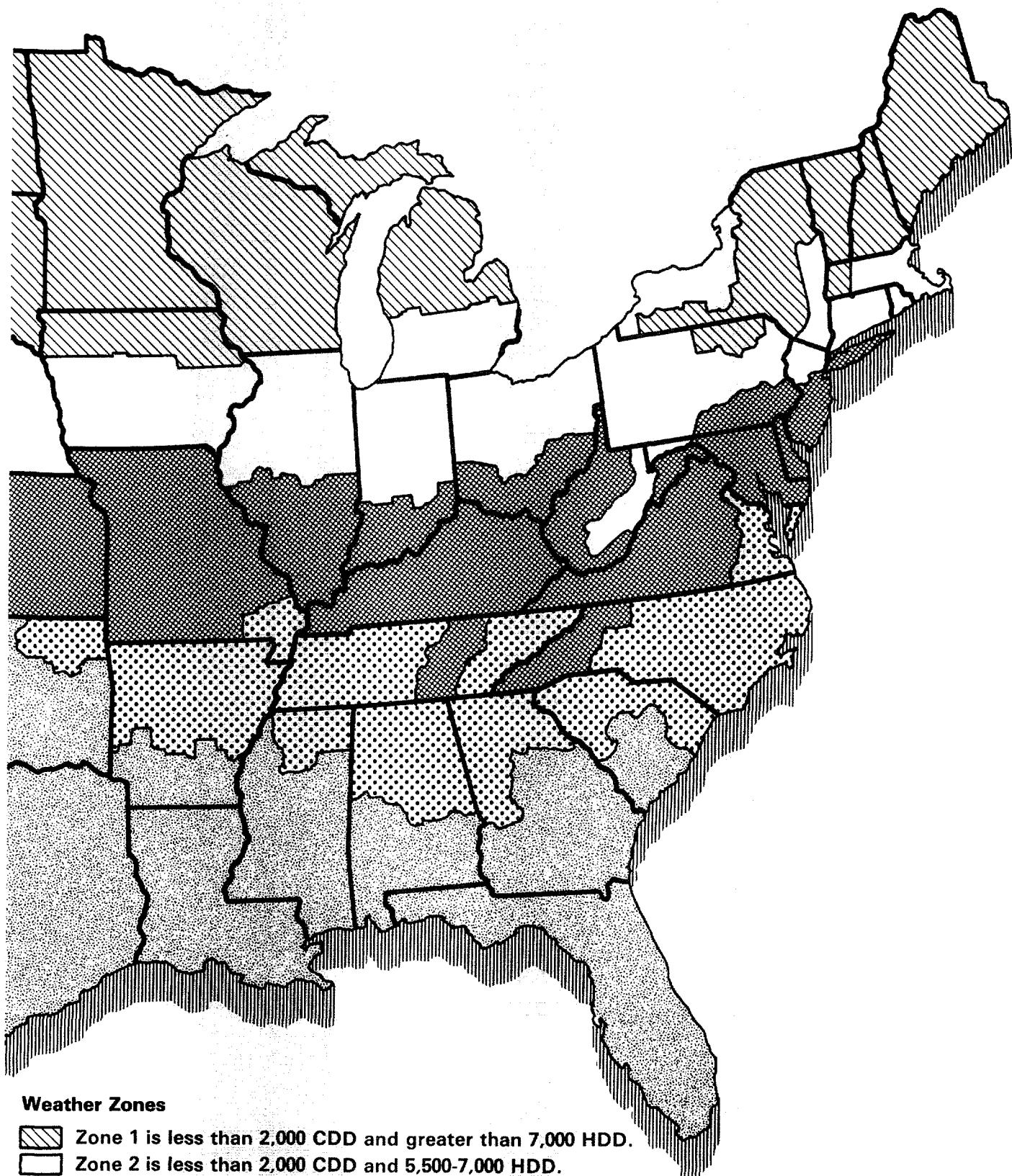


## Appendix E

### U.S. Weather Zone Map

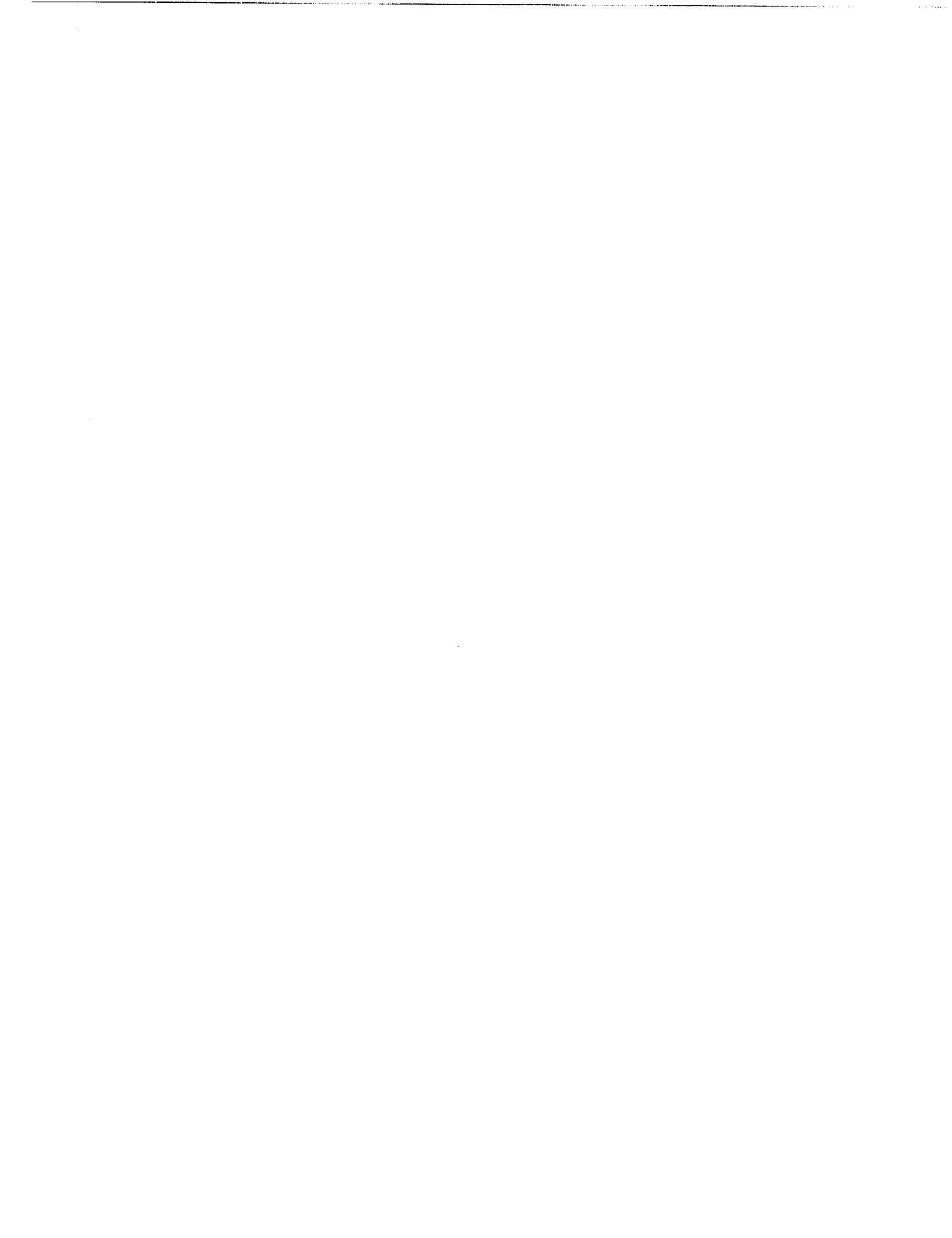






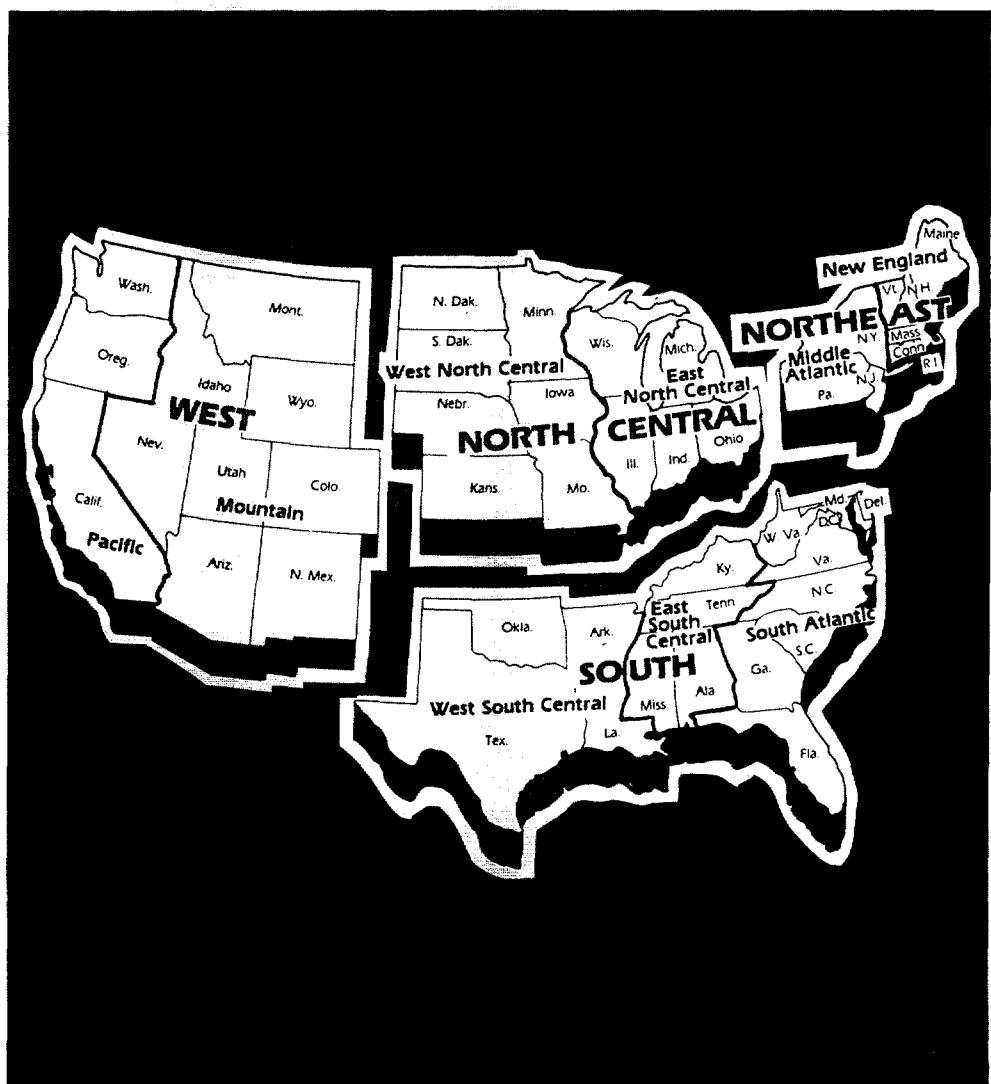
#### Weather Zones

- Zone 1 is less than 2,000 CDD and greater than 7,000 HDD.**
- Zone 2 is less than 2,000 CDD and 5,500-7,000 HDD.**
- Zone 3 is less than 2,000 CDD and 4,000-5,499 HDD.**
- Zone 4 is less than 2,000 CDD and less than 4,000 HDD.**
- Zone 5 is greater than 2,000 CDD and less than 4,000 HDD.**



## Appendix F

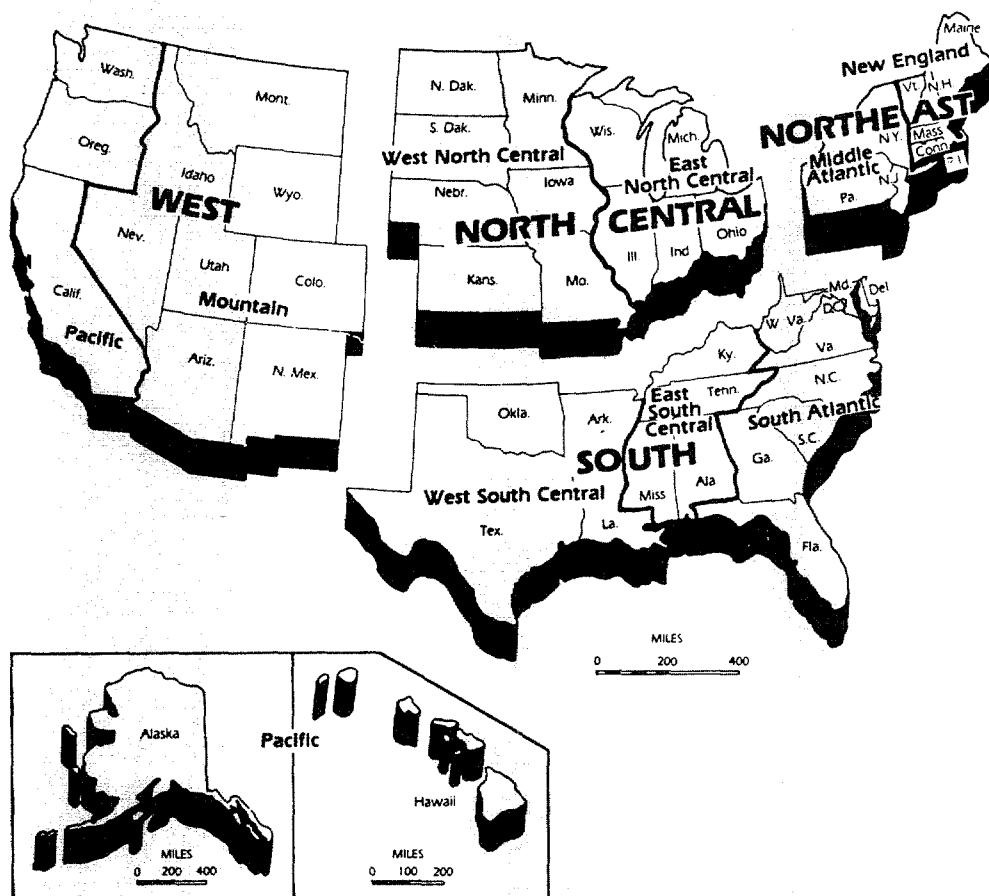
### U.S. Census Regions and Divisions





## Appendix F

# U.S. Census Regions and Divisions





## Appendix G

### Related Publications on Energy Consumption





# Related Publications on Energy Consumption

## Residential Sector

### ***Housing Characteristics***

*Residential Energy Consumption Survey: Housing Characteristics, 1982*; August 1984, DOE/EIA-0314(82), GPO Stock No. 061-003-00393-1, \$7.00.

*Residential Energy Consumption Survey: Housing Characteristics, 1981*; August 1983, DOE/EIA-0314(81), GPO Stock No. 061-003-00330-3, \$6.50.

*Residential Energy Consumption Survey: Housing Characteristics, 1980*; June 1982, DOE/EIA-0314, GPO Stock No. 061-003-00256-1, \$11.00.

*Residential Energy Consumption Survey: Characteristics of the Housing Stock and Households, 1978*; February 1980, DOE/EIA-0207/2, GPO Stock No. 061-003-00093-2, \$4.25.

*Residential Energy Consumption Survey: Conservation* ; February 1980, DOE/EIA-0207/3, GPO Stock No. 061-003-00087-8, \$6.00.

*Preliminary Conservation Tables from the National Interim Energy Consumption Survey*; August 1979, DOE/EIA-0193/P (no GPO Stock No.).

*Characteristics of the Housing Stock and Households: Preliminary Findings from the National Interim Energy Consumption Survey*; October 1979, DOE/EIA-0199/P (no GPO Stock No.).

### ***Consumption and Expenditures***

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 1: National Data*; November 1984, DOE/EIA-0321/1(82), GPO Stock No. 061-003-00411-3, \$7.00.

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1982 Through March 1983, Part 2: Regional Data*; December 1984, DOE/EIA-0321/2(82), GPO Stock No. 061-003-00414-8, \$9.50.

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 1: National Data*; September 1983, DOE/EIA-0321/1(81), GPO Stock No. 061-003-00340-1, \$6.00.

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1981 Through March 1982, Part 2: Regional Data*; October 1983, DOE/EIA-0321/2(81), GPO Stock No. 061-003-00357-5, \$8.00.

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part 1: National Data*; September 1982, DOE/EIA-0321/1(80), GPO Stock No. 061-003-00278-1, \$7.50.

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1980 Through March 1981, Part 2: Regional Data*; June 1983, DOE/EIA-0321/2(80), GPO Stock No. 061-003-00319-2, \$7.00.

*Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part I: National Data (Including Conservation); April 1981, DOE/EIA-0262/1, GPO Stock No. 061-003-00191-2, \$6.50.*

*Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures, Part II: Regional Data; May 1981, DOE/EIA-0262/2, GPO Stock No. 061-003-00189-1, \$8.50.*

*Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979; July 1980, DOE/EIA-0207/5, GPO Stock No. 061-003-00131-9, \$7.50.*

*Single-Family Households: Fuel Oil Inventories and Expenditures: National Interim Energy Consumption Survey; December 1979, DOE/EIA-0207/1, GPO Stock No. 061-003-00075-4, \$3.50.*

### ***Other Publications on the Residential Sector***

*Residential Conservation Measures; July 1986, SR/EEUD/86/01 (no GPO Stock No.).*

*An Economic Evaluation of Energy Conservation and Renewable Energy Tax Credits; October 1985, Service Report (no GPO Stock No.).*

*Residential Energy Consumption and Expenditures by End Use for 1978, 1980, and 1981; December 1984, DOE/EIA-0458, GPO Stock No. 061-003-00415-6, \$4.50.*

*Weatherization Program Evaluation, SR-EEUD-84-1; August 1984 (available from the Office of the Assistant Secretary for Conservation and Renewable Energy, Department of Energy).*

*Residential Energy Consumption Survey: Regression Analysis of Energy Consumption by End Use; October 1983, DOE/EIA-0431, GPO Stock No. 061-003-00347-8, \$5.00.*

*National Interim Energy Consumption Survey: Exploring the Variability In Energy Consumption; July 1981 DOE/EIA-0272, GPO Stock No. 061-003-00205-6, \$5.00.*

*National Interim Energy Consumption Survey: Exploring the Variability in Energy Consumption--A Supplement; October 1981, DOE/EIA-0272/S, GPO Stock No. 061-003-00217-0, \$4.50.*

*Energy Use by U.S. Households; November 1980, DOE/EIA-0248 (brochure, no GPO Stock No.).*

### ***Residential Transportation Sector***

*Residential Transportation Energy Consumption Survey: Consumption Patterns of Household Vehicles, 1983; January 1985, DOE/EIA-0464(83), GPO Stock No. 061-003-00420-2, \$4.50.*

*Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, Supplement: January 1981 to September 1981; February 1983, DOE/EIA-0328, GPO Stock No. 061-003-00297-8, \$4.75.*

*Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, June 1979 to December 1980; April 1982, DOE/EIA-0319 (no GPO Stock No.).*

### ***Commercial Sector***

#### ***Characteristics of Buildings***

*Nonresidential Buildings Energy Consumption Survey: Characteristics of Commercial Buildings, 1983; July 1985, DOE/EIA-0246(83), GPO Stock No. 061-003-00439-3, \$7.50.*

*Nonresidential Buildings Energy Consumption Survey: Fuel Characteristics and Conservation Practices; June 1981, DOE/EIA-0278, GPO Stock No. 061-003-00200-5, \$9.00.*

*Nonresidential Buildings Energy Consumption Survey: Building Characteristics; March 1981, DOE/EIA-0246, GPO Stock No. 061-003-00171-8, \$6.50.*

### ***Consumption and Expenditures***

*Nonresidential Buildings Energy Consumption Survey: 1979 Consumption and Expenditures, Part 1: Natural Gas and Electricity; March 1983, DOE/EIA-0318/1, GPO Stock No. 061-003-00298-6, \$9.50.*

*Nonresidential Buildings Energy Consumption Survey: 1979 Consumption and Expenditures, Part 2: Steam, Coal, Fuel Oil, LPG, and Total Fuels; December 1983, DOE/EIA-0318(79)/2, GPO Stock No. 061-003-00366-4, \$6.00.*

### **Industrial Sector**

*Report on the 1980 Manufacturing Industries' Energy Consumption Study and Survey of Large Combustors; February 1983, DOE/EIA-0358, GPO Stock No. 061-003-00293-5, \$5.00.*

*Industrial Energy Consumption, "Survey of Large Combustors: Report on Alternate Fuel-Burning Capabilities of Large Boilers in 1979"; February 1982, DOE/EIA-0304, GPO Stock No. 061-003-0233-1, \$2.50.*

*Methodological Report of the 1980 Manufacturing Industries Survey of Large Combustors (EIA-463); March 1982, DOE/EIA-0306 (no GPO Stock No.).*

### **Cross-Sector**

*Natural Gas: Use and Expenditures; April 1983, DOE/EIA-0382, GPO Stock No. 061-003-00307-9, \$5.50.*

See inside front cover for information concerning copies of these publications.



## Glossary

**Air Conditioning:** Cooling of the air in a building by a refrigeration unit driven by electricity or gas. This definition excludes fans, blowers, or evaporative cooling systems, "swamp coolers", that are not connected to a refrigeration unit. Air-conditioning units that are not currently in working condition or are not used are still included in this survey if they are in place in the housing unit. Air-conditioning categories are as follows:

All rooms air conditioned--100 percent of the rooms are air conditioned. "Some rooms air conditioned" means that fewer than 100 percent are air conditioned.

Central air-conditioning system--a system, with ducts, that air-conditions several rooms in a home. (See also *Central System for the Building*. For a definition of rooms, see *Number of Rooms*.)

Number of rooms that can be air conditioned--the number of rooms the air-conditioning equipment is capable of cooling when the equipment is used. The question "How many rooms in your house (apartment) can be cooled by your air conditioning?" refers to rooms that could be cooled if the air-conditioning equipment were used. There are, therefore, no cases in the data set of households with air-conditioning equipment that cooled zero rooms.

**AIA Zone:** Classification replaced in this report by "weather zone." (See *Weather Zone*.)

**All-Electric Home:** A residence in which electricity is used for space heating, water heating, and cooking. Other fuels may be used for supplementary heating or other purposes.

**Appliances Used:** Appliances possessed and used by the household during the year. Appliances possess by the household but not used are not counted. Air-conditioning units are an exception; air conditioning is counted as present whether or not it is used. Appliances loaned to the household for its regular use are included. Appliances temporarily not in working condition but generally used by the household are included only if a repair person has been called or the appliance has been taken to a repair shop. Swimming pools, hot tubs, or jacuzzi heaters come under this definition only if they are for the exclusive use of the housing unit. This category excludes any swimming pools, hot tubs, or jacuzzis (such as those in apartment buildings, condominiums, or cooperatives) that are for the use of many resident households. Ponds, or children's wading pools, are not considered swimming pools. The definition of "oven" does not include toaster ovens. An "evaporative cooler (swamp cooler)" is an air-cooling unit that turns air into moist, cool air by saturating the air with water vapor. (See *Air Conditioning*; also see *Refrigerator*.)

**Availability of Natural Gas in the Neighborhood:** Respondents who did not use natural gas answered yes, no, or "don't know" to the question "Is gas from underground pipes available in this neighborhood?" Because respondents were not provided with a definition of "available" or "neighborhood," some variation is to be expected in what these concepts meant to each respondent. The intent of this question is to determine whether a residence could be hooked up to a gas line.

**Basement:** An enclosed space in which a person can walk upright under all or part of the building. A crawl space is the space between the ground and the floor of a house. An enclosed crawl space is one not accessible from the outside of the house because the walls of the space protect it from the weather. A crawl space "open to the outside" is one that is accessible from outside the house--even though it may be covered by a trellis or lathwork, or some kind of brickwork that leaves space for circulation of air.

**Bathroom:** A room set aside for lavatory facilities. A complete bathroom is one that has a flush toilet, a bathtub or shower, and a sink or washbasin with running water. A half-bath is a bathroom that has a flush toilet or a bathtub

or shower but lacks the facilities to be a complete bathroom. A room is not considered a half-bathroom if it contains only a sink or washbasin.

**Billing Period:** The time between meter readings. It does not refer to the time when the bill was sent or when the payment was to have been received. In some cases, the billing period is the same as the billing cycle that corresponds closely (within several days) to meter-reading dates. For fuel oil and LPG, the billing period is the number of days between fuel deliveries.

**Btu (British Thermal Unit):** The amount of energy required to raise the temperature of 1 pound of water by 1 degree Fahrenheit at or near 39.2 degrees Fahrenheit and 1 atmosphere of pressure. One Btu is about equal to the heat given off by a blue-tip match.

For this survey, Btu conversion factors were as follows:

Electricity ..... 3,412 Btu/Kilowatthour

Natural Gas ..... 1,031 Btu/cubic foot

Fuel Oil No. 1 ..... 135,000 Btu/gallon

Kerosene ..... 135,000 Btu/gallon

Fuel Oil No. 2 ..... 138,690 Btu/gallon

LPG (propane) ..... 91,330 Btu/gallon

Wood ..... 20 million Btu/cord

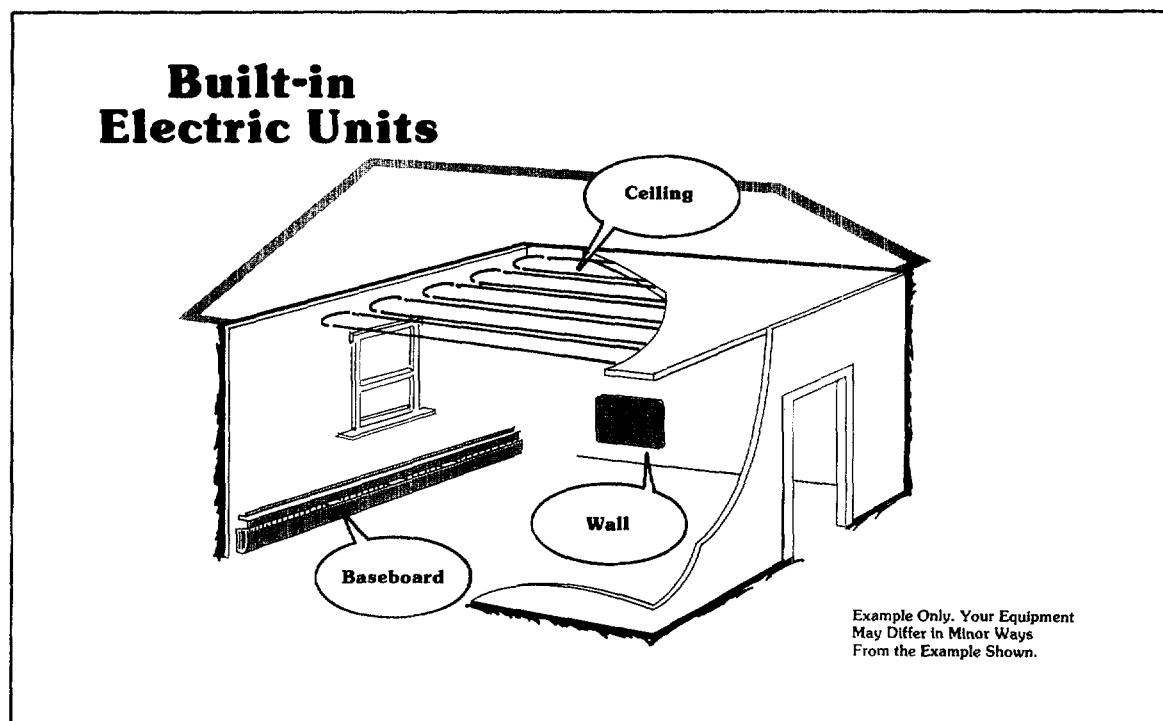
Other conversion factors used in this survey include:

1 therm = 100,000 Btu

1 barrel = 42 gallons

Because almost all LPG reported by the fuel suppliers was propane, the LPG conversion factors are those for propane. (See *Wood Burned* for a discussion of the Btu value of wood.)

**Built-in Electric Units:** An individual resistance electric heating unit that is permanently installed in the floors, walls, ceilings, or baseboards and is part of the electrical installation of the building. Electric heating devices that are plugged into an electric socket or outlet are not considered built in.



**Census Region:** An area consisting of various States selected by the U.S. Bureau of the Census according to population size and physical location. The States are grouped into four regions:

Northeast:

Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont

North Central:

Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

South:

Alabama, Arkansas, Delaware, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West:

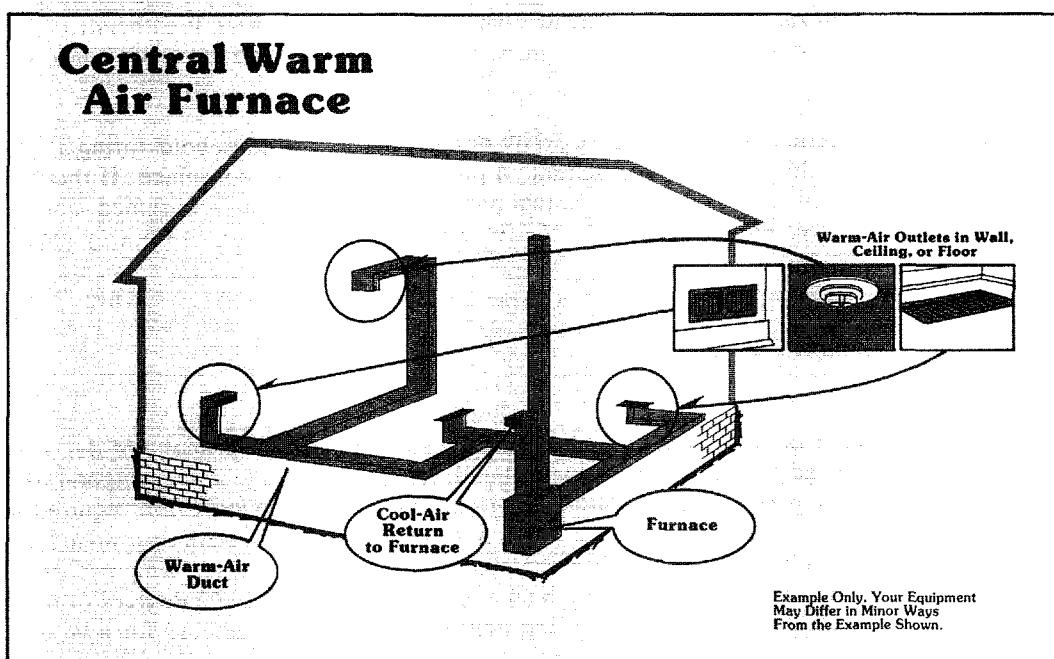
Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

(See map in Appendix F.)

**CDD:** See *Cooling Degree-Days*.

**Central System for the Building:** A system providing the main space heating, water heating, or air conditioning for two or more housing units in the building. A system that is used only for the respondent's living quarters is not a central system for the building.

**Central Warm-Air Furnace:** A central combustor or resistance unit - generally using gas, fuel oil, or electricity - that provides warm air through ducts leading to the various rooms. Heat pumps are not included in this category. A forced-air furnace is one in which a fan is used to force the air through the ducts. In a gravity furnace, air is circulated by gravity, relying on the natural flow of warm air up and cold air down. The warm air rises through ducts and the cold air falls through ducts that return it to the furnace to be reheated. This completes the circulation cycle.



**Climate Zone:** Classification term replaced in this report by the term "weather zone." (See *Weather Zone*.)

**Coal:** See *Fuel*.

**Conservation Items Added:** Energy-saving items added to the housing the household now occupies. Items added to a previous place of residence and changes made by previous occupants of the housing unit are not counted. Changes made by a landlord are counted. The following items qualify as conservation measures:

Automatic or clock thermostat--a thermostat that can be set to turn the heating system off and on at certain predetermined times.

Automatic flue door (vent damper)--a mechanism that automatically closes the flue when the furnace goes off, to prevent heat loss up the chimney.

Caulking around any windows or doors to the outside--moldable sealing material that (when put into cracks around the frames of windows or doors, or cracks in other stationary parts of a house) prevents drafts from coming into a house. Caulking comes in a tube and is claylike so it can be molded by hand to fit the space being treated. Caulking applied either to the inside or to the outside of the home qualifies as an energy-saving item.

Closable shutters, insulating drapes, reflective film--types of energy conservation for windows. This category is used if any one of these has been added to any door or window in the housing unit. Shutters that close to provide an insulating effect are counted, as well as insulated roller shades or "window quilts" whose sides ride in a channel attached to the window frame. Decorative shutters that do not close are not counted.

Electrical or mechanical furnace ignition system (spark ignition)--a mechanism for starting a furnace that ignites fuel from an electrically or mechanically produced spark rather than from a pilot light that burns continuously.

Flame-retention head burner for furnace (fuel oil)--a device that controls the pattern of flame in the combustion chamber of a boiler or furnace.

Insulation around heating and/or cooling ducts--extra insulation around the heating and/or cooling ducts, intended to reduce the loss of hot or cold air as it travels to different parts of the residence.

Insulation around the hot-water and/or cooling pipes--wrapping of insulating material around hot-water and/or cooling pipes, to reduce the loss of heat or cold through the pipes.

Insulation around hot-water heater--blanket insulation wrapped around the hot-water heater to reduce loss of heat. To qualify under this definition, this wrapping must be in addition to any insulation provided by the manufacturer.

Plastic sheets--a generally transparent material used to cover a window or other opening in the housing unit in an attempt to reduce the loss of heat.

Weatherstripping around any windows or doors to the outside--any of several kinds of crack-filling material used to prevent drafts from coming into a house around movable parts of a door or window. Weatherstripping is available in strips or rolls of metal, vinyl, or foam rubber and can be applied on the inside or outside of a building.

**Consumption:** The amount of electricity or natural gas used by or delivered to the household during a 365-day period. For fuel oil, kerosene, and LPG, the quantity represents fuel purchased, not fuel consumed. If the level of fuel in the tank was the same at the beginning and end of the annual period, then the quantity consumed would be the same as the quantity purchased. Measurements or reports of the level of fuel in the tank were not included in the data collection.

**Cooking Stove:** See *Main Heating Equipment*.

**Cooling Degree-Days:** The number of degrees per day the average daily temperature is above 65 degrees Fahrenheit: a quantity used to estimate the need for cooling systems in buildings. (The average daily temperature is the mean of the maximum and minimum temperatures for a 24-hour period.) Normally, cooling is not required in a building when the outdoor average daily temperature is below 65 degrees. Cooling degree-days are determined by subtracting the base of 65 from the average daily temperature. For example, a day with an average temperature of 85 degrees has 20 cooling degree-days ( $85 - 65 = 20$ ), while one with an average temperature of 65 degrees or lower has none. After being calculated for each day, the number of cooling degree-days can be computed for a larger unit of time (a month, a year).

Cooling degree-days for RECS households in the 48 contiguous States and the District of Columbia were assigned according to the NOAA division in which each household was located. For Alaskan and Hawaiian households, cooling degree-days were assigned by appropriate nearby weather stations. (See *NOAA Division, Weather Zone*.)

**Door:** A movable, usually solid barrier for opening and closing an entranceway. Outside doors lead from a heated area to the outside or to an unheated area, such as a porch or garage. Doors leading to a heated hallway in an apartment building, doors permanently sealed shut, and doors to an unheated attic or basement were not counted, because they are not usually fitted with storm doors. Although the NIECS, the predecessor of RECS, counted doors to an unheated attic or basement, the RECS did not. Double doors were counted in the RECS as one door. A pair of sliding glass doors was counted as one door in this survey, whereas in the NIECS survey a pair of sliding glass doors had been counted as two doors. As defined in the RECS, an apartment with one door that opens into a heated hallway has zero doors. The definition of "standard" doors includes doors both with and without glass panels. (See *NIECS*.)

**Electricity:** See *Fuel*.

**Electricity Paid by Household:** The household paid the electric utility company directly for all household uses of electricity, such as for water heating, space heating, air conditioning, cooking, lighting, and operating other appliances. (See *Fuel*.)

**Estimated Bill:** A set of charges for a fuel, calculated by the supplier when the meter is not read. The estimate may be based on one or more of the following factors: past usage, usage by similar households, and weather data.

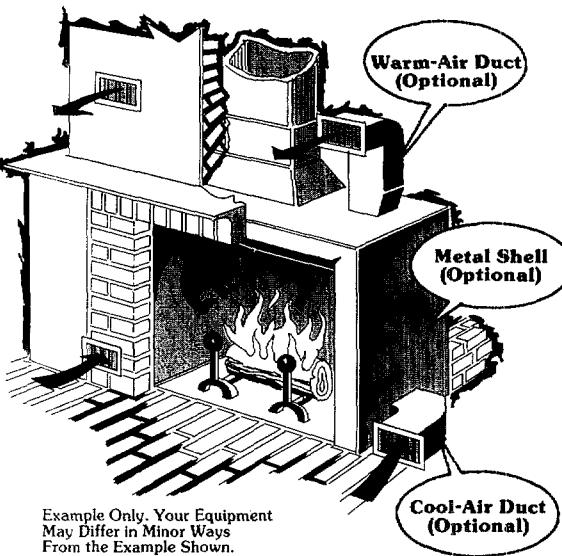
**Family Income:** The total combined income (before taxes and deductions) of all members of the family from all sources, for the 12 months before the interview. It includes wages, salaries, tips, commissions, and income from Social Security, pensions, interest, dividends, rent, public assistance, and unemployment insurance. This definition includes the total income of all family members who lived in the household during the 12 months before the interview, regardless of whether they were living there at the time of the interview. Income of nonfamily members of the household is not included. "Family" includes the following types of relationships: mother, father, sister, brother, son, daughter, father-in-law, uncle, aunt, niece, grandchild, foster child (and similar relationships). The 1984 RECS was the first to ask for income over the prior 12 months. Previous RECS income questions covered the prior calendar year.

**Federal Regions:** The States (including the District of Columbia), divided into 10 groups as follows:

Region	States
1	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
2	New Jersey, New York
3	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
4	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee
5	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
6	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
7	Iowa, Kansas, Missouri, Nebraska
8	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
9	Arizona, California, Hawaii, Nevada
10	Alaska, Idaho, Oregon, Washington

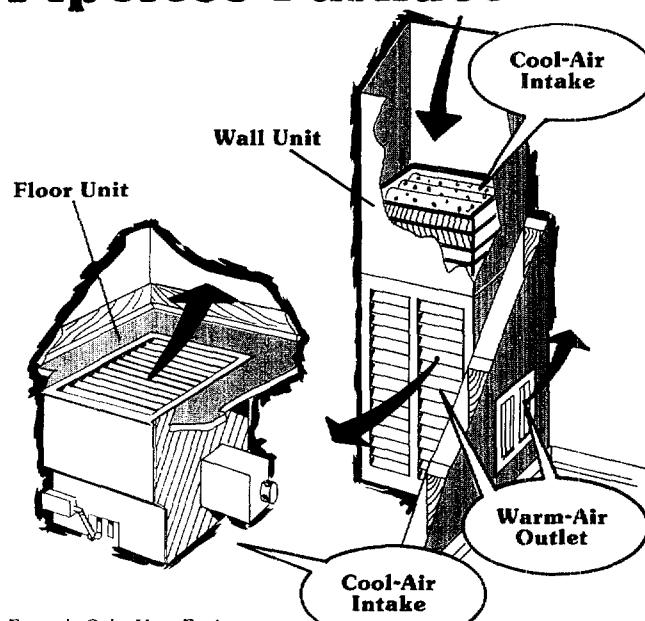
**Fireplace:** Usually a masonry unit burning wood, that is built into the wall of a house. Fireplaces in mobile homes are included. A fireplace must have a permanent chimney. A freestanding fireplace that can be detached from its chimney is a heating stove. A fireplace insert is classified as a fireplace.

# Fireplace



**Floor, Wall, or Pipeless Furnace:** A ductless combustor or resistance unit, an enclosed chamber where fuel is burned or where electrical-resistance heat is generated to warm the rooms of a building. A floor furnace is located below the floor and delivers heated air to the room immediately above or (if under a partition) to the room on each side. A wall furnace is installed in a partition or in an outside wall and delivers heated air to the rooms on one or both sides of the wall. A pipeless furnace is installed in a basement and delivers heated air through a large register in the floor of the room or hallway immediately above.

## Floor, Wall, or Pipeless Furnace



**Fuel:** The primary fuel delivered to a residential site. It may be converted to some other form of energy at the site. In this report, electricity is included. The following are primary fuels:

Coal--a combustible mineral substance (carbonized vegetable matter); in this report, the term includes its derivative (formed by destructive distillation or imperfect combustion) coke.

Electricity--metered electric power supplied by a central utility company to a residence via underground or above-ground power lines. It does not refer to electricity generated on site for the exclusive use of a residence. When a residence has its own generating capability, the fuel used for the generator will be specified. The Btu equivalent for electricity is the energy value of electricity as received by the household (3,412 Btu per kilowatthour). For this report, energy losses that occur in generating and transmitting electricity are not included in the conversion of electricity into Btu. If these losses were to be included, the conversion rate would generally be about 10,353 Btu per kilowatthour.

Fuel oil--No. 1, No. 2, or No. 4 grade fuel oil or residual oil that is burned for space- or water-heating purposes. No. 1 distillate fuel oil is a form of heating oil used mostly as a blending stock to assure that heavier grades of fuel flow under severe cold weather conditions. No. 2 distillate collectively refers to No. 2 heating oil and No. 2 diesel fuel. Although these products are not precisely identical, they are essentially interchangeable in most applications. No. 2 fuel oil is the most common form of heating oil. No. 4 distillate is a blend of No. 2 and No. 5 or No. 6 residual fuel oil, used in large stationary diesel engines and boilers equipped with fuel preheating equipment. Residual fuel oil refers to the heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations.

Kerosene--a distilled product of oil or coal with the generic name kerosene, having properties similar to those of No. 1 fuel oil. Kerosene is used for cooking stoves or for space heating or water heating or for lighting equipment that uses wicks. It is sometimes sold under the names "range oil," "stove oil," or "coal oil."

LPG or liquefied petroleum gas--any fuel gas supplied to a residence in liquid form, such as propane or butane. It is usually delivered by tank truck and stored near the residence in a tank or cylinder until used. Propane was the most common liquefied petroleum gas supplied to RECS households. Household use of LPG solely for outdoor gas grills is not considered sufficient use to mark the household as a user of LPG.

Natural gas--utility gas supplied by underground pipeline to individual housing units by a central utility company. It does not refer to privately owned gas wells operated by the household, nor to LPG.

Solar collector--equipment that actively concentrates thermal energy from the sun. The energy is usually used for space heating, for water heating, and for heating swimming pools. Either air or liquid is the working fluid. Passive collection of solar thermal energy does not qualify for inclusion.

**Fuel Oil:** See *Fuel*.

**Fuel Oil Paid by Household:** The household paid the fuel supplier directly for all household uses of fuel oil or kerosene (such as for space heating or water heating). (See *Fuel*.)

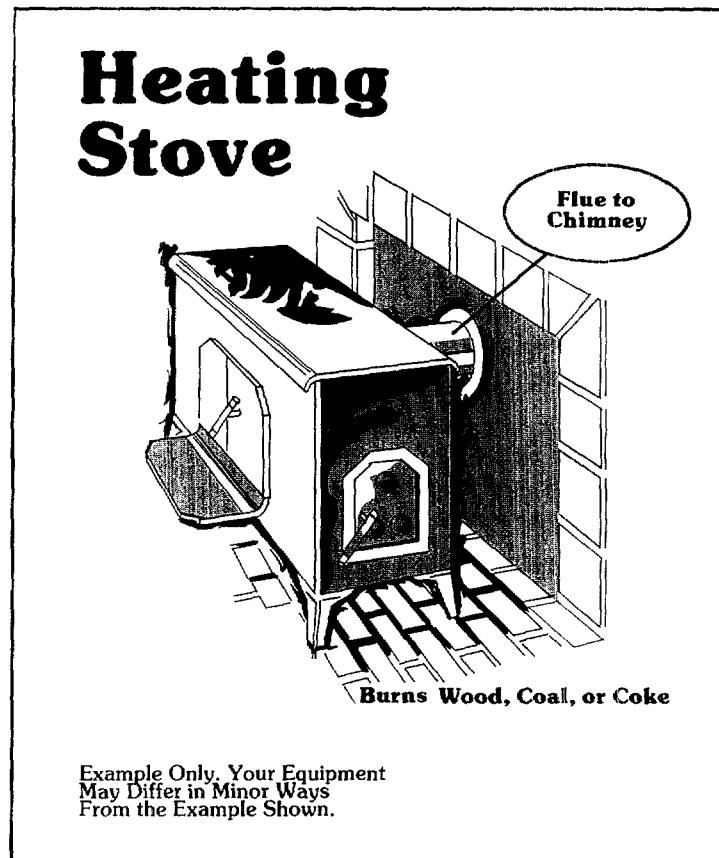
**Gas Paid by Household:** The household paid the utility company directly for all household uses of natural gas (such as for water heating, space heating, air conditioning, cooking, and operating appliances including outdoor gas lights). (See *Fuel*.)

**HDD:** See *Heating Degree-Days*.

**Heating Degree-Days (HDD):** The number of degrees per day the average daily temperature is below 65 degrees Fahrenheit; a quantity used to estimate the need for heating systems in buildings. (The average daily temperature is the mean of the maximum and minimum temperatures for a 24-hour period.) Normally, heating is not required in a building when the outdoor average daily temperature is above 65 degrees. Heating degree-days are determined by subtracting the average daily temperature below 65 degrees from the base 65. For example, a day with an average temperature of 50 degrees has 15 heating degree-days ( $65 - 50 = 15$ ), while one with an average temperature of 65 or higher has none. After being calculated for each day, the number of heating degree-days can be computed for a larger unit of time (a month, a year).

Heating degree-days for RECS households in the 48 contiguous States and the District of Columbia were assigned according to the NOAA division in which each household was located. For Alaskan and Hawaiian households, heating degree-days were assigned by appropriate nearby weather stations. (See *NOAA Division, Weather Zone*.)

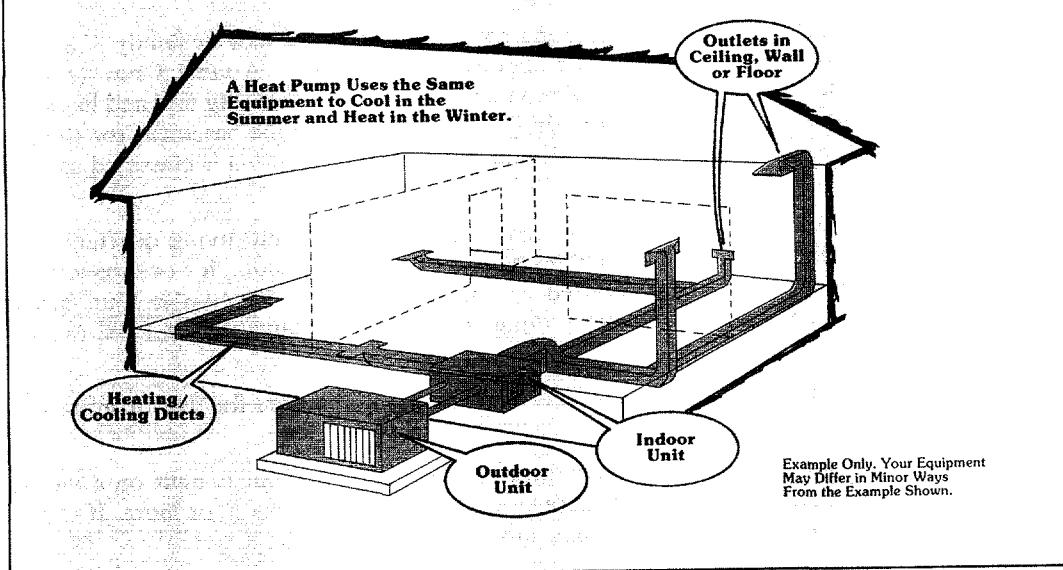
**Heating Stove Burning Wood, Coal, and Coke:** Any freestanding box or controlled-draft stove; or a stove installed in a fireplace opening, using the chimney of the fireplace. Stoves are made of cast iron, sheet metal, or plate steel. Freestanding fireplaces that can be detached from their chimneys are considered heating stoves. "Airtight" stoves allow the user to control the amount of air in the stove to regulate the rate of combustion. The doors fit tightly so that the air flow can be controlled. Many airtight stoves have a gasket around the door of the stove. "Nonairtight" stoves are those lacking gaskets around their door openings.



**Heat Pump (Reverse Cycle System):** A year-round heating/air-conditioning system in which refrigeration equipment supplies both heating and cooling through ducts leading to individual rooms. A heat pump generally consists of a compressor, both indoor and outdoor coils, and a thermostat; in the RECS system, only electricity was allowed as the power source.

The heat pump, when attached to a central furnace, is either the main or secondary heating equipment (depending on how often the heat pump operates). If it operates for a short time and then the furnace comes on, the heat pump is secondary (or additional) heating equipment. If the heat pump is sufficient to provide the desired warmth, the heat pump is cited as the main heating equipment.

# Heat Pump



**Heated Area of Residence:** See *Square Feet*.

**Heating Controls:** A thermostat for either the main or secondary heating equipment.

**Hot-Deck Imputation:** A procedure by which the household file is sorted by variables related to the missing item. Then a household is selected that has the same value on the matching variables, and the value for this "donor" household supplies the value for the missing item. (See *Imputation*.)

**Household:** A family, an individual, or a group of up to nine unrelated persons occupying the same housing unit. The housing unit has to have been the person's usual or permanent place of residence when the first field contact was made. The household includes babies, lodgers, boarders, people who live in the housing unit as employees, and people who usually live in the household but are away traveling or are patients in a hospital. The household does not include people who are normally members of the household but who were away from home as college students or members of the armed forces at the time of the contact.

The household does not include people temporarily visiting with the household if they have a place of residence elsewhere, people who take their meals with the household but usually lodge or sleep elsewhere, domestic employees (or other people employed by the household who *do not* sleep in the same housing unit, or people who are former members of the household but have since become inmates of facilities in which residents may remain for long periods of time (such as correction or penal institutions, mental institutions, homes for the aged or needy, homes or hospitals for the chronically ill or handicapped, nursing homes, or convents or monasteries). By definition, the count of households is the same as the count of occupied housing units.

**Householder:** The person (or one of the people) in whose name the home is owned or rented. If there is no lease or similar agreement, or if the person who owns the home or pays the rent does not live in the housing unit, the householder is the person responsible for paying the household bills, or whoever is generally in charge.

**Housing Structure:** One of four structural types used to categorize the building in which the housing unit was located. The types of structure are as follows:

Single-family housing unit--a structure that provides living space for one household or family. The structure may be detached, attached on one side (semidetached), or attached on two sides. Attached houses are considered single-family houses as long as the house itself is not divided into more than one housing unit and has an independent outside entrance. A single-family house is contained within walls that go from the basement (or the ground floor, if there is no basement) to the roof. (A mobile home with one or more rooms added is classified as a single-family home.)

House or building with two to four housing units--a structure that is divided into living quarters for two, three, or four families or households. This category also includes houses originally intended for occupancy by one family (or for some other use) that have since been converted to separate dwellings for two to four families. Typical arrangements in these types of living quarters are separate apartments downstairs and upstairs, or one apartment on each of three or four floors.

Building with five or more housing units--a structure that contains living quarters for five or more households or families.

Mobile home or trailer--a structure that has all the facilities of a dwelling unit but is built on a movable chassis. It may be placed on a permanent or temporary foundation and may contain one room or more. If rooms are added to the structure, it is considered a single-family housing unit.

**Housing Unit:** A structure or part of a structure where a household (either a family or an individual) lives (or could live). It has access to the outside of the building either directly or through a common hall. Housing units do not include group quarters (such as prisons, hospitals, dormitories, nursing homes, fraternity houses, or convents) where 10 or more unrelated persons live. If occupied, hotel rooms, motel rooms, mobile homes, or trailers are considered housing units.

**Imputation:** A statistical method used to estimate the response to specific questions for which answers are missing. In general, it is a procedure for filling in missing data values.

**Insulation:** Any material that when placed between the interior of the dwelling and the outdoor environment, reduces the rate of heat loss to the environment in winter or heat gain from the environment in summer. Floor insulation is defined as insulation between the bottom floor and the unheated basement or crawl space; carpeting or carpeting pads do not qualify as insulation. The four forms of insulation illustrated in a drawing shown to respondents are listed below.

Blankets or batts--rolls or pieces of insulation that are nailed or stapled between the rafters or wall joists (beams). Such insulation is usually made of fiberglass or rock wool.

Loose particles or loose fill--loose insulation (supplied in a bag) that is poured between joists (beams). Loose insulation can also be blown into open spaces. Loose fill can be glass fiber, rock-wool fibers, cellulose fiber, or vermiculite.

Firm foam or firm plastic--rigid boards (such as styrofoam) that can be cut to size and either edged, nailed, or glued into place.

Sprayed-in foam--foam that solidifies after being sprayed on a surface or poured into a cavity to be insulated.

**Kerosene:** See *Fuel*.

**kWh (kilowatthour):** A unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equivalent to 3,412 Btu. (See *Btu*.)

**LPG:** See *Fuel*.

**LPG Paid by Household:** The household paid the fuel supplier directly for all household uses of LPG such as water heating, space heating, air conditioning, cooking (except that cooking on an outdoor grill is not counted), and operating appliances. (See *Fuel*.)

**Main Cooking Fuel:** The answer to the question "Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range, and with small appliances, which fuel is used most?"

**Main Heating Equipment:** The equipment primarily used for heating and ambient air in household. The main heating equipment is reported as such even if it is temporarily out of order. If two types of heating equipment are used, the main equipment is the one that is used more. If both are used equally, the main equipment is the one that appears first on the list in the question. A "cooking stove" may be used as the main heating equipment even though it was built for preparing food. (See also description of specific heating equipment.)

**Main Heating Fuel:** The fuel named by the respondent in response to the question "What is the main fuel used for heating your home?"

**Master-Metering:** The method used by utility companies (for example, purveyors of electricity and natural gas) to measure the total volume of energy used by several individual customers collectively.

**Mean:** The simple arithmetic average for a population--the sum of all the values in a population, divided by the size of the population.

**Median:** A measure of central tendency, intended to express a "typical" value for an attribute. The median is different from the arithmetic average (mean) in that its value is not much influenced by extremes. For example, the mean number of cords of wood consumed per household would be affected by the inclusion of a few heavy users of wood, and would not express wood consumption for a "typical" wood-using household. However, the median number of cords of wood consumed per household would not be so affected. Medians are computed by listing all values in ascending order. The value that divides the list in half is the median.

**Metropolitan:** A group of households located within Metropolitan Statistical Areas (MSA's) as defined in the 1980 Census. Except in New England, an MSA is a county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. The contiguous counties are included in an MSA if (according to certain criteria) they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSA's consist of towns and cities, rather than counties. "Nonmetropolitan" refers to households not located within MSA's as defined in the 1980 Census.

**Natural Gas:** See *Fuel*.

**NIECS:** The National Interim Energy Consumption Survey, the first developmental survey in the planned series of Residential Energy Consumption Surveys. The NIECS contacted 4,081 households in October and November 1978. Fuel suppliers provided data on consumption and expenditures for the period April 1978 through March 1979.

**NOAA Division:** One of the 344 weather divisions, designated by the National Oceanic and Atmospheric Administration (NOAA), encompassing the 48 contiguous States and the District of Columbia. Although these divisions usually follow county borders to encompass counties with similar weather conditions, they do not follow county borders when weather conditions vary considerably within a county (such as is likely to be the case when the county borders the ocean or contains high mountains). A State contains an average of seven NOAA divisions; a NOAA division contains an average of nine counties.

**Number of Rooms:** Subdivisions of a living unit. Whole rooms are rooms such as living rooms, dining rooms, bedrooms, kitchens, lodgers' rooms, finished basements or attic rooms, recreation rooms, and permanently enclosed sun porches that are used year-round. Rooms used for offices by a person living in the unit are included in this survey. "Finished"

means that the ceiling and walls are covered with finishing materials.

Not considered to be rooms, in this survey, are bathrooms, halls, foyers, or vestibules, balconies, closets, alcoves, pantries, strip or pullman kitchens, laundry or furnace rooms, unfinished attics or basements, open porches, and unfinished space used for storage.

A partially divided room, such as a dinette next to a kitchen or a living room, is considered a separate room only if there is a partition from floor to ceiling--but not if the partition consists solely of shelves or cabinets. If a room is used by occupants of more than one unit, the room is included with the unit from which it is most easily reached.

**Occupied Housing Unit:** A unit someone was living in as his or her usual or permanent place of residence when the first field contact was made.

**Origin:** The primary ethnic background of the person considered the householder. Each respondent was asked, "Which of the groups on this exhibit best describes (HOUSEHOLDER)?" The groups listed were white, black or Negro, American Indian, Alaskan native, Asian, Pacific Islander. The word "race" was not used in either the questionnaire or the instructions.

**Owned/Rented:** The relationship of its occupants to the structure itself, not the land on which it is located. "Owned" means the owner or co-owner is a member of the household. The housing unit may be mortgaged and not fully paid for. A household is classified "rented" even if the rent is paid by someone not living in the unit. "Rent free" means the unit is not owned or being bought and no money is paid or contracted for rent. Such units are usually provided in exchange for services rendered or as an allowance or favor from a relative or friend not living in the unit. Unless shown separately, rent-free households are grouped with rented households.

**Payment Method for Utilities:** Method by which fuel suppliers or utility companies were paid for *all* electricity, natural gas, fuel oil, kerosene, or liquefied petroleum gas used by a household. Households that paid the utility company directly were classified in this survey as "all paid by household." Households that paid directly for at least one but not all of their fuels used and that had at least one fuel charge included in the rent were classified as "some paid, some included in rent." Households for which all fuels used were included in rent were classified as "all included in rent." Some households were classified as "other method," if they did not fall into any of those three categories. These are households for which fuel bills were paid by a department of social services or a relative, and households that paid for some of their fuels used but paid for other fuels through another arrangement.

**Poverty:** Low-income classifications to which certain households are assigned. "Below 100 percent of poverty" encompasses a group of households with incomes below the poverty level as defined by the Bureau of the Census. "Below 125 percent of poverty" includes a group of households with incomes below 125 percent of the poverty level. This group of the poor and near-poor represents an alternative level for defining poverty. The definitions of "poor" are based on the number of family members in the household and the income of the entire family.

Because income data were collected by using categories of income (for example, \$3,000 to \$3,999), an exact match of Census thresholds for poverty could not be made. Furthermore, underreporting of income is a problem in surveys of this type. Underreporting may occur because respondents forgot to mention some types of income or reported them as less than they were. Underreporting may be a greater problem in the RECS survey, which measures income by one question, than in the Current Population Survey (CPS), which asks questions regarding each source of income for each household member. For example, although for 1984 the RECS estimate for households below 100 percent of poverty was 13.680 million, the CPS estimate for the same year was 13.886 million.

**Table G1. Definition of Poverty**

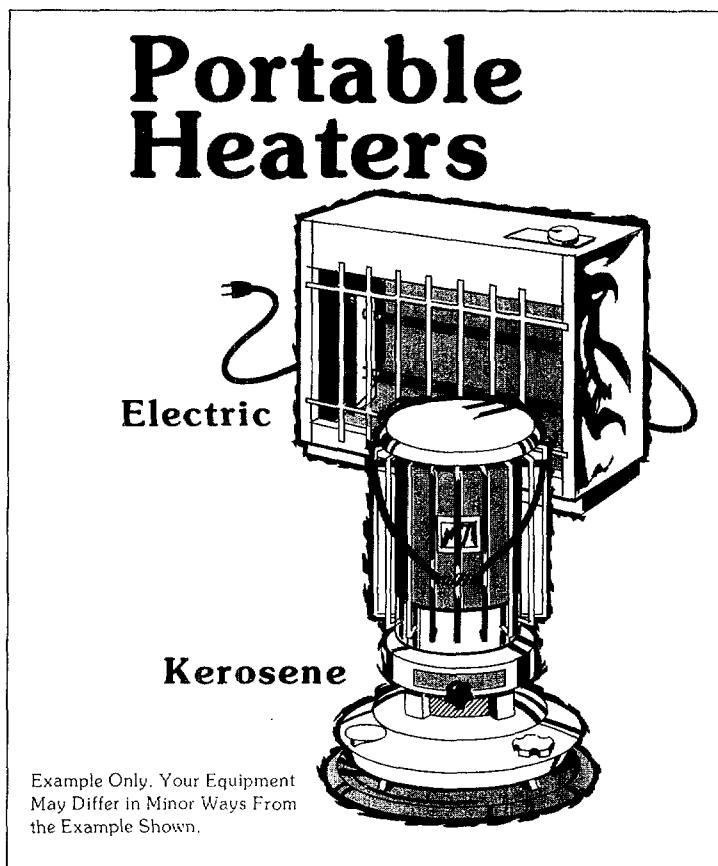
Number of Persons per Family	Below 100 Percent of Poverty		Below 125 Percent of Poverty	
	1984 RECS Income Range Less Than:*	Census Threshold#	1984 RECS Income Range Less Than:*	125 Percent Threshold#
1 and-- respondent is younger than 65	\$5,000	<b>\$5,400</b>	\$7,500	\$6,750
respondent is older than 64	5,000	<b>4,979</b>	6,000	6,224
2 and-- householder is younger than 65	7,500	<b>6,983</b>	9,000	8,729
householder is older than 64	6,000	<b>6,282</b>	7,500	7,853
3	9,000	<b>8,277</b>	10,000	10,346
4	11,000	<b>10,609</b>	14,000	13,261
5	12,500	<b>12,566</b>	15,000	15,708
6	14,000	<b>14,207</b>	17,500	17,759
7	15,000	<b>16,096</b>	20,000	20,120
8	17,500	<b>17,961</b>	22,500	22,451
9 or more	20,000	<b>21,247</b>	27,500	26,559

\*The income category that contained the Census threshold was taken as the upper limit in defining poverty when the Census threshold was equal to or above the midpoint of the income category. For example, since the threshold of \$5,400 was not above the midpoint of the category \$5,000 to \$5,999, the next lower income category was used.

#Figures from the U.S. Bureau of the Census, "Money Income and Poverty Status of Families and Persons in the United States: 1984" (Advance Data from the March 1985 Current Population Survey) (Current Population Reports, Series P-60, No. 149, August 1985), Table A1, p. 31.

Sources: Energy Information Administration, Office of Energy Markets and End Use, The 1984 Residential Energy Consumption Survey.

**Portable Electric Heater:** A heater that uses electricity and that can be picked up and moved.



**Portable Kerosene Heater:** A heater that uses kerosene and that can be picked up and moved.

**Primary Sampling Unit or PSU:** The sampling units selected at the first stage in multistage area probability sampling. A PSU typically consists of one to several contiguous counties—for example, a metropolitan area with surrounding suburban counties. The approximately 3,100 counties and independent cities of the contiguous United States were grouped into about 1,800 PSU's by a procedure similar to the one used by the Census Bureau for its Current Population Survey. PSU's can be composed of one or more MSA's or can be composed of rural counties. (See *Metropolitan* and Appendix A, "How the Survey Was Conducted.")

**Quadrillion:** The quantity 1,000,000,000,000,000 (10<sup>15</sup>).

**Race:** See *Origin*

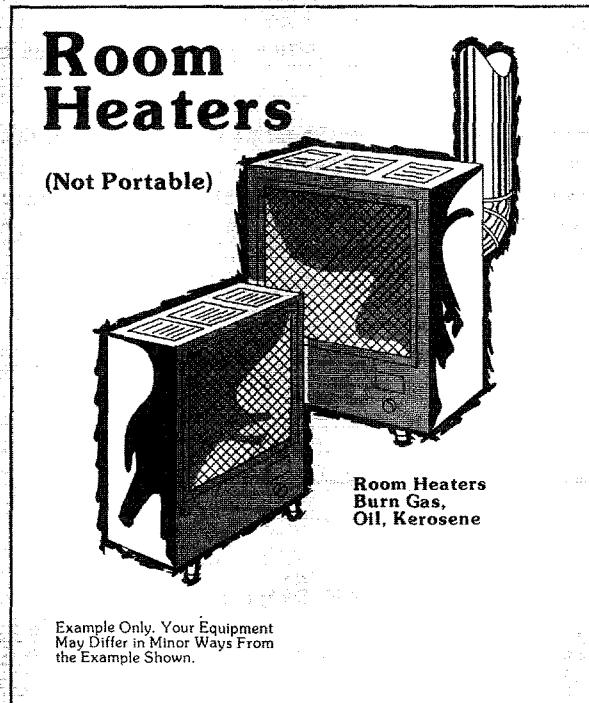
**Refrigerator:** A cabinet or box for keeping food cool, usually powered by electricity. Those with no freezer sections are included in the non-frost-free category. "Frost-free" means that frost does not build up on the insides of the freezer section or the ice-cube section.

**Rent:** See *Owned-Rented*.

**Residential:** Occupied housing units, including mobile homes, single-family housing units (attached and detached), and apartments. The definition of "housing units" is the same as that used by the U.S. Bureau of the Census. (See *Household and Housing Unit* for further definition.)

**Rooms:** (See *Number of Rooms*.)

**Room Heater Burning Gas, Oil, Kerosene:** Any of the following structures: circulating heaters, convectors, radiant gas heaters, space heaters, or other *nonportable* room heaters that may or may not be connected to a flue, vent, or chimney.



**RSE or Relative Standard Error:** A measure of the reliability or precision of the survey statistics we used. Variability occurs in survey statistics because the different samples that could be drawn would each produce different values for the survey statistics. Relative Standard Error, or RSE, is a measure of precision on a percentage scale. The RSE is defined as the standard error of a survey estimate, divided by the survey estimate and multiplied by 100. (Standard error is the square root of the variance.) For example, an RSE of 50 percent means that the standard error is half as large as the survey estimate. (See Appendix C, "Quality of the Data," for a discussion of sampling errors.)

**Screener Survey:** The Residential Energy Consumption Survey that resulted in contact with 4,033 households in October and November 1979. Fuel suppliers provided data on consumption and expenditures from April 1979 through March 1980. This survey was named the Household Screener Survey because it was used to screen households for participation in the Household Transportation Panel.

**Secondary Heating Fuel:** Fuels used in secondary heating equipment. When no secondary heating equipment is used, a secondary heating fuel that is used in the main heating equipment is not included in the tabulations. This occurs when, for example, wood and coal are both used in a furnace but wood is named the main heating fuel. Coal, in this case, is not tabulated.

**Secondary Heating Equipment:** Equipment used besides the main equipment. Description of the secondary heating

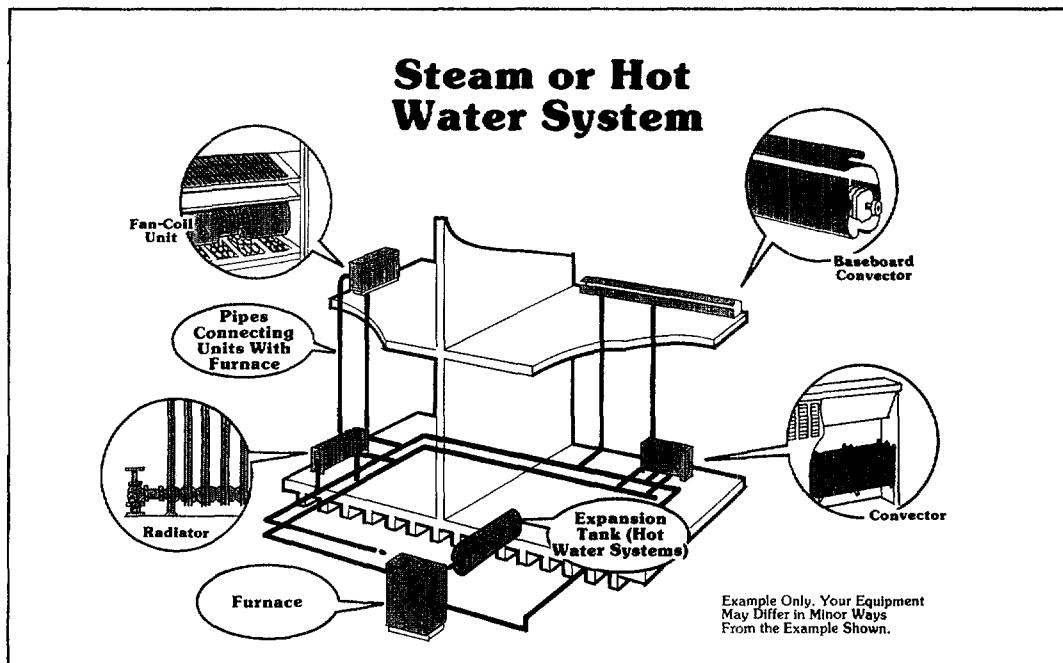
equipment is the same as for the main heating equipment.

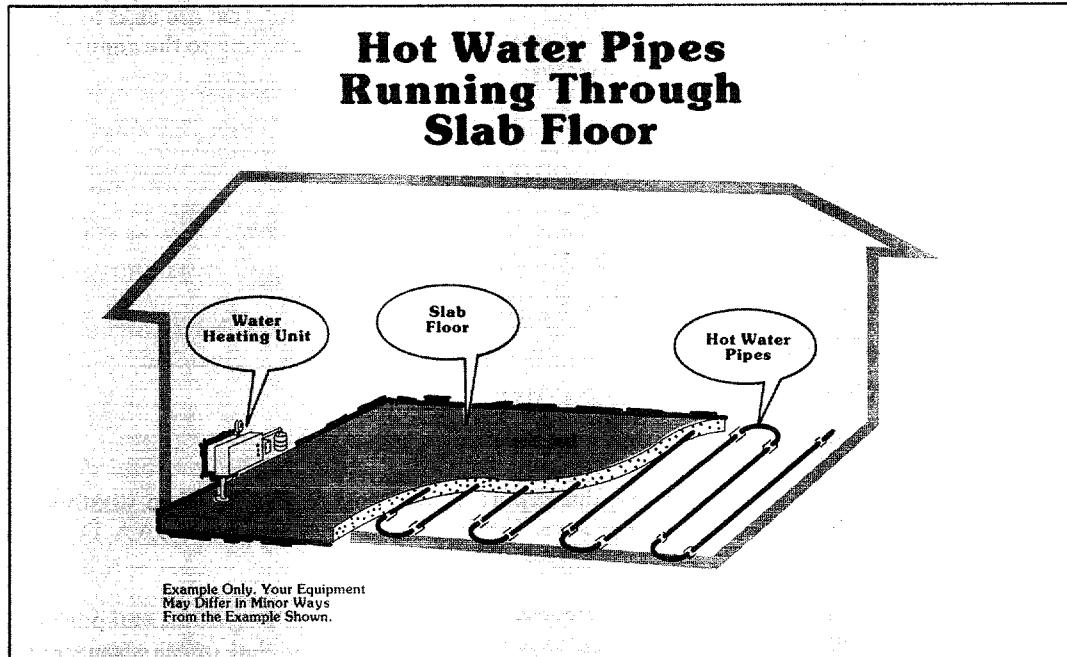
**Solar Collector:** See *Fuel*.

**Square Feet:** The floor area of the housing unit that is enclosed from the weather. Basements are included, whether or not they contain finished space. Garages are included if they have a wall in common with the house. Attics that have finished space and attics that have some heated space are included. Crawl spaces are not included, even if they are enclosed from the weather. Sheds and other buildings that are not attached to the house are not included. "Measured" means that the measurement of the dimensions of the home did not rely on the respondent's reports but was an actual measurement made by the interviewer using a metallic, retractable, 50-foot tape measure. (For details on how the measurement was made and how the data were treated, see Appendix B.)

"Heated area" is the portion of the measured square feet that is heated during most of the winter season. Rooms that are shut off during the heating season to save fuel are not counted as heated square footage. Attached garages that are unheated, and unheated areas in basements and attics, are not counted as heated square feet.

**Steam or Hot-Water System:** Either of two types of central heating system that supplies steam or hot water to radiators, convectors, or pipes. The more common type supplies either steam or hot water to conventional radiators, baseboard radiators, convectors, heating pipes embedded in the walls or ceilings, or heating coils or equipment that are part of a combined heating/ventilating or heating/air-conditioning system. The other type supplies radiant heat through pipes that carry hot water and are inlaid in a concrete slab floor.





**Storm Doors and Windows:** Doors made of double or insulating glass such as thermopane. Glass or plexiglass placed over a sliding glass door on either the exterior or interior is counted as a storm door. A plastic sheet covering the door is not counted as a storm door.

Windows made of double or insulating glass, such as thermopane. Glass or plexiglass placed over windows on either the interior or exterior side are counted as storm windows. Plastic sheets covering windows are counted only if they can be used year after year.

Note: Responses of "don't know" for storm doors, storm windows, and/or attic insulation were treated the same as "do not have." For example, a respondent who indicated that his or her house had storm windows (some or all) and storm doors (some or all), but who did not know whether it had attic insulation, was counted in the "have one or two of these" category.

**Vacant Housing Unit:** A housing unit not occupied when the first field contact was made. An occupied seasonal or migratory housing unit is classified as vacant at the time of the first field contact if all of its occupants had a usual place of residence elsewhere.

**Water-Heating Fuel:** The fuel used to heat bath and wash water (as clarified in the 1982 RECS), in answer to the question "Which fuel is used most for heating?" The phrase "other than just for cooking purposes" was added to the question in the 1982 RECS to clarify that the use for the hot water is for bathing and washing. Households that did not have running water in the home were also asked this question. The hot water may have been available anywhere in the same building as the respondent's living quarters--in a hallway, in a room used by several units in the building, in the basement, or in an enclosed porch-- provided the respondent's household had access to it.

**Weather Zone:** One of seven distinct areas, designated by the American Institute of Architects (AIA) for the U.S. Department of Energy and the U.S. Department of Housing and Urban Development, that are used to classify housing units or buildings by long-term weather conditions. The zones were determined according to the annual sum of heating and cooling degree-days averaged over 45 years, as follows:

#### Weather Zones

- Zone 1 has fewer than 2,000 CDD and more than 7,000 HDD.
- Zone 2 has fewer than 2,000 CDD and 5,500 to 7,000 HDD.
- Zone 3 has fewer than 2,000 CDD and 4,000 to 5,499 HDD.
- Zone 4 has fewer than 2,000 CDD and 2,000 to 3,999 HDD.
- Zone 5 has fewer than 2,000 CDD and fewer than 2,000 HDD.
- Zone 6 has more than 2,000 CDD and fewer than 2,000 HDD.
- Zone 7 has more than 2,000 CDD and 2,000 to 3,999 HDD.

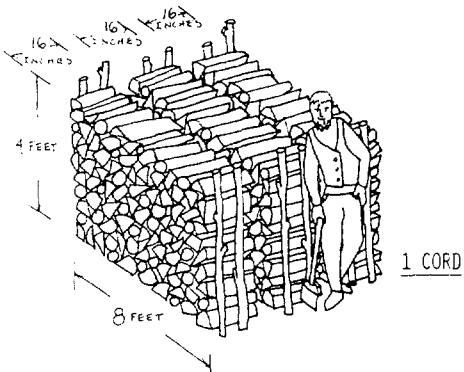
Zones 4 and 5 and Zones 6 and 7 were combined for this report. A building was assigned to weather zone on the basis of its geographic location. (See Heating Degree-Days, Cooling Degree-Days, and NOAA Division.)

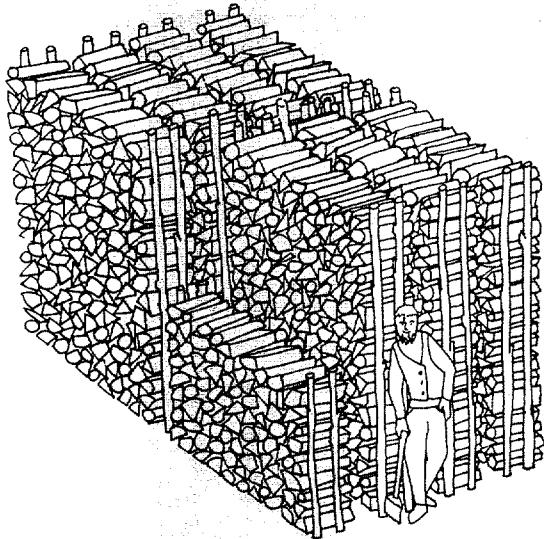
**Windows:** All windows in the year-round living space. Windows in the basement, attic, garage, and porch are counted only if these areas are heated. Windows in doors are not counted. Each window that opens separately is counted as one window. Windows fixed in place are also counted. Panes of glass in a large window are not counted individually unless they open separately. Skylights and stained-glass windows are counted as windows.

**Wood Burned:** The amount of wood burned in the home at any time during the preceding 12 months in a fireplace, stove, or furnace, as reported by the respondent at the time of the interview. The figures for wood burned cover the major part of the 1983-1984 heating season and the first part of the 1984-1985 heating season.

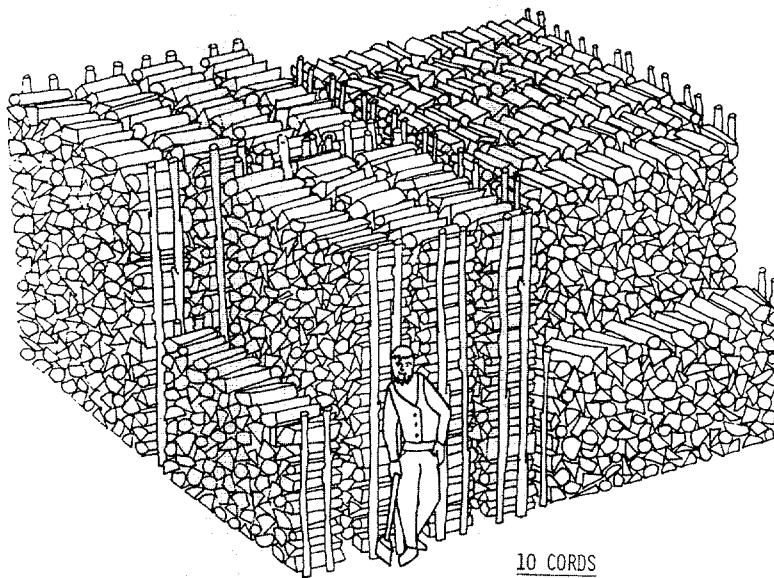
A cord of wood measures 4 feet by 4 feet by 8 feet and approximately 128 cubic feet. A third of a cord measures 16 inches by 4 feet by 8 feet.

More detailed and accurate drawings were used for the first time in the 1982 RECS. The drawings had more correct perspective than in previous surveys; they included a person holding an ax as a point of reference, and showed wood piles containing 5 and 10 cords. The purpose of these improvements was to enable respondents to be more accurate in reporting the amount of wood they burned, especially those households that used more than 5 cords of wood. A copy of the drawings for 1, 5, and 10 cords is reproduced below.





5 CORDS



10 CORDS

**Note on Conversion to Btu:** Converting cords of wood into a Btu equivalent is an imprecise procedure. The number of cords each household reports having burned is inexact, even with the more precise drawings provided, because the estimate requires the respondent to add up the use of wood over a 12-month period during which wood may have been added to the supply as well as removed. Besides errors of memory inherent in this task, the estimates are subject to problems in definition and perception of what a cord is. The nominal cord as delivered to a suburban residential buyer may differ from the dimensions of the standard cord. This difference is possible because wood is most often cut in lengths that are longer than what makes a third of a cord (16 inches) and shorter than what makes a half cord (24 inches).

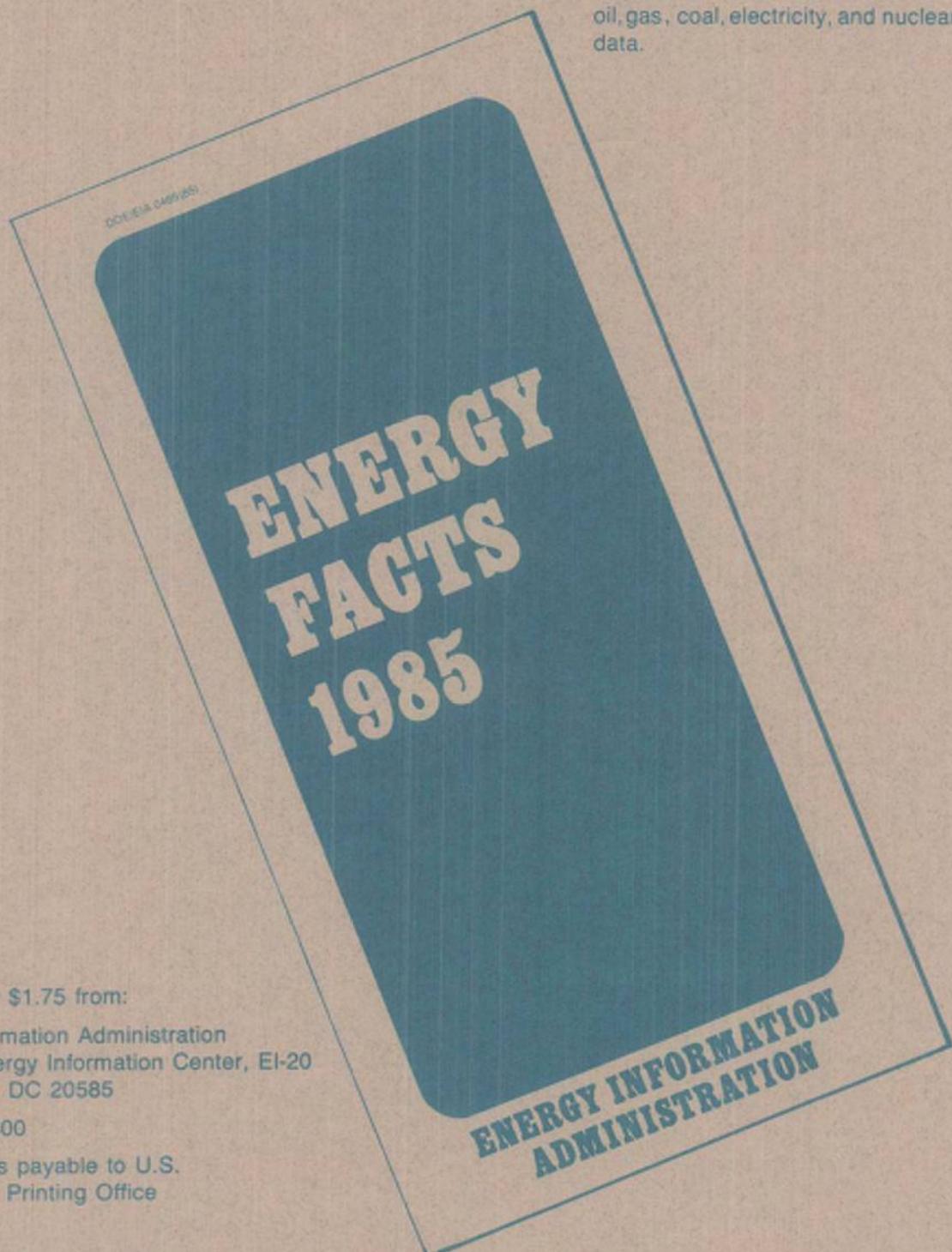
In other cases, wood is bought or cut in unusual units (e.g., pickup-truck-load or trunk load). Finally, volume estimates are difficult to make when the wood is left in a pile instead of being stacked.

Other factors that make it difficult to estimate the Btu value of the wood burned is that the amount of empty space between the stacked logs may vary from 12 to 40 percent of the volume. Moisture content may vary from 20 percent in dried wood to 50 percent in green wood. (Moisture reduces the useful Btu output because energy is used in driving



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