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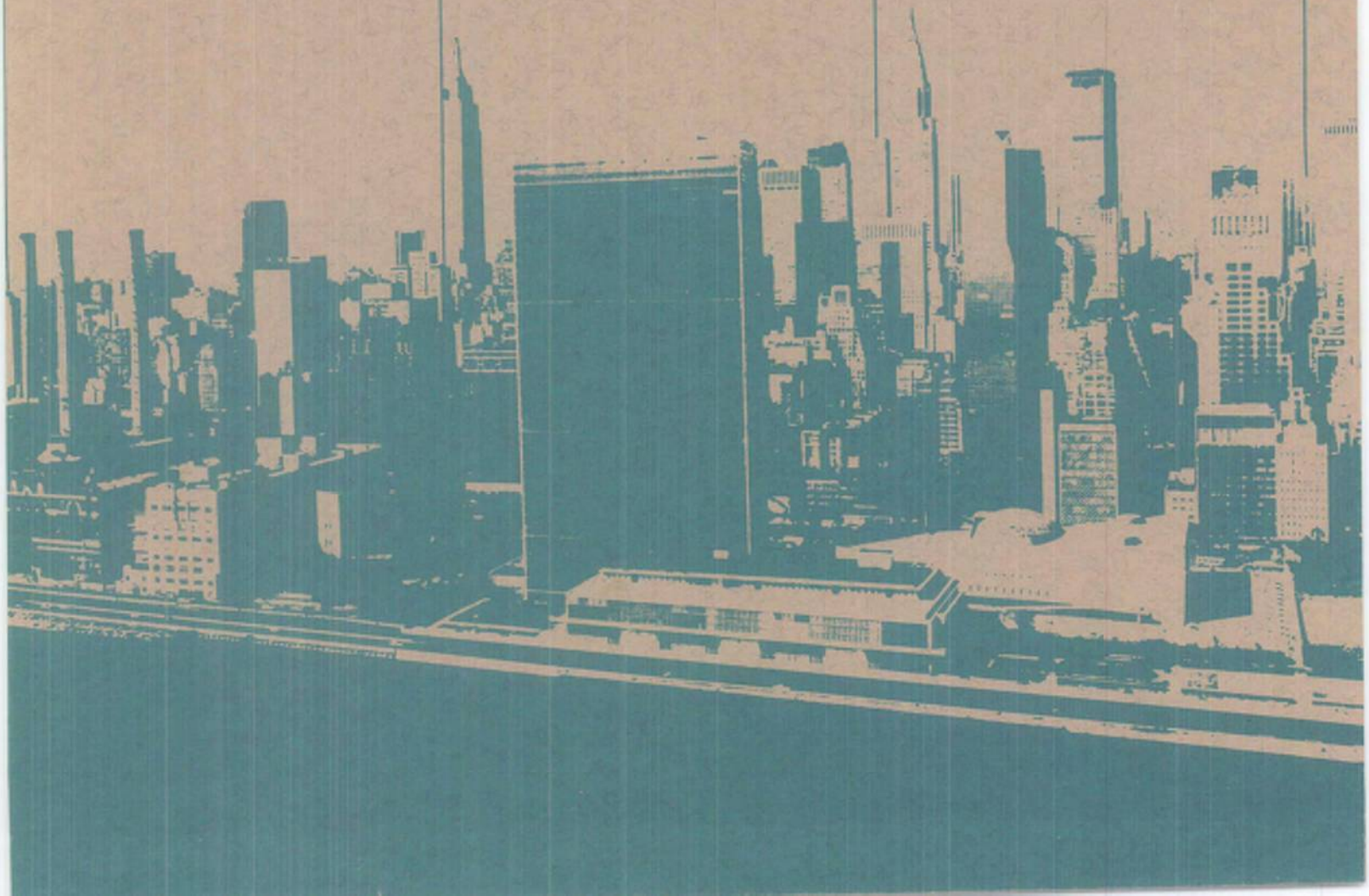
Nonresidential Buildings Energy Consumption Survey:

1979 Consumption and Expenditures

Part 2:
Steam, Fuel Oil, LPG, and All Fuels

Energy Information Administration
Washington, D.C.

December 1983



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Nonresidential Buildings Energy Consumption Survey:

1979 Consumption and Expenditures

Part 2:
Steam, Fuel Oil, LPG, and All Fuels

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U.S. Department of Energy
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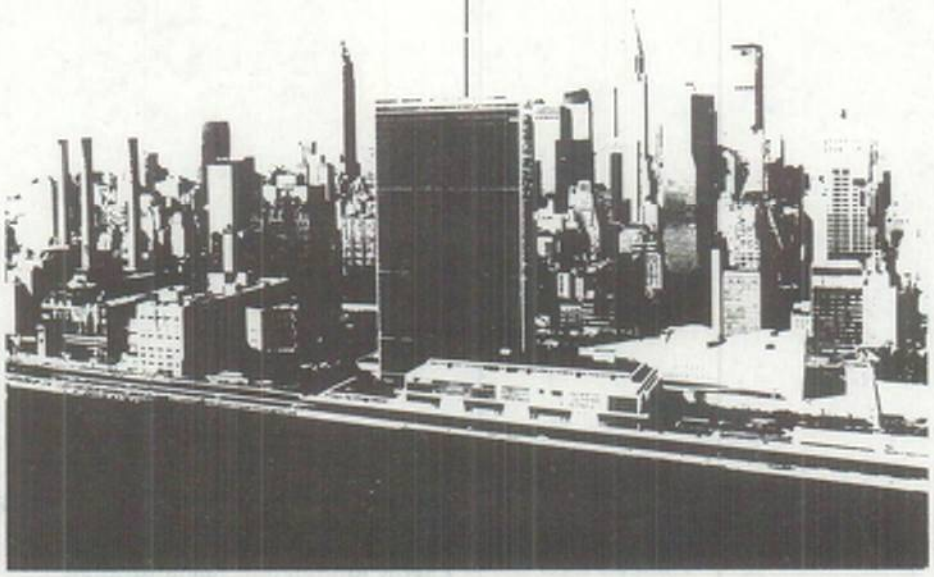

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Introduction

This is the fourth in a series of reports from the Office of Energy Markets and End Use (EMEU) presenting data from the Nonresidential Buildings Energy Consumption Survey (NBECS). The other reports in the NBECS series include Building Characteristics, Fuel Characteristics and Conservation Practices, and Consumption and Expenditures, Part 1, Natural Gas and Electricity (see inside back cover for complete citation). The NBECS was designed, developed, and analyzed by the Energy Information Administration (EIA). This is the first time that either the public or the private sector has developed a method of collecting data on a statistical sample of nonresidential buildings across the country.

This report presents data on square footage and on total energy consumption and expenditures for commercial buildings in the contiguous United States.[1] Also included are detailed consumption and expenditures tables for fuel oil or kerosene, liquid petroleum gas (LPG), and purchased steam.[2] Commercial buildings include all nonresidential buildings with the exception of those where industrial activities occupy more of the total square footage than any other type of activity.[3] Nonresidential buildings have been defined as roofed and walled structures that house some kind of commercial or industrial activity (see Glossary). Buildings that were primarily residential but showed evidence of commercial or industrial activities were also within the scope of the survey.

Table 1 displays average, median, and total square footage by selected building characteristics. These building characteristics include end use, location, structural features, use and occupancy characteristics, type of heating and cooling systems, and conservation practices.[4] Tables 2 through 5 present total and average consumption and expenditures data (combined and disaggregated) by the same building characteristics.

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[1]Estimates of the number of buildings and square footage cover the commercial building population as of January 1, 1980. Energy consumption and expenditures data are estimated for calendar year 1979. The tables present data from the final building characteristics and consumption files, both of which contain imputations for missing data (see Appendix B, "Limitations of the Data," for a description of the imputation procedures utilized).

[2]Detailed tables for electricity and natural gas may be found in the Nonresidential Buildings Energy Consumption Survey: Consumption and Expenditures, Part 1, Natural Gas and Electricity, DOE/EIA-0318/1.

[3]Buildings that were totally or primarily industrial, while eligible for inclusion in the survey, were not included in this report. These buildings were excluded due to poor sample coverage of the industrial buildings' sector and extreme variability in their consumption estimates.

[4]A detailed discussion of this table may be found in Consumption and Expenditures, Part 1.

Introduction (Continued)

Consumption and expenditures information is presented separately for fuel oil or kerosene, LPG, and steam buildings in Tables 6 through 8. In Tables 9 and 10, data are given on the number and capacity of tanks and inventory of fuel for buildings using fuel oil. Also included in this report are a summary of findings, a description of how the survey was conducted, a section on data limitations, relative standard error tables, copies of the questionnaire and utility forms, and a glossary.[5]

Caution should be exercised when comparing the NBECS consumption data for buildings with consumption estimates for the commercial sector (see Appendix B, "Limitations of the Data," for comparisons with other data sources). The population of commercial buildings is not equivalent to the commercial sector. The commercial sector includes a sizable population of nonbuildings that are consumers of energy. Some examples include streetlights, pumps, bridges, swimming pools, construction sites, etc. The NBECS, which sampled buildings, cannot estimate the total consumption of the commercial sector, as it does not measure the consumption of nonbuildings.

The Energy Information Administration is currently conducting a 1983 Nonresidential Buildings Survey (NBECS II). Buildings that were surveyed in the original NBECS are being revisited to determine what changes have occurred in the buildings' structural and operational characteristics since January 1980. The original building sample has been updated with a sample of buildings constructed since January 1, 1980. Basic building and operating characteristics are being collected from representatives of the buildings new to the survey. Energy consumption and expenditures data for 1983 will be collected from the buildings' energy suppliers for both of the building samples.

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[5]Because the data came from a sample of commercial buildings rather than the entire population, the estimates in this report are subject to sampling as well as nonsampling errors and biases. These issues are discussed in Appendix B, "Limitations of the Data." Estimates of the sampling error component have been produced for statistics in this report. They are given in Appendix C for the detailed tables and in parentheses after specific estimates quoted in the text. Sampling errors can be used to test statistical inferences made in the text. Testing procedures are also discussed in Appendix B.

Summary of Findings

Of the nearly 4 million commercial buildings in the continuous United States, 87 percent (± 3) used energy for one purpose.[1] The following discussion will be based on the population of energy-consuming commercial buildings, which numbered 3,479,000 (± 427,000) as of January 1, 1986.

Total commercial consumption in 1979 for the five major fuels[2] was approximately 3.2 quadrillion Btu. The average commercial building consumed 1,107 million Btu (± 186). Average consumption was 131,000 Btu per square foot (± 18,000) and 11 million Btu per employee (± 1). Total expenditures for the major fuels were $24.9 billion (± 4.6), an average of $8,300 (± $800) per building.

Figure 1 shows the percentage of buildings supplied by each of the major fuels and the percentage of total consumption attributable to each fuel. Electricity was supplied to almost all the buildings but accounted for only 32 percent (± 3) of total consumption. Natural gas, on the other hand, was supplied to 55 percent (± 4) of the buildings, but it accounted for 63 percent (± 4) of the total consumption for all buildings.

Fuel Use

Distill buildings accounted for 27 percent (± 1) of all fuel-using commercial buildings and for 38 percent (± 3) of the consumption for the sector. The average heated building consumed 1,395 million Btu (± 184) or 116,000 Btu per square foot (± 12,000). Buildings that heated with natural gas (56 percent ± 7 of the total building stock) consumed 1,337 quadrillion Btu (± 1,302), which is 41 percent (± 4) of the total commercial consumption.

Average energy consumption per building varied enormously by the type of heating fuel used, ranging from 11.2 billion Btu (± 4.3) for buildings that heated with steam to 271 million Btu (± 170) for two-thirds buildings. This difference is in large part due to the relative size of these buildings. The average size of a steam-heated building was 95,400 square feet (± 61,000), while two-thirds buildings averaged only 2,300 square feet (± 1,000).

---

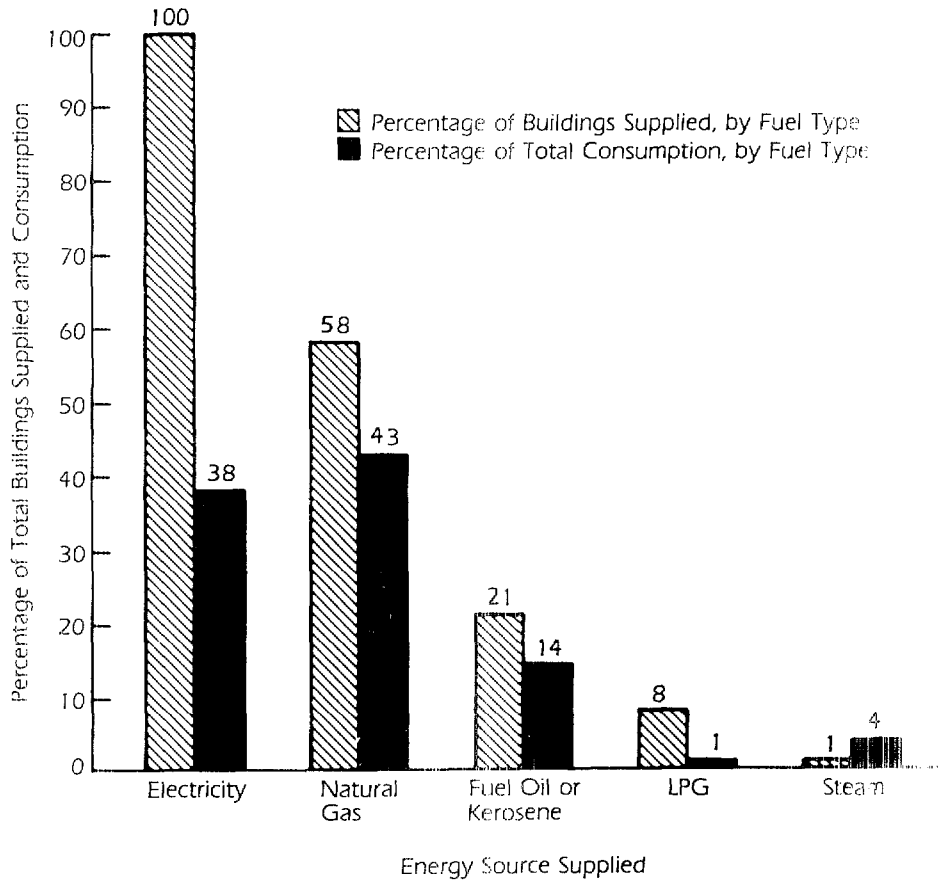
[1] The notes, from which percentages given in the text represent the standard error of the estimate. Unless otherwise specified, the unit of measure for the error term in the text or that of the estimate. An explanation of measures of variability and their use is given in Appendix F, "Qualitations of the Data."

[2] Consumption and expenditures are given for electricity, natural gas, liquid petroleum gas (LPG), fuel oil or kerosene, and steam. The other fuels, coal and wood, were reported as being used in a sizable number of buildings; however, the consumption and cost data for these two fuels were insufficient to provide reliable estimates. For multifuel buildings where natural gas and/or coal were the only fuels used, has been included. Buildings where wood and/or coal were used in addition to one or more of the aforementioned fuels are included; however, consumption for these buildings is only for the five fuels listed.

Although fuel consumption data were collected to support a precise estimate, EIA and the available sample data to provide bounds for consumption. For buildings that reported to have a full year of fuel consumption data, fuel consumption per square foot was computed. The minimum and maximum of this ratio were taken and applied to the buildings with consumption or missing fuel data. With this method was used, the probable upper and lower bounds of 1979 commercial fuel consumption ranged from 25 to 33 trillion Btu. The consumption data reported for fuel uses disaggregated to support any type of estimate.

Summary of Findings (Continued)

Figure 1. Percentage of Buildings Supplied and Percentage of Total Consumption by Fuel Type for Energy-Consuming Commercial Buildings, 1979

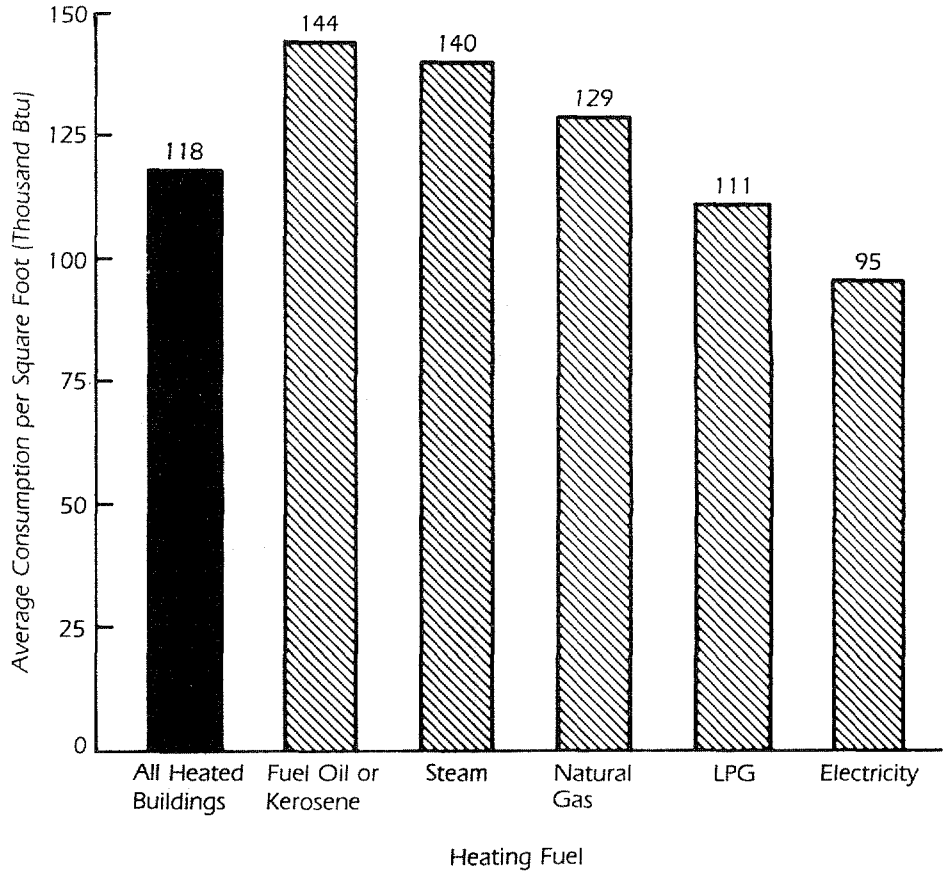


Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

The average consumption per square foot also displayed substantial variability by the type of heating fuel used (see Figure 2). For the five fuels covered, the average ranged from 144,000 Btu per square foot (± 31,000) for buildings that heated with fuel oil to 95,000 Btu per square foot (± 17,000) for electrically heated buildings. (This finding is somewhat misleading, however, in that electrically heated buildings tend to be found in areas with milder winters than buildings heated with fuel oil.) The average consumption per square foot was positively related to the percentage of the building that was heated. The average increased from 44,000 Btu (± 25,000) for unheated buildings to 124,000 Btu (± 13,000) for buildings that were entirely heated. The average expenditure for all energy per million Btu for heated buildings ranged from $5.60 (± $0.43) for buildings that heated with natural gas to $8.58 (± $1.36) for buildings that were electrically heated.

Summary of Findings (Continued)

Figure 2. Average Consumption per Square Foot for Heated Commercial Buildings by Type of Heating Fuel Used, 1979 (Thousand Btu)



Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Table S1 gives the percentage of both buildings and total consumption by heating and air-conditioning status. Commercial buildings that were heated and air conditioned accounted for 64 percent of the buildings and 83 percent of total consumption.

Table S1. Percentage of Commercial Buildings and Percentage of Total Consumption by Heating and Air-Conditioning Status

	Percentage of Commercial Buildings			Percentage of Total Consumption		
	Air Condi-tioned	Not Air Condi-tioned	Total	Air Condi-tioned	Not Air Condi-tioned	Total
Heated	64	28	92	83	15	98
Not Heated	1	7	8	1	1	2
Total	66	34	100	84	16	100

Note: Data may not sum to totals due to independent rounding.
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Summary of Findings (Continued)

Approximately two-thirds of the commercial building stock was air conditioned; however, these buildings accounted for 84 percent (± 7) of the total amount of energy consumed by commercial buildings. Nearly all of the buildings that were air conditioned used electricity for this purpose. Air-conditioned buildings consumed an average of 122,000 Btu per square foot (± 12,000), while buildings that were not cooled averaged 89,000 Btu per square foot (± 13,000).

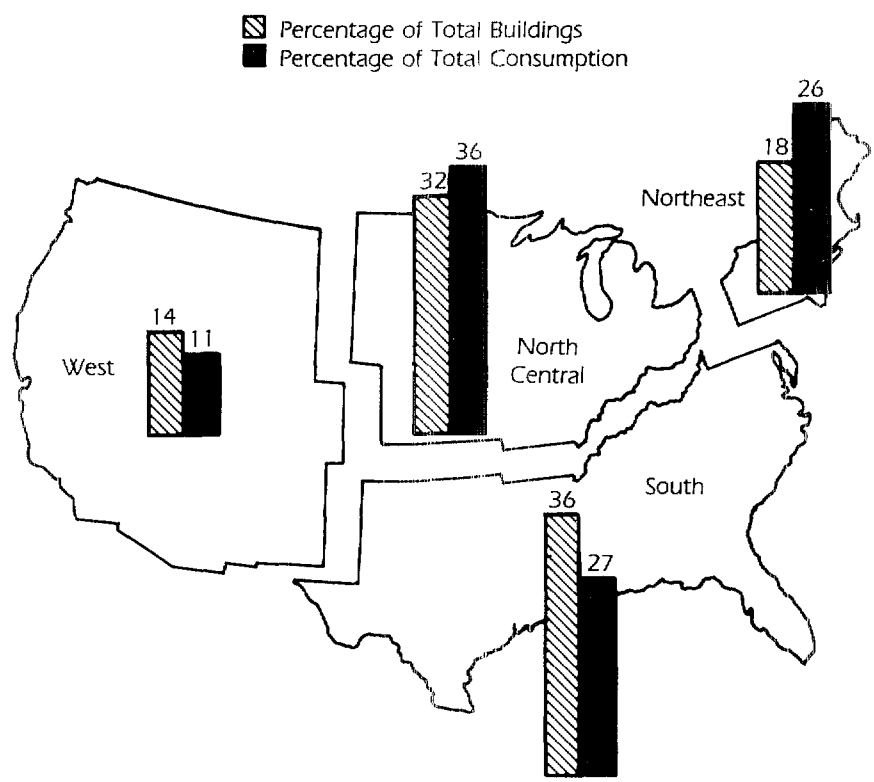
Nearly 70 percent of the commercial building stock used energy for water heating. Most of the buildings with heated water used natural gas or electricity for this purpose (in roughly equal numbers).

Location

A slight majority of the commercial building stock, 57 percent (± 6), was located in Standard Metropolitan Statistical Areas (SMSA's). The typical building located in an SMSA was approximately twice the size of the typical non-SMSA building (15,200 square feet ± 1,600, as compared with 8,100 square feet ± 1,000). Although total consumption for SMSA buildings was about three times as high as that for non-SMSA buildings, the average consumption per square foot for SMSA buildings was only 1.21 times that found in non-SMSA buildings.

Figure 3 shows the percentage distribution of buildings and total consumption by region (see also Table 3). The largest number of buildings was found in the South (1,408,000 ± 298,000) and North Central regions (1,226,000 ± 245,000), twice as many as in the Northeast and

Figure 3. Percentage of Total Buildings and Percentage of Total Consumption by Region, 1979



Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

West regions. The region with the highest estimated consumption was the North Central, with 36 percent (± 5) of the total (1.984 quadrillion Btu ± 0.369). Although the number of buildings in the Northeast and West was similar, total consumption in the Northeast was twice that of the West.

Table S2 gives both total and average consumption and expenditures for all commercial buildings and for commercial buildings by region. Average per building consumption and expenditures were about twice as high for buidings in the Northeast (at 2,039 million Btu ± 571 and $15,400 ± $3,600 per building) as in the South and West regions. This disparity is apparently due to a combination of large average building size and more intensive energy use in the Northeast. The average size of buildings in the Northeast was 16,400 square feet (± 2,700), as compared with 12,200 square feet (± 2,300) for the West and 10,000 square feet (± 1,200) for the South.

Table S2. Consumption and Expenditures for All Commercial Buildings and for Commercial Buildings by Region

	All Buildings	North-east	North Central	South	West
Total Consumption (Quadrillion Btu)	5.457	1.399	1.984	1.490	0.583
Average Consumption per Building (Million Btu)	1,407	2,039	1,619	1,058	1,044
Average Consumption per Square Foot (Thousand Btu)	115	124	130	106	86
Average Square Feet per Building (Thousand Square Feet)	12.2	16.4	12.4	10.0	12.2
Total Expenditures (Billion 1979 Dollars)	36.9	10.5	11.7	10.9	3.8
Average Expenditures per Building (Thousand 1979 Dollars)	9.5	15.4	9.5	7.7	6.8
Average Expenditures per Million Btu (1979 Dollars)	6.76	7.53	5.87	7.30	6.52

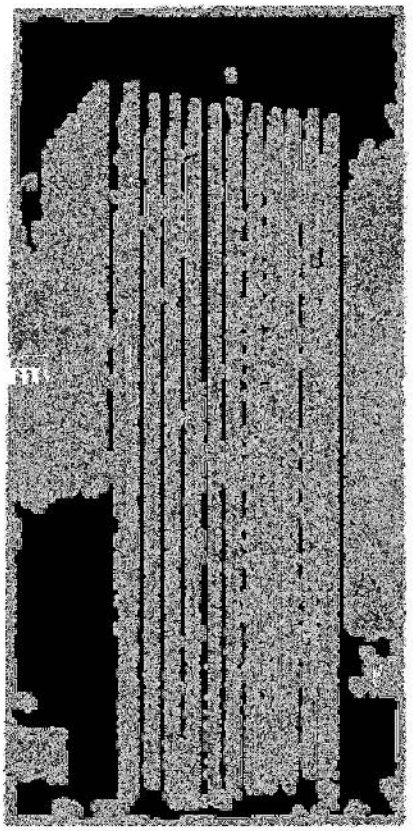
Note: Data may not sum to totals due to independent rounding.
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Consumption per square foot also displayed considerable variability by region, ranging from 86,000 Btu (± 21,000) for buildings in the West to 130,000 Btu (± 18,000) for buildings in the North Central region. Average expenditures per million Btu ranged from a high of $7.53 (± $1.39) in the Northeast to a low of $5.87 (± $0.61) in the North Central region.

Summary of Findings (Continued)

Table 53 gives the percentage distribution of the types of fuels used by and was used by region. The most striking differences are found in the distribution of heating fuels across regions. Natural gas was used for heating in 69 percent (± 6) of the buildings in the North Central region, but by only 38 percent (± 16) of the buildings in the South. The use of electricity for heating ranged from 48 percent (± 13) of the buildings in the South to less than 15 percent of the buildings in the Northeast and North Central regions. Fuel oil was used for heating in 43 percent (± 6) of the buildings in the Northeast and in less than 20 percent of the buildings in the other regions.

Table 53. Percentage Distribution of Commercial Buildings That Used Fuel, by End Use, End-Use Fuel, and Region



End Use by Fuel Type	Total	Northeast	North Central	South	West
Heating Fuel Used	92	96	94	88	88
Natural Gas	50	46	69	38	50
Electricity	23	13	12	48	36
Fuel Oil or Kerosene	20	43	15	17	11
LPG	5	2	5	7	4
Steam	1	2	1	1	1
No Heating Fuel Used	8	4	6	10	12
Air-Conditioning Fuel Used	66	63	65	75	63
Electricity	62	58	61	75	60
Natural Gas	4	2	4	1	3
No Air-Conditioning Fuel Used	34	37	35	25	37
Water-Heating Fuel Used	68	79	72	59	69
Natural Gas	35	39	44	18	33
Electricity	32	32	30	36	34
Fuel Oil or Kerosene	4	10	1	2	2
Other	3	3	3	3	3
No Water-Heating Fuel Used	32	21	27	41	31
Cooking Fuel Used	34	47	25	39	21
Electricity	19	36	13	30	21
Natural Gas	16	11	12	9	12
LPG	3	3	2	4	1
No Cooking Fuel Used	66	53	65	70	69

Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

There was a sizable variation in the proportion of air-conditioned buildings by region, ranging from 45 percent (± 9) of the buildings in the West to 75 percent (± 7) of the buildings in the South. The use of energy for water heating ranged from 59 percent (± 5) of the buildings in the South to 79 percent (± 5) of the buildings in the Northeast. Fuel oil was used for this purpose in 10 percent (± 4) of the Northeast buildings and by a negligible percentage of buildings in the other regions.

Summary of Findings (Continued)

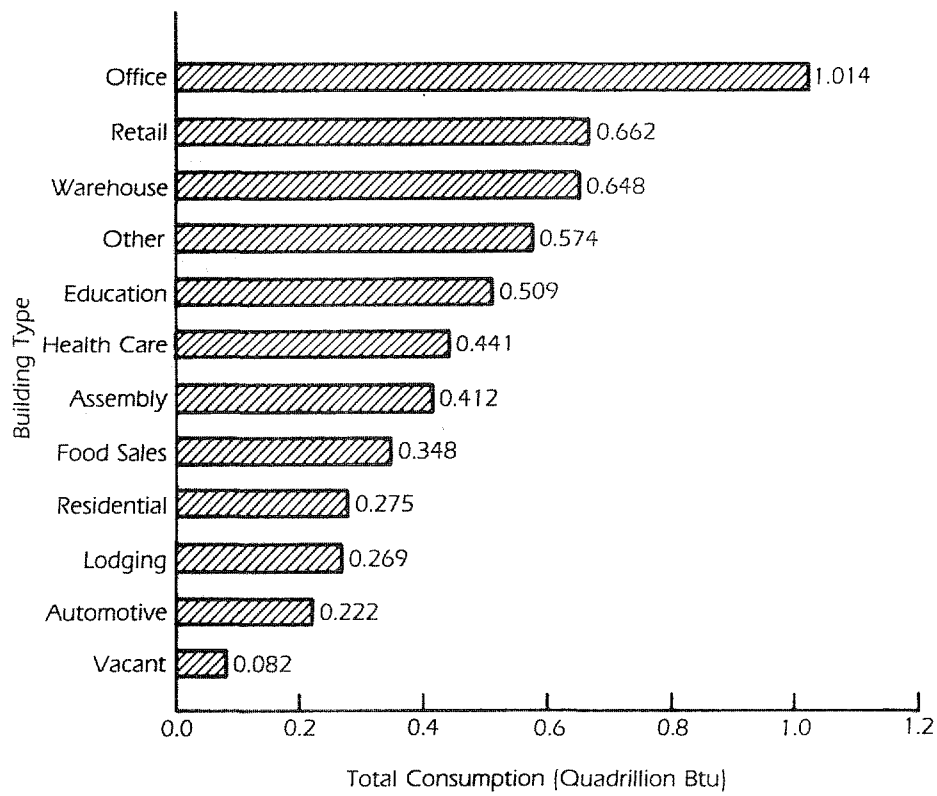
The distribution of building types across regions did not vary substantially with the exception of the category "primarily residential." These buildings constituted the single largest category in the Northeast, accounting for 19 percent (± 4) of the total number of buildings in this region. In the other regions, the primarily residential category accounted for less than 10 percent of the building population.

As has been shown, buildings in the Northeast were different from those in the other regions in a number of ways. Buildings in the Northeast also tended to be older than those located in other regions. Approximately one-third of the Northeast buildings were constructed in 1920 or earlier, as compared with 10 and 12 percent (± 3, 4) of the buildings in the South and West, respectively. Conversely, more than 20 percent of the buildings in the South and West were constructed after 1970, as compared with less than 10 percent of the buildings in the Northeast.

Building Type

Figure 4 gives total energy consumption by building type. The building types with the largest estimates were office buildings (1.014 quadrillion Btu ± 0.162), retail sales and service buildings (0.662 quadrillion Btu ± 0.155), and warehouse and storage buildings (0.648 quadrillion Btu ± 0.218). Approximately 43 percent (± 3) of the total amount of energy used in commercial buildings was consumed in these three building types.

Figure 4. Total Consumption of Major Fuels for Commercial Buildings by Building Type, 1979 (Quadrillion Btu)



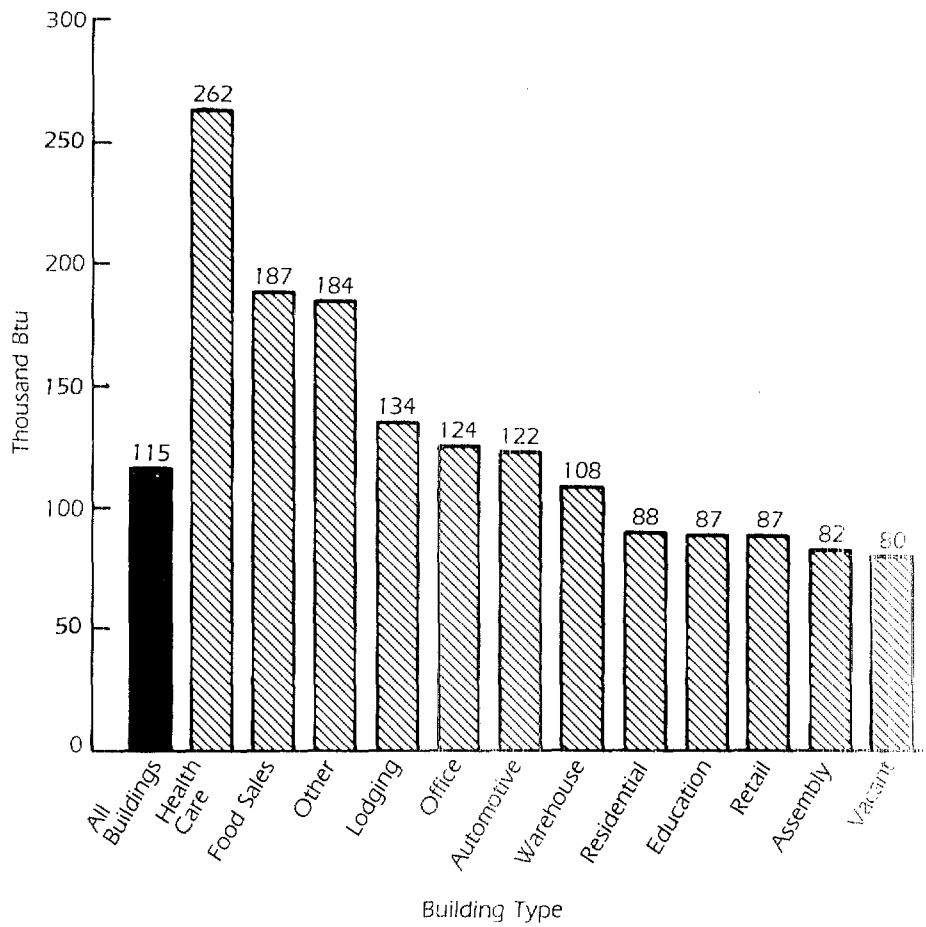
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Summary of Findings (Continued)

The average amount consumed per building varied substantially by building type, ranging from 10.1 billion Btu (± 3.5) for health care buildings to 556 million Btu (± 139) for automotive sales and service buildings. It is interesting to note that while health care and education buildings were approximately the same size, their consumption patterns were quite different. The average health care building consumed more than three times as much as the average education building, reflecting the differences in patterns of usage for these two types of building.

Figures 5 and 6 present two summary measures, consumption per square foot and consumption per employee ranked by building type. These two measures display quite different patterns. Health care buildings had the highest estimate of consumption per square foot with 262,000 Btu (± 57,000). At the other end of the spectrum were vacant, assembly, retail, and education buildings. Building types that tend to be large but have relatively few employees, such as warehouses and lodgings, had high levels of consumption per employee (154 million Btu ± 47 and 148 million Btu ± 47, respectively). Office buildings had by far the lowest consumption per employee at 44 million Btu (± 8), followed by retail sales and service buildings. Both of these latter building types tend to be relatively dense in terms of the ratio of employees to space.

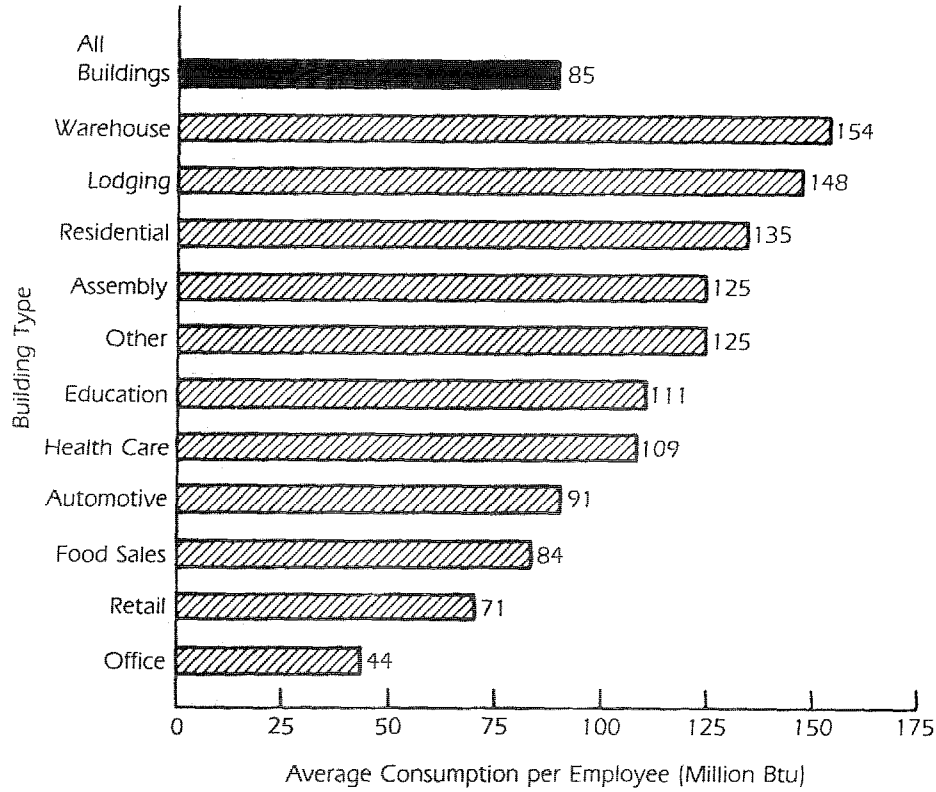
Figure 5. Average Consumption per Square Foot for Major Fuels by Building Type, 1979 (Thousand Btu)



Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Summary of Findings (Continued)

Figure 6. Average Consumption per Employee for Occupied Commercial Buildings by Building Type, 1979 (Million Btu)



Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

The average price per million Btu varied widely by building type, ranging from $5.02 (± $0.54) for health care buildings to $8.30 (± $1.28) for office buildings.

Building Size

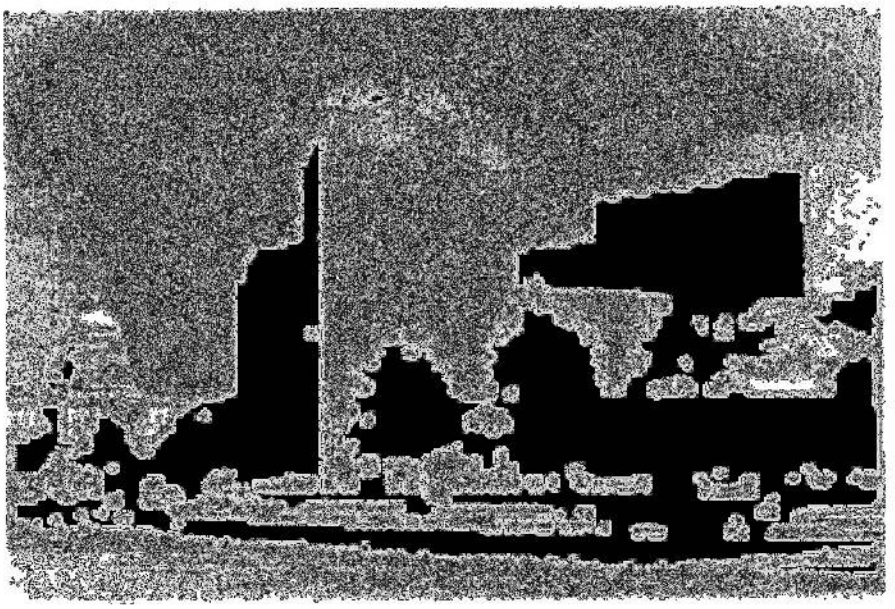
As of January 1, 1980, 57 percent (± 4) of the energy-consuming commercial building stock consisted of buildings of 5,000 square feet or less (see Table S4). Despite their numerical prevalence, these buildings represented only 10 percent (± 2) of the total square footage, 15 percent (± 2) of total consumption, and 17 percent (± 3) of the total expenditures for the sector. On the other hand, only 4 percent (± 1), or 165,000 (± 28,000), of all commercial buildings contained more than 50,000 square feet.

Table 54. Percentage of Total Buildings, Square Footage, Consumption, and Expenditures by Square Footage Category

Square Footage Category	Percentage of Total Buildings	Percentage of Total Square Footage	Percentage of Total Consumption	Percentage of Total Expenditures
All Buildings	100	100	100	100
1,000 or Less	15	1	2	2
1,001-5,000	42	9	13	14
5,001-10,000	19	11	12	13
10,001-25,000	14	18	18	18
25,001-50,000	3	15	13	14
More Than 50,000	4	45	42	42

Note: Data may not sum to totals due to independent rounding.
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

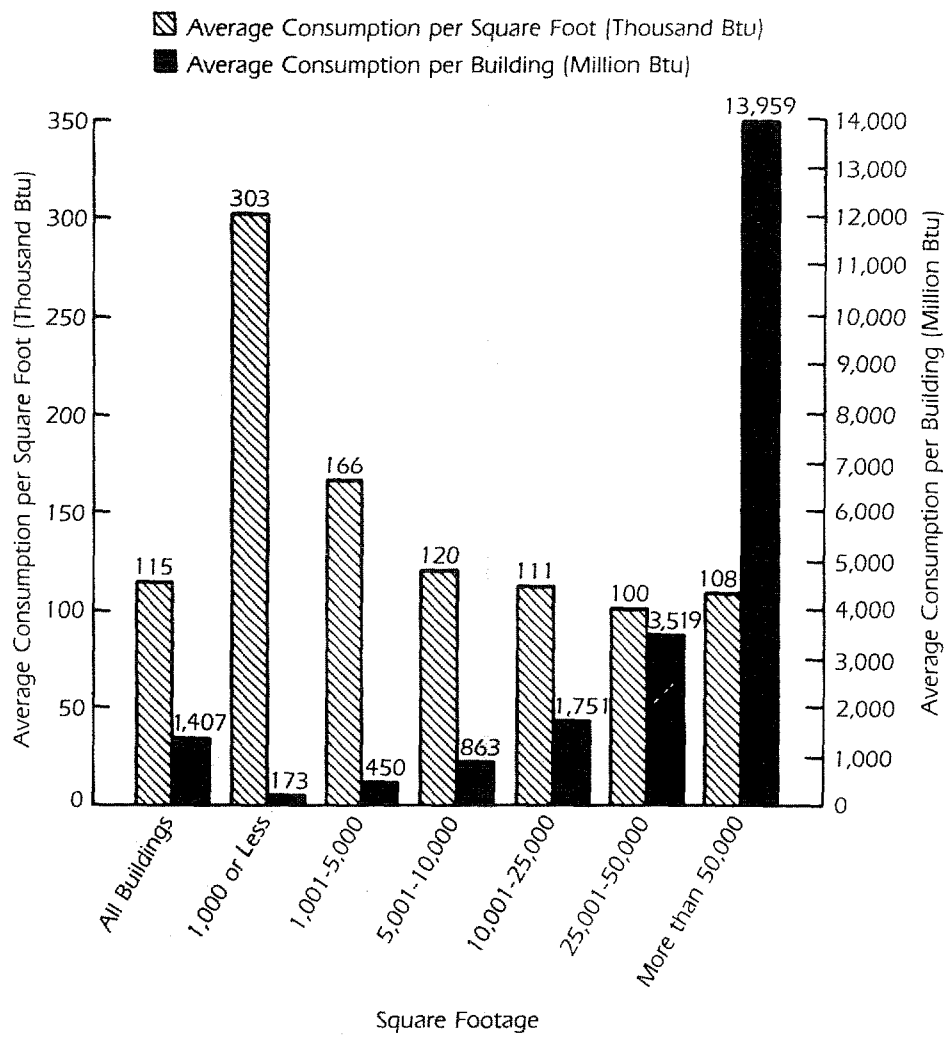
These buildings, however, accounted for 45 percent (± 4) of the total square footage, 42 percent (± 3) of total consumption, and 41 percent (± 4) of total expenditures for the sector. The typical building in this category contained approximately 130,000 square feet (± 11,000) and had energy expenditures in excess of $90,000 for 1979.



Summary of Findings (Continued)

As would be expected, average consumption per building was positively related to building size. Buildings in the smallest size class, 1,000 square feet or less, consumed an average of 173 million Btu (± 92), while the largest buildings, those more than 50,000 square feet, consumed approximately 14 billion Btu (± 1.8). Building size was negatively associated with consumption per square foot. Figure 7 shows that, for the most part, as building size increased, consumption per square foot decreased from 303,000 Btu (± 162,000) for the smallest buildings to 108,000 Btu (± 10,000) for the largest buildings. For all the fuels surveyed, except steam, buildings of more than 50,000 square feet size class had a smaller estimated price per million Btu than buildings in the other size classes (although most of the price differences were not statistically significant; see Table 4).

Figure 7. Average Consumption per Square Foot (Thousand Btu) and per Building (Million Btu) by Square Footage Category, 1979



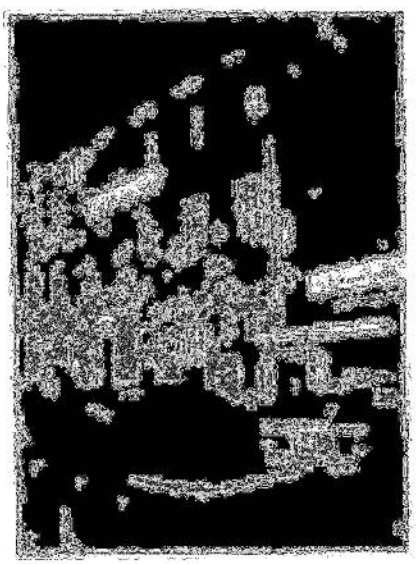
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Summary of Findings (Continued)

There was no obvious relationship between the age of the building and consumption. It is interesting to note, however, that buildings constructed between 1971-73 had a larger estimate of consumption per square foot (341,000 Btu ± 27,000) than buildings constructed at any other time. These buildings also had a larger average square footage estimate than those built during any of the other time periods (average: 19,100 square feet ± 4,100). This finding is in contrast to the small negative relationship between building size and consumption per square foot discussed earlier. The correlation between building size and consumption per square foot is also reversed when one looks at the hours of operations. Both building size and consumption per square foot tended to increase with the number of hours a building was open.

Generally, buildings that indicated energy conservation measures had a smaller consumption per square foot estimate than buildings where these measures were not adopted. The only statistically significant difference, however, was in buildings that reduced their heating and/or cooling during "off" hours. Buildings that reduced their cooling consumed an average of 119,000 Btu per square foot (± 11,000), while buildings that did not reduce cooling consumed an average of 152,000 Btu per square foot (± 15,000).

Fuel Oil



An estimated 21 percent (± 4) of the commercial building stock was supplied with fuel oil. Total fuel oil consumption was 0.791 quadrillion Btu (± 0.181), or 18 percent (± 3) of the total for all fuels (see Table 3). In 1979, total expenditures for fuel oil were $6.2 billion (± 0.4), an average of $5,000 (± $880) per building.

Fuel oil buildings were somewhat larger than the average commercial building (16,300 square feet ± 1,800, as compared with 12,200 square feet ± 2,600). The average fuel oil building consumed 9.7 million Btu (± 1.6), or 59,000 Btu per square foot (± 6,000).

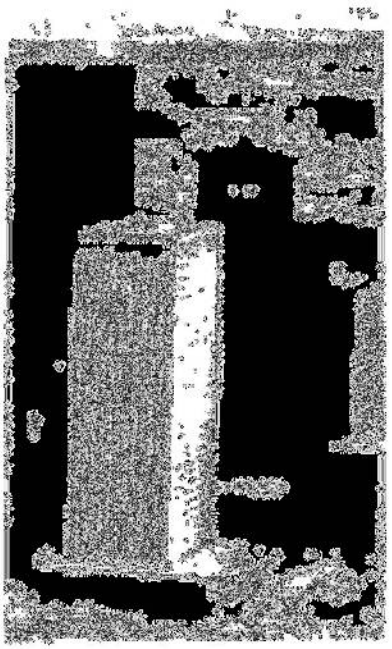
Almost all fuel oil buildings were heated, and 79 percent (± 7) used fuel oil for this purpose. The other major use of fuel oil was for water heating. Approximately 40 percent (± 5) of the buildings supplied with fuel oil used it for this purpose.

Fuel oil buildings were disproportionately concentrated in the Northeast. The Northeast had 38 percent (± 8) of the fuel oil buildings, but only 16 percent (± 4) of the total number of buildings. Buildings in the Northeast accounted for nearly half of the total fuel oil consumption (0.356 quadrillion Btu ± 0.057).

Fuel oil buildings were almost equally divided between SMSA's (415,000 ± 84,000) and non-SMSA's (376,000 ± 137,000). The SMSA buildings were more than twice as large as the non-SMSA buildings (32,000 square feet ± 5,400, as compared with 20,256 square feet ± 2,300), however, and consumed twice as much fuel oil as their non-SMSA counterparts.

Fifty-four percent (± 2) of the total fuel oil consumption was concentrated among four building types: education, health care, office, and warehouse. These buildings constituted only 16 percent (± 4) of the total number of fuel oil buildings. Buildings larger than 20,000 square feet accounted for only 8 percent (± 1) of the total number of buildings, but consumed 42 percent (± 3) of the fuel oil used in 1979. The average size of these buildings was 130,000 square feet (± 23,500).

Summary of Findings (Continued)



As was the case for all fuels collect, the average consumption of fuel oil per square foot was negatively related to the size of the building; i.e., the larger the building, the lower the consumption per square foot. Buildings of 1,000 square feet or less consumed 201,000 Btu per square foot (± 101,000), while those in the largest size class consumed only 44,000 Btu per square foot (± 16,000).

Fuel oil buildings appeared to be slightly older than the average commercial building, but the difference was not significant. There did not seem to be any relationship between the age of the building and the average consumption per square foot. There was, however, a significant age effect in the energy consumption per employee, which tended to increase with the age of the building.

Central heating systems were only more prevalent in fuel oil buildings than in the general population (54 percent ± 3 versus 43 percent ± 1). Buildings with central systems accounted for an estimated 59 percent (± 7) of the total fuel oil consumption. The type of heating system did not appear to be related to the average consumption per square foot.

Fuel oil buildings that had undertaken conservation measures usually had lower levels of consumption per square foot than those that did not, although the differences were not significant. For example, buildings where weather stripping, water cooling and insulation were added averaged an average of 41,000 Btu per square foot (± 15,000), while buildings without these additions averaged 60,000 Btu per square foot (± 12,000).

Tables 6 and 10 give the number of tanks, tank capacity, and inventory for fuel oil buildings. Approximately 1 percent of the fuel oil buildings had no tanks, 92 percent (± 4) had one tank, and the remainder had two or more tanks. For buildings with tanks, total inventory (2,207 million gallons ± 675) was more than two-thirds of total capacity (3,317 million gallons ± 1,180). Approximately 80 percent of the buildings had tank capacities and inventories of less than 2,000 gallons. Eight percent (± 1) of the fuel oil buildings had a total tank capacity of 10,000 gallons or more. These buildings accounted for 74 percent (± 23) of the total tank capacity and 75 percent (± 18) of the total inventory.

Capital Expenditures Data

Approximately 5 percent (± 1) of the commercial buildings were supplied with LPG (see Table 7). In 1979, consumption of LPG totaled 0.055 quadrillion Btu (± 0.014), which is equivalent to 1 percent of the total consumption for the sector. The average building consumed 168 million Btu (± 35), or 17,000 Btu (± 3,500) per square foot. Total expenditures equaled $57 million (± $17), an average of $800 (± $200) per building.

As could be expected, buildings supplied with LPG were smaller than the average commercial building (6,000 square feet ± 2,300, as compared with 12,200 square feet ± 1,000). Nearly all the LPG buildings were heated, and 65 percent (± 16) used LPG for data purposes. Buildings that heated with LPG were quite small, averaging only 3,200 square feet (± 1,800). These buildings accounted for 72 percent (± 16) of the total LPG consumption. The other major use of LPG was for cooking; approximately 37 percent (± 15) of the buildings supplied with LPG used it for data purposes.

The LPG buildings were disproportionately concentrated in the South and in non-metropolitan areas. The South had 43 percent (± 9) of the LPG buildings. Seventy-two percent (± 16) of LPG buildings were located in non-SMSA's compared with 43 percent (± 9) for all commercial buildings.

Summary of Findings (Continued)

Both consumption per square foot and per employee were negatively associated with building size. For both these measures, as building size increased the average consumption level decreased. Consumption per square foot ranged from 117,000 Btu (± 47,000) for buildings of 1,000 square feet or less to under 10,000 Btu for buildings of more than 25,000 square feet.

Steam

Table 8 gives consumption and expenditures information for buildings that were supplied with steam in 1979.[4] Only about 1 percent of all commercial buildings were supplied with steam. Total steam consumption was estimated at 0.204 quadrillion Btu (± 0.037), 4 percent (± 1) of the total for all fuels. The average steam building consumed 4.2 billion Btu (± 1.2), or 53,000 Btu per square foot (± 8,000). In 1979, total steam expenditures came to $1.3 billion (± 0.4), an average of $26,000 (± $9,100) per building.

The typical steam building was quite large, averaging 78,300 square feet (± 24,000). Buildings in the Northeast and North Central regions were especially large, averaging 94,700 (± 43,700) and 97,300 (± 32,000), respectively. Buildings in these two regions accounted for 78 percent (± 9) of the total steam consumption.

A large majority of the buildings that consumed steam used it for heating purposes. Buildings that heated with steam accounted for 97 percent (± 3) of the total consumption of the fuel. Almost all the steam buildings had central heating systems. Approximately 39 percent (± 6) of the steam buildings contained more than 50,000 square feet; the average size of buildings in this category was 185,400 square feet (± 35,900). These buildings accounted for 88 percent (± 7) of the total steam consumption. The average per building consumption for these buildings was 9.9 billion Btu (± 2.6), and the average expenditure was $22,300 (± $21,900) per building.

More than 73 percent of steam buildings were located in SMSA's, as compared with 57 percent (± 6) of all commercial buildings. Steam buildings in SMSA's accounted for more than 90 percent of the total consumption of steam (0.187 quadrillion Btu ± 0.037).

Government-owned and Government-occupied buildings constituted a sizable minority of steam buildings (37 percent ± 19, as compared with only 6 percent ± 1 of the general building population). Government buildings accounted for 46 percent (± 17) of the total consumption of steam.

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[4]Sufficient sample cases were not available to present steam consumption and expenditures by building type.

Total Square Footage

Table 1. Total Square Footage for Commercial Buildings, as of January 1, 1980

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
COMMERCIAL BUILDINGS.....	3,995	11.9	3.9	47,685	365	4,538	5,356	8,656	7,278	21,492
END USE BY FUEL TYPE										
HEATING FUEL USED.....	3,565	12.8	4.3	45,457	285	4,094	5,109	8,245	6,918	20,805
NATURAL GAS.....	1,922	13.5	4.9	25,886	111	2,250	3,055	5,063	3,888	11,518
ELECTRICITY.....	985	11.5	3.9	11,313	83	1,069	1,295	2,442	1,635	4,790
FUEL OIL/KEROSENE.....	762	14.1	5.0	10,724	54	829	1,231	1,896	1,607	5,106
LIQUID PETROLEUM GAS.....	208	5.2	2.0	1,075	38	219	240	243	187	149
WOOD.....	96	6.4	3.3	612	14	125	Q	Q	Q	Q
STEAM.....	45	82.3	30.1	3,675	Q	Q	41	168	349	3,109
COAL.....	44	16.6	4.0	735	Q	74	Q	105	77	448
OTHER.....	8	45.7	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	430	5.2	1.4	2,229	79	444	247	412	360	687
AIR CONDITIONING FUEL USED..	2,543	14.7	4.7	37,465	181	2,840	3,535	6,650	5,629	18,631
ELECTRICITY.....	2,415	14.6	4.8	35,172	178	2,649	3,372	6,373	5,443	17,158
NATURAL GAS.....	147	18.7	4.9	2,750	3	189	169	508	289	1,593
OTHER.....	26	51.9	5.6	1,346	Q	32	Q	Q	71	1,177
NO AIR CONDITIONING FUEL....	1,452	7.0	2.7	10,221	184	1,698	1,821	2,007	1,650	2,861
WATER-HEATING FUEL USED.....	2,663	14.8	4.9	39,507	174	3,064	3,951	7,029	6,139	19,150
NATURAL GAS.....	1,252	16.6	5.1	20,794	61	1,481	1,821	3,616	3,171	10,645
ELECTRICITY.....	1,223	11.9	4.6	14,600	98	1,396	1,844	3,014	2,461	5,787
FUEL OIL/KEROSENE.....	169	26.8	7.9	4,538	4	141	256	603	771	2,763
OTHER.....	109	28.6	4.6	3,120	14	114	138	246	184	2,424
NO WATER-HEATING FUEL.....	1,333	6.1	2.4	8,179	191	1,474	1,405	1,627	1,140	2,342
MANUFACTURING FUEL USED.....	318	17.1	4.6	5,431	23	402	368	811	860	2,967
ELECTRICITY.....	267	17.1	5.0	4,560	21	296	315	748	787	2,413
NATURAL GAS.....	49	24.9	Q	1,224	Q	83	48	177	86	826
OTHER.....	39	25.1	Q	987	Q	52	Q	161	84	651
NO MANUFACTURING DONE.....	3,678	11.5	3.8	42,254	342	4,136	4,988	7,845	6,418	18,524
COOKING FUEL USED.....	1,324	18.1	5.1	23,923	72	1,508	1,909	3,711	3,426	13,296
ELECTRICITY.....	741	17.9	5.0	13,253	37	874	1,008	2,034	1,880	7,420
NATURAL GAS.....	610	22.4	6.6	13,681	28	700	901	1,749	1,862	8,441
LIQUID PETROLEUM GAS.....	108	11.0	4.1	1,185	14	104	174	229	172	491
OTHER.....	20	44.5	Q	885	Q	26	Q	87	Q	746
NO COOKING FUEL.....	2,671	8.9	3.3	23,763	293	3,030	3,447	4,945	3,852	8,196
CENSUS REGION										
NORTHEAST.....	699	16.1	5.5	11,286	30	779	1,043	2,038	1,816	5,581
NORTH CENTRAL.....	1,246	12.3	4.0	15,291	117	1,479	1,781	2,486	2,256	7,172
SOUTH.....	1,480	9.6	3.0	14,280	171	1,681	1,643	2,732	2,170	5,884
WEST.....	571	12.0	4.1	6,828	48	600	889	1,401	1,037	2,854

SEE NOTES AT END OF TABLE

Total Square Footage

Table 1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
SMSA/NONSMSA										
SMSA	2,261	15.1	4.6	34,045	153	2,503	3,084	5,661	5,217	17,427
NONSMSA	1,735	7.9	3.2	13,640	212	2,035	2,272	2,996	2,061	4,064
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD	444	12.4	4.8	5,512	Q	512	783	903	820	2,462
<2,000 CDD AND 5,500 TO 7,000 HDD	1,167	13.8	4.7	16,135	88	1,323	1,747	2,848	2,273	7,856
<2,000 CDD AND 4,000 TO 5,499 HDD	1,075	11.9	3.6	12,787	91	1,236	1,314	2,492	2,004	5,650
<2,000 CDD AND <4,000 HDD	657	10.8	3.1	7,096	69	751	835	1,089	1,208	3,145
>2,000 CDD AND <4,000 HDD	652	9.4	3.0	6,156	Q	716	Q	1,325	973	2,379
BUILDING TYPE										
ASSEMBLY	448	11.2	6.0	5,028	27	432	968	1,211	889	1,501
AUTOMOTIVE SALES & SERVICE	401	4.5	2.4	1,821	49	497	530	418	169	158
EDUCATION	161	36.2	18.3	5,851	6	98	152	522	1,097	3,976
FOOD SALES	366	5.1	2.5	1,864	47	526	355	509	176	251
HEALTH CARE	44	38.5	5.4	1,687	3	39	56	95	74	1,419
LODGING	101	19.9	6.1	2,012	6	84	162	256	439	1,066
OFFICE	600	13.6	4.1	8,184	52	725	829	1,310	991	4,275
RESIDENTIAL	347	9.0	3.7	3,115	28	501	340	962	408	877
RETAIL/SERVICES	714	10.7	4.0	7,652	71	845	1,111	1,501	1,068	3,056
WAREHOUSE AND STORAGE	430	14.1	3.9	6,070	32	438	413	1,074	1,147	2,985
OTHER	237	13.2	3.6	3,129	29	198	277	620	528	1,484
VACANT	146	8.7	2.7	1,273	23	155	162	178	291	464
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	655	.6	.6	365	365	-	-	-	-	-
1,001 TO 5,000	1,672	2.7	2.5	4,538	-	4,538	-	-	-	-
5,001 TO 10,000	745	7.2	7.1	5,356	-	-	5,356	-	-	-
10,001 TO 25,000	551	15.7	15.0	8,656	-	-	-	8,656	-	-
25,001 TO 50,000	207	35.2	34.9	7,278	-	-	-	-	7,278	-
OVER 50,000	166	129.8	82.7	21,492	-	-	-	-	-	21,492
NUMBER OF FLOORS										
ONE FLOOR	2,322	6.1	2.5	14,164	316	2,870	2,303	3,091	2,214	3,379
TWO FLOORS	912	12.7	5.8	11,628	36	1,038	1,881	2,536	1,548	4,589
THREE FLOORS	483	16.9	7.4	8,170	Q	490	850	1,858	1,702	3,261
MORE THAN THREE	279	49.3	17.3	13,724	4	140	322	1,182	1,814	10,263

SEE NOTES AT END OF TABLE

Total Square Footage

Table 1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
YEAR CONSTRUCTED										
1900 OR BEFORE	321	10.9	4.8	3,500	19	412	475	958	666	970
1901 TO 1920	408	13.3	5.1	5,425	18	479	728	948	1,036	2,216
1921 TO 1945	783	11.5	3.7	9,016	90	826	984	1,901	1,608	3,607
1946 TO 1960	1,008	9.6	3.0	9,680	119	1,148	1,241	1,685	1,132	4,354
1961 TO 1970	744	13.5	3.6	10,079	61	837	952	1,371	1,396	5,462
1971 TO 1973	205	17.9	4.9	3,667	10	223	260	577	643	1,954
1974 TO 1979	525	12.0	3.9	6,319	48	613	715	1,216	797	2,929
FUEL COMBINATIONS USED										
NO FUEL USED	115	3.0	1.0	348	23	110	Q	Q	Q	Q
ONE FUEL USED	799	7.3	2.4	5,856	118	869	631	1,248	954	2,035
ELECTRICITY	788	7.4	2.4	5,809	117	851	620	1,237	954	2,031
OTHER	10	4.5	3.3	Q	Q	Q	Q	Q	Q	Q
TWO FUELS USED	2,595	10.8	4.2	27,905	207	3,120	3,880	5,787	4,649	10,262
ELEC., NATURAL GAS	1,889	11.7	4.7	22,104	113	2,311	2,903	4,682	3,733	8,362
ELEC., FUEL OIL/KEROSENE	441	7.8	3.5	3,433	45	544	664	729	584	867
ELEC., LPG	178	4.3	1.8	771	35	177	198	194	Q	Q
OTHER	87	18.3	4.5	1,598	13	89	Q	183	222	976
THREE FUELS USED	448	27.4	7.2	12,301	17	390	726	1,389	1,521	8,258
ELEC., GAS, FUEL OIL/ KEROSENE	250	30.0	9.1	7,497	Q	212	436	861	1,090	4,894
ELEC., FUEL OIL/KEROSENE, LPG	75	13.7	5.0	1,031	Q	73	140	182	132	499
ELEC., GAS, OTHER	80	37.2	9.1	2,967	Q	58	102	268	218	2,316
ELEC., FUEL OIL/KEROSENE, OTHER	20	12.3	Q	245	Q	24	Q	Q	Q	132
OTHER	23	24.2	Q	561	Q	24	Q	Q	77	417
FOUR OR MORE FUELS USED	39	32.9	9.9	1,276	Q	48	43	216	Q	893
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	3,867	12.2	4.0	47,267	341	4,395	5,270	8,626	7,201	21,435
NATURAL GAS	2,252	14.9	5.0	33,635	124	2,622	3,469	5,964	5,117	16,339
FUEL OIL/KEROSENE	815	16.3	5.0	13,317	56	871	1,289	2,047	1,855	7,198
LIQUID PETROLEUM GAS	313	9.9	3.2	3,102	45	322	408	567	348	1,412
WOOD	118	6.4	3.0	753	15	153	Q	249	Q	Q
COAL	55	14.6	4.0	810	Q	95	Q	139	77	458
STEAM	49	78.9	29.1	3,831	Q	Q	50	187	352	3,233
OTHER	20	48.7	Q	970	Q	Q	37	61	Q	731
NONE	115	3.0	1.0	348	23	110	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Total Square Footage

Table 1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	1,114	9.3	3.9	10,386	92	1,310	1,602	2,533	1,661	3,188
RADIANT	160	6.7	2.4	1,078	25	164	196	257	106	331
COMBINATION/OTHER	345	7.4	2.5	2,554	49	444	232	596	642	591
CENTRAL SYSTEM										
FORCED-AIR	937	11.9	3.7	11,147	68	1,155	1,452	1,674	1,356	5,442
RADIANT	508	18.1	7.0	9,177	19	552	787	1,547	1,845	4,426
COMBINATION/OTHER	205	31.5	7.7	6,459	6	214	294	686	751	4,508
COMBINATION/OTHER										
FORCED-AIR	133	12.7	5.1	1,691	14	146	223	390	182	737
RADIANT	31	16.0	8.3	488	3	20	Q	146	125	147
COMBINATION/OTHER	135	18.4	6.6	2,483	9	91	275	415	251	1,441
NONE	429	5.2	1.4	2,221	79	442	247	412	360	681
PERCENT OF BUILDING HEATED										
1 TO 25	225	15.0	6.9	3,368	13	172	486	780	613	1,304
26 TO 50	335	8.0	4.0	2,675	27	429	495	725	430	570
51 TO 75	302	11.3	4.7	3,407	17	371	502	675	531	1,260
76 TO 99	229	18.5	4.6	4,241	16	297	338	504	489	2,593
100	2,476	12.8	4.1	31,773	212	2,827	3,288	5,561	4,806	15,079
NONE	429	5.2	1.4	2,221	79	442	247	412	360	681
PERCENT OF BUILDING COOLED										
1 TO 25	511	20.6	8.7	10,511	14	398	813	2,129	2,159	4,999
26 TO 50	524	9.9	4.7	5,195	30	718	832	1,226	591	1,797
51 TO 75	272	15.3	4.2	4,168	18	332	384	649	637	2,148
76 TO 99	182	26.7	6.7	4,859	Q	185	279	558	372	3,457
100	1,054	12.1	3.3	12,734	110	1,207	1,227	2,088	1,869	6,232
NONE	1,452	7.0	2.7	10,218	184	1,698	1,821	2,007	1,650	2,858
AIR CONDITIONING SYSTEM										
WINDOW UNITS	812	8.6	3.1	7,005	103	928	823	1,559	1,365	2,228
PACKAGE UNITS	744	15.3	6.0	11,410	32	825	1,241	2,299	2,070	4,943
CENTRAL SYSTEM	709	16.7	5.0	11,855	35	832	1,068	1,895	1,352	6,672
COMBINATION/OTHER	278	25.9	6.9	7,198	11	254	403	897	842	4,791
NO AIR CONDITIONING	1,452	7.0	2.7	10,218	184	1,698	1,821	2,007	1,650	2,858

SEE NOTES AT END OF TABLE

Total Square Footage

Table 1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	1,895	9.9	3.5	18,671	197	2,192	2,583	3,673	2,929	7,096
OWNER OR AGENT IS NOT OCCUPANT	1,145	8.1	3.0	9,331	120	1,452	1,245	2,120	1,264	3,131
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	382	18.9	6.0	7,208	15	404	620	1,291	1,006	3,872
OWNER OR AGENT IS NOT OCCUPANT	257	19.0	7.4	4,880	5	236	503	930	803	2,403
GOVERNMENT-OWNED AND OCCUPIED	249	26.5	6.7	6,592	24	176	316	544	1,009	4,524
NOT REPORTED	67	15.0	4.9	1,003	Q	79	90	Q	267	467
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	2,931	5.4	2.7	15,941	350	3,793	3,574	3,838	2,166	2,219
10 TO 19	477	11.5	6.6	5,500	Q	502	1,053	1,709	1,004	1,220
20 TO 49	375	23.5	15.7	8,817	Q	186	586	2,281	2,510	3,253
50 TO 99	120	44.7	25.4	5,369	Q	50	124	526	896	3,773
100 OR MORE	92	131.3	65.8	12,058	Q	Q	Q	303	702	11,028
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	265	5.3	1.3	1,390	56	251	151	221	338	374
39 OR FEWER HOURS	575	5.8	3.3	3,362	72	694	912	781	509	392
40 TO 48 HOURS	960	11.2	4.1	10,800	81	1,139	1,350	2,134	1,580	4,516
49 TO 60 HOURS	898	12.1	4.6	10,866	60	1,096	1,283	2,229	1,948	4,250
61 TO 84 HOURS	600	15.0	4.7	9,034	44	572	851	1,703	1,192	4,672
MORE THAN 84 HOURS	697	17.5	4.1	12,235	52	786	809	1,588	1,711	7,289
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	1,444	14.2	4.8	20,449	112	1,577	2,110	3,754	3,143	9,754
NO	2,348	10.6	3.3	24,896	237	2,720	3,035	4,359	3,684	10,862
DON'T KNOW/NOT REPORTED	203	11.5	4.3	2,340	16	241	211	544	452	876

SEE NOTES AT END OF TABLE

Table 1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
INSULATION ADDED										
YES	1,082	11.7	4.2	12,661	90	1,308	1,646	2,275	1,999	5,344
NO	2,655	12.1	3.7	32,119	256	2,936	3,320	5,697	4,936	14,973
DON'T KNOW/NOT REPORTED	258	11.3	4.3	2,906	19	294	390	684	343	1,175
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	686	12.3	4.3	8,470	62	778	1,084	1,411	1,473	3,663
NO	3,089	11.9	3.7	36,692	287	3,504	3,977	6,620	5,445	16,858
DON'T KNOW/NOT REPORTED	220	11.5	4.6	2,524	16	256	296	625	360	971
REDUCED HEATING										
YES	2,956	12.4	4.1	36,651	250	3,472	4,122	6,562	5,484	16,760
NO	567	14.2	5.1	8,068	32	596	937	1,511	1,226	3,766
NOT REPORTED/ NOT APPLICABLE	473	6.3	1.5	2,966	82	470	296	584	568	965
REDUCED COOLING										
YES	1,482	16.9	5.1	25,077	73	1,679	2,318	4,201	3,397	13,409
NO	225	21.6	7.7	4,881	5	206	380	830	792	2,668
NOT REPORTED/ NOT APPLICABLE	2,288	7.7	2.9	17,727	287	2,654	2,658	3,625	3,089	5,414
REDUCED HEATING OR REDUCED COOLING										
YES	3,076	12.6	4.2	38,655	259	3,591	4,331	6,942	5,871	17,671
NO	473	13.5	4.9	6,375	28	505	762	1,248	942	2,890
NOT REPORTED	39	16.5	Q	652	3	36	23	123	125	344
NOT APPLICABLE	407	4.9	1.4	2,003	75	416	240	344	340	588

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total and Average Consumption and Expenditures

Table 2. Consumption and Expenditures for Major Fuels (Natural Gas, Electricity, Fuel Oil or Kerosene, LPG, and Steam) in Commercial Buildings Supplied with One or More of These Fuels, 1979

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	3,879	47,330	12.2	5.457	1,407	115	85	36,860	9.5	6.76
END USE BY FUEL TYPE										
HEATING FUEL USED.....	3,563	45,449	12.8	5.373	1,508	118	86	36,091	10.1	6.72
NATURAL GAS.....	1,922	25,886	13.5	3.327	1,731	129	97	18,625	9.7	5.60
ELECTRICITY.....	985	11,313	11.5	1.072	1,088	95	59	9,199	9.3	8.58
FUEL OIL/KEROSENE.....	762	10,724	14.1	1.545	2,026	144	114	10,014	13.1	6.48
LIQUID PETROLEUM GAS.....	208	1,075	5.2	.119	571	111	67	879	4.2	7.39
WOOD.....	94	604	6.4	.039	414	64	78	320	Q	8.23
STEAM.....	45	3,675	82.3	.513	11,483	140	71	4,287	96.0	8.36
COAL.....	42	728	17.3	Q	Q	Q	86	325	7.7	4.92
OTHER.....	8	357	Q	.026	Q	72	79	212	27.2	8.21
NO HEATING FUEL USED.....	316	1,881	6.0	.084	265	44	84	770	2.4	9.20
AIR CONDITIONING FUEL USED..	2,543	37,465	14.7	4.579	1,801	122	81	31,538	12.4	6.89
ELECTRICITY.....	2,415	35,172	14.6	4.191	1,736	119	81	28,912	12.0	6.90
NATURAL GAS.....	147	2,750	18.7	.456	3,101	166	101	2,463	16.8	5.40
OTHER.....	26	1,346	51.9	.251	9,673	186	63	2,040	78.7	8.14
NO AIR CONDITIONING FUEL....	1,335	9,865	7.4	.877	657	89	123	5,322	4.0	6.06
WATER-HEATING FUEL USED.....	2,663	39,507	14.8	4.741	1,781	120	86	31,532	11.8	6.65
NATURAL GAS.....	1,252	20,794	16.6	2.750	2,196	132	98	15,618	12.5	5.68
ELECTRICITY.....	1,223	14,600	11.9	1.474	1,205	101	73	10,899	8.9	7.40
FUEL OIL/KEROSENE.....	169	4,538	26.8	.666	3,938	147	106	5,158	30.5	7.75
OTHER.....	109	3,120	28.6	.374	3,425	120	63	3,006	28.3	8.25
NO WATER-HEATING FUEL.....	1,216	7,823	6.4	.715	588	91	82	5,328	4.4	7.45
MANUFACTURING FUEL USED.....	318	5,431	17.1	.922	2,904	170	147	4,793	15.1	5.20
ELECTRICITY.....	267	4,580	17.1	.738	2,761	161	147	3,871	14.5	5.24
NATURAL GAS.....	49	1,224	24.9	.523	10,636	427	286	2,217	45.1	4.24
OTHER.....	39	987	25.1	.408	Q	414	276	1,708	43.5	4.18
NO MANUFACTURING DONE.....	3,561	41,899	11.8	4.535	1,273	108	79	32,067	9.0	7.07
COOKING FUEL USED.....	1,324	23,923	18.1	2.834	2,141	118	84	18,029	13.6	6.36
ELECTRICITY.....	741	13,253	17.9	1.519	2,050	115	78	10,199	13.8	6.71
NATURAL GAS.....	610	13,681	22.4	1.792	2,938	131	92	10,628	17.4	5.93
LIQUID PETROLEUM GAS.....	108	1,185	11.0	.090	833	76	65	728	6.8	8.11
OTHER.....	20	885	Q	Q	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	2,555	23,407	9.2	2.622	1,027	112	87	18,832	7.4	7.18

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
CENSUS REGION										
NORTHEAST	686	11,243	16.4	1.399	2,039	124	99	10,536	15.4	7.53
NORTH CENTRAL	1,226	15,259	12.4	1.984	1,619	130	102	11,652	9.5	5.87
SOUTH	1,408	14,033	10.0	1.490	1,056	106	77	10,872	7.7	7.30
WEST	559	6,794	12.2	.583	1,044	86	54	3,801	6.8	6.52
SMSA/NONSMSA										
SMSA	2,223	33,877	15.2	4.108	1,848	121	84	28,396	12.8	6.91
NONSMSA	1,656	13,452	8.1	1.349	814	100	91	8,465	5.1	6.28
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD	438	5,490	12.5	.618	1,412	113	105	3,592	8.2	5.81
<2,000 CDD AND 5,500 TO 7,000 HDD	1,145	16,088	14.1	2.035	1,777	126	100	12,340	10.8	6.06
<2,000 CDD AND 4,000 TO 5,499 HDD	1,046	12,743	12.2	1.390	1,328	109	81	10,580	10.1	7.61
<2,000 CDD AND <4,000 HDD	627	6,936	11.1	.780	1,246	113	72	5,199	8.3	6.66
>2,000 CDD AND <4,000 HDD	623	6,073	9.7	.634	1,017	104	67	5,149	8.3	8.13
BUILDING TYPE										
ASSEMBLY	443	5,020	11.3	.412	930	82	125	2,552	5.8	6.20
AUTOMOTIVE SALES & SERVICE	400	1,820	4.6	.222	556	122	91	1,463	3.7	6.59
EDUCATION	161	5,851	36.2	.509	3,149	87	111	3,044	18.8	5.98
FOOD SALES	366	1,864	5.1	.348	950	187	84	2,838	7.7	8.15
HEALTH CARE	44	1,687	38.5	.441	10,080	262	109	2,216	50.6	5.02
LODGING	101	2,012	19.9	.269	2,671	134	148	1,851	18.4	6.87
OFFICE	599	8,183	13.7	1.014	1,691	124	44	8,409	14.0	8.30
RESIDENTIAL	347	3,115	9.0	.275	792	88	135	1,638	4.7	5.96
RETAIL/SERVICES	714	7,652	10.7	.662	928	87	71	4,895	6.9	7.39
WAREHOUSE AND STORAGE	366	5,987	16.4	.648	1,774	108	154	3,983	10.9	6.14
OTHER	230	3,112	13.6	.574	2,498	184	125	3,362	14.6	5.86
VACANT	108	1,026	9.5	.082	761	80	522	609	5.6	7.41
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	600	342	.6	.104	173	303	71	906	1.5	8.73
1,001 TO 5,000	1,625	4,420	2.7	.732	450	166	82	5,299	3.3	7.24
5,001 TO 10,000	735	5,280	7.2	.634	863	120	87	3,939	5.4	6.21
10,001 TO 25,000	550	8,639	15.7	.962	1,751	111	88	5,840	10.6	6.07
25,001 TO 50,000	204	7,201	35.2	.719	3,519	100	100	5,778	28.3	8.04
OVER 50,000	165	21,448	129.8	2.306	13,959	108	82	15,099	91.4	6.55

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF FLOORS										
ONE FLOOR	2,220	13,893	6.3	1.531	690	110	79	11,386	5.1	7.44
TWO FLOORS	901	11,606	12.9	1.221	1,355	105	92	7,991	8.9	6.54
THREE FLOORS	480	8,133	17.0	.814	1,697	100	91	5,015	10.5	6.16
MORE THAN THREE	278	13,708	49.3	1.891	6,806	138	84	12,467	44.9	6.59
YEAR CONSTRUCTED										
1900 OR BEFORE	317	3,452	10.9	.361	1,139	105	111	2,846	9.0	7.88
1901 TO 1920	402	5,387	13.4	.501	1,247	93	98	3,244	8.1	6.48
1921 TO 1945	755	8,958	11.9	1.107	1,467	124	106	6,130	8.1	5.54
1946 TO 1960	976	9,605	9.8	1.063	1,089	111	84	7,207	7.4	6.78
1961 TO 1970	720	10,000	13.9	1.229	1,706	123	81	8,398	11.7	6.84
1971 TO 1973	203	3,666	18.1	.517	2,549	141	78	3,475	17.1	6.72
1974 TO 1979	506	6,262	12.4	.679	1,342	108	63	5,561	11.0	8.19
FUEL COMBINATIONS USED										
ONE FUEL USED	799	5,856	7.3	.320	400	55	42	3,970	5.0	12.42
TWO FUELS USED	2,593	27,898	10.8	3.180	1,226	114	88	20,265	7.8	6.37
ELEC., NATURAL GAS	1,889	22,104	11.7	2.482	1,313	112	90	14,913	7.9	6.01
ELEC., FUEL OIL/KEROSENE	441	3,433	7.8	.399	905	116	98	2,816	6.4	7.05
ELEC., LPG	178	771	4.3	.073	411	95	56	667	3.8	9.14
OTHER	85	1,590	18.7	.226	2,660	142	76	1,870	22.0	8.27
THREE FUELS USED	448	12,301	27.4	1.660	3,702	135	93	10,962	24.5	6.61
ELEC., GAS, FUEL OIL/ KEROSENE	250	7,497	30.0	1.247	4,982	166	107	7,648	30.6	6.14
ELEC., FUEL OIL/KEROSENE, OTHER	95	1,276	13.4	.112	1,174	88	91	874	9.2	7.82
ELEC., GAS, OTHER	80	2,967	37.2	.255	3,199	86	65	2,041	25.6	8.01
OTHER	23	561	24.2	.046	Q	82	43	399	Q	8.62
FOUR OR MORE FUELS USED	39	1,276	32.9	.298	7,681	233	125	1,663	42.9	5.59
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	3,867	47,267	12.2	5.442	1,407	115	85	36,816	9.5	6.76
NATURAL GAS	2,252	33,635	14.9	4.267	1,895	127	95	26,076	11.6	6.11
FUEL OIL/KEROSENE	815	13,317	16.3	2.027	2,488	152	107	12,708	15.6	6.27
LIQUID PETROLEUM GAS	313	3,102	9.9	.349	1,118	113	94	2,370	7.6	6.78
WOOD	115	746	6.5	.051	441	68	73	404	3.5	7.94
COAL	53	802	15.1	Q	Q	Q	87	351	6.6	4.94
STEAM	49	3,831	78.9	.534	11,003	139	70	4,417	91.0	8.27
OTHER	20	970	48.7	.123	6,159	127	58	961	48.2	7.82

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	1,114	10,386	9.3	1.039	933	100	67	7,945	7.1	7.65
RADIANT	160	1,078	6.7	.080	502	74	70	641	4.0	7.98
COMBINATION/OTHER	343	2,547	7.4	.229	667	90	73	1,684	4.9	7.37
CENTRAL SYSTEM										
FORCED-AIR	937	11,147	11.9	1.300	1,388	117	80	8,719	9.3	6.70
RADIANT	508	9,177	18.1	1.221	2,405	133	115	6,795	13.4	5.56
COMBINATION/OTHER	205	6,459	31.5	.882	4,306	137	93	5,683	27.8	6.45
COMBINATION/OTHER										
FORCED-AIR	133	1,691	12.7	.286	2,148	169	99	1,775	13.3	6.21
RADIANT	31	498	16.0	Q	Q	Q	Q	Q	Q	Q
COMBINATION/OTHER	135	2,483	18.4	.267	1,978	107	88	1,735	12.9	6.50
NONE	314	1,873	6.0	.083	262	44	84	762	2.4	9.23
PERCENT OF BUILDING HEATED										
1 TO 25	225	3,368	15.0	.275	1,223	82	111	1,769	7.9	6.42
26 TO 50	335	2,675	8.0	.274	820	103	111	1,569	4.7	5.72
51 TO 75	302	3,407	11.3	.373	1,235	109	84	2,422	8.0	6.50
76 TO 99	227	4,234	18.7	.502	2,217	119	64	3,810	16.8	7.58
100	2,476	31,773	12.8	3.949	1,595	124	87	26,528	10.7	6.72
NONE	314	1,873	6.0	.083	262	44	84	762	2.4	9.23
PERCENT OF BUILDING COOLED										
1 TO 25	511	10,511	20.6	1.294	2,530	123	143	6,915	13.5	5.35
26 TO 50	524	5,195	9.9	.573	1,094	110	97	3,469	6.6	6.05
51 TO 75	272	4,160	15.3	.545	2,004	131	75	4,523	16.6	8.29
76 TO 99	182	4,859	26.7	.592	3,251	122	58	4,578	25.1	7.73
100	1,054	12,734	12.1	1.575	1,495	124	65	12,056	11.4	7.65
NONE	1,335	9,862	7.4	.877	657	89	123	5,320	4.0	6.07
AIR CONDITIONING SYSTEM										
WINDOW UNITS	812	7,005	8.6	.769	947	110	127	4,396	5.4	5.72
PACKAGE UNITS	744	11,410	15.3	1.214	1,632	106	70	8,759	11.8	7.22
CENTRAL SYSTEM	709	11,855	16.7	1.501	2,116	127	69	10,564	14.9	7.04
COMBINATION/OTHER	278	7,198	25.9	1.096	3,944	152	93	7,821	28.1	7.14
NO AIR CONDITIONING	1,335	9,862	7.4	.877	657	89	123	5,320	4.0	6.07

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	1,855	18,564	10.0	2.255	1,216	121	107	14,524	7.8	6.44
OWNER OR AGENT IS NOT OCCUPANT	1,094	9,228	8.4	.977	894	106	90	6,678	6.1	6.83
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	382	7,204	18.9	.678	1,776	94	49	5,789	15.2	8.54
OWNER OR AGENT IS NOT OCCUPANT	257	4,875	19.0	.463	1,804	95	61	3,642	14.2	7.86
GOVERNMENT-OWNED AND OCCUPIED	243	6,591	27.1	.951	3,908	144	97	5,567	22.9	5.86
NOT REPORTED	48	866	17.9	Q	Q	Q	Q	660	13.6	4.95
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	2,814	15,585	5.5	1.369	486	88	153	9,175	3.3	6.70
10 TO 19	477	5,500	11.5	.541	1,133	98	87	3,834	8.0	7.09
20 TO 49	375	8,817	23.5	1.173	3,126	133	104	7,263	19.4	6.19
50 TO 99	120	5,369	44.7	.634	5,279	118	83	4,143	34.5	6.53
100 OR MORE	92	12,058	131.3	1.740	18,956	144	59	12,446	135.6	7.15
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	185	1,107	6.0	.069	371	62	235	503	2.7	7.33
39 OR FEWER HOURS	566	3,346	5.9	.310	547	93	120	1,848	3.3	5.97
40 TO 48 HOURS	948	10,767	11.4	1.014	1,070	94	72	7,567	8.0	7.46
49 TO 60 HOURS	895	10,858	12.1	1.126	1,258	104	74	7,365	8.2	6.54
61 TO 84 HOURS	595	9,030	15.2	.938	1,576	104	74	6,783	11.4	7.23
MORE THAN 84 HOURS	690	12,221	17.7	2.000	2,901	164	106	12,795	18.6	6.40
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	1,435	20,419	14.2	2.297	1,600	112	79	16,124	11.2	7.02
NO	2,249	24,602	10.9	2.883	1,282	117	89	18,735	8.3	6.50
DON'T KNOW/NOT REPORTED	194	2,309	11.9	.277	1,425	120	110	2,002	10.3	7.23

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED										
YES	1,077	12,650	11.7	1.447	1,344	114	87	9,257	8.6	6.40
NO	2,550	31,800	12.5	3.720	1,459	117	85	25,629	10.1	6.89
DON'T KNOW/NOT REPORTED	252	2,880	11.4	.290	1,151	101	90	1,975	7.8	6.82
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	683	8,460	12.4	.907	1,328	107	79	6,306	9.2	6.95
NO	2,980	36,365	12.2	4.297	1,442	118	87	28,766	9.7	6.69
DON'T KNOW/NOT REPORTED	216	2,505	11.6	.252	1,168	101	89	1,789	8.3	7.10
REDUCED HEATING										
YES	2,954	36,644	12.4	4.195	1,420	114	83	28,460	9.6	6.78
NO	567	8,068	14.2	1.040	1,835	129	96	6,582	11.6	6.33
NOT REPORTED/ NOT APPLICABLE	358	2,618	7.3	.221	617	84	100	1,819	5.1	8.23
REDUCED COOLING										
YES	1,482	25,077	16.9	2.975	2,007	119	71	20,987	14.2	7.06
NO	225	4,881	21.6	.741	3,287	152	96	5,409	24.0	7.30
NOT REPORTED/ NOT APPLICABLE	2,171	17,372	8.0	1.741	802	100	125	10,465	4.8	6.01
REDUCED HEATING OR REDUCED COOLING										
YES	3,074	38,648	12.6	4.452	1,448	115	83	30,127	9.8	6.77
NO	473	6,375	13.5	.827	1,748	130	99	5,277	11.2	6.38
NOT REPORTED	39	652	16.5	.116	2,935	178	132	898	22.7	7.75
NOT APPLICABLE	292	1,655	5.7	.062	212	37	78	558	1.9	9.01

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total and Average Consumption and Expenditures

Table 3. Consumption and Expenditures for Major Fuels (Natural Gas, Electricity, Fuel Oil or Kerosene, LPG, and Steam) in Commercial Buildings Supplied with One or More of These Fuels, 1979, Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	686	11,243	16.4	1.399	2,039	124	99	10,536	15.4	7.53
END USE BY FUEL TYPE										
HEATING FUEL USED.....	656	11,102	16.9	1.392	2,122	125	98	10,477	16.0	7.53
NATURAL GAS.....	315	4,489	14.2	.644	2,040	143	107	3,615	11.5	5.62
ELECTRICITY.....	87	1,751	20.2	.157	1,816	90	57	1,640	18.9	10.43
FUEL OIL/KEROSENE.....	298	5,263	17.7	.777	2,609	148	123	5,531	18.6	7.12
STEAM.....	12	1,195	96.0	.185	14,903	155	83	1,812	145.7	9.78
OTHER.....	25	378	Q	Q	1,392	92	110	Q	12.9	Q
NO HEATING FUEL USED.....	30	142	4.7	Q	244	52	Q	59	1.9	7.96
AIR CONDITIONING FUEL USED..	435	9,004	20.7	1.179	2,714	131	93	9,179	21.1	7.78
ELECTRICITY.....	400	8,328	20.8	1.056	2,640	127	97	8,207	20.5	7.77
NATURAL GAS.....	36	543	15.0	.068	1,879	126	77	405	11.2	5.94
OTHER.....	5	530	100.7	.112	21,305	212	65	976	Q	8.70
NO AIR CONDITIONING FUEL....	252	2,239	8.9	.220	873	98	146	1,357	5.4	6.18
WATER-HEATING FUEL USED.....	543	10,041	18.5	1.263	2,327	126	98	9,497	17.5	7.52
NATURAL GAS.....	270	4,419	16.3	.578	2,136	131	104	3,247	12.0	5.62
ELECTRICITY.....	151	2,476	16.4	.248	1,643	100	83	2,192	14.5	8.84
FUEL OIL/KEROSENE.....	122	3,006	24.6	.427	3,491	142	105	3,725	30.5	8.73
OTHER.....	23	1,121	Q	.159	Q	142	85	1,508	Q	9.47
NO WATER-HEATING FUEL.....	143	1,202	8.4	.136	950	113	106	1,039	7.2	7.63
MANUFACTURING FUEL USED.....	52	1,344	26.0	Q	6,215	239	191	1,526	29.5	4.74
ELECTRICITY.....	43	1,043	24.2	Q	Q	Q	201	1,177	27.3	4.60
OTHER.....	14	535	38.4	Q	Q	Q	Q	Q	Q	Q
NO MANUFACTURING DONE.....	634	9,899	15.6	1.077	1,698	109	86	9,010	14.2	8.36
COOKING FUEL USED.....	322	6,778	21.1	.830	2,579	122	97	5,495	17.1	6.62
ELECTRICITY.....	113	2,732	24.1	.286	2,522	105	81	2,030	17.9	7.11
NATURAL GAS.....	212	4,655	22.0	.605	2,858	130	103	3,816	18.0	6.31
LIQUID PETROLEUM GAS.....	24	310	Q	.026	Q	85	77	196	Q	7.46
OTHER.....	2	394	Q	Q	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	364	4,466	12.3	.569	1,562	127	101	5,041	13.8	8.86
SMSA/NONSMSA										
SMSA.....	552	9,719	17.6	1.217	2,206	125	95	9,333	16.9	7.67
NONSMSA.....	135	1,525	11.3	.182	1,351	119	131	1,204	8.9	6.62

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD...	103	1,059	10.3	Q	992	97	125	Q	6.8	6.81
<2,000 CDD AND 5,500 TO 7,000 HDD.....	364	5,859	16.1	.678	1,862	116	93	4,524	12.4	6.67
<2,000 CDD AND 4,000 TO 5,499 HDD.....	219	4,325	19.7	.619	2,824	143	102	5,316	24.3	8.59
BUILDING TYPE										
ASSEMBLY.....	57	1,102	19.3	.068	1,190	62	107	583	10.2	8.57
AUTOMOTIVE SALES & SERVICE..	77	497	6.5	.056	734	113	98	399	5.2	7.08
EDUCATION.....	23	1,392	59.3	.116	4,963	84	120	810	34.5	6.98
FOOD SALES.....	56	370	6.6	.059	1,054	160	93	521	9.3	8.73
HEALTH CARE.....	7	397	Q	.107	Q	269	107	596	Q	5.59
LODGING.....	13	441	34.7	.057	4,481	129	175	403	31.6	7.05
OFFICE.....	104	1,989	19.0	.286	2,739	144	53	2,997	28.7	10.47
RESIDENTIAL.....	131	1,575	12.0	.129	989	82	146	790	6.0	6.11
RETAIL/SERVICES.....	114	1,534	13.4	.138	1,210	90	78	1,236	10.8	8.93
WAREHOUSE AND STORAGE.....	49	958	19.5	.073	1,485	76	85	603	12.2	8.25
OTHER.....	34	737	21.6	Q	Q	Q	Q	Q	Q	Q
VACANT.....	20	251	12.6	Q	1,002	Q	Q	124	6.2	6.19
TOTAL SQUARE FOOTAGE										
1,000 OR LESS.....	57	29	.5	.017	303	589	138	150	2.6	8.72
1,001 TO 5,000.....	257	761	3.0	.123	478	162	89	986	3.8	8.02
5,001 TO 10,000.....	146	1,037	7.1	.130	891	126	108	891	6.1	6.84
10,001 TO 25,000.....	132	2,021	15.3	.321	2,426	Q	145	1,636	12.4	5.10
25,001 TO 50,000.....	52	1,816	34.7	.205	3,909	113	125	2,212	42.2	10.80
OVER 50,000.....	41	5,579	135.4	.603	14,636	108	79	4,661	113.1	7.73
NUMBER OF FLOORS										
ONE FLOOR.....	214	1,577	7.4	.221	1,033	140	110	1,740	8.1	7.87
TWO FLOORS.....	165	2,113	12.8	.212	1,283	100	82	1,598	9.7	7.55
THREE FLOORS.....	157	2,416	15.4	.223	1,420	92	90	1,561	9.9	7.03
MORE THAN THREE.....	150	5,138	34.3	.743	4,956	145	104	5,637	37.6	7.59
YEAR CONSTRUCTED										
1900 OR BEFORE.....	118	1,392	11.8	0.157	1,338	113	145	Q	Q	10.75
1901 TO 1920.....	106	1,773	16.8	.135	1,281	76	110	1,088	10.3	8.05
1921 TO 1945.....	162	2,525	15.6	.418	2,580	166	135	2,250	13.9	5.38
1946 TO 1960.....	136	2,050	15.1	.231	1,701	113	75	1,919	14.1	8.31
1961 TO 1970.....	105	2,046	19.6	.268	2,559	131	78	2,061	19.7	7.70
1971 TO 1973.....	21	580	27.1	.085	3,956	146	89	619	28.9	7.30
1974 TO 1979.....	39	877	22.3	.105	2,674	120	80	908	23.1	8.63
FUEL COMBINATIONS USED										
ONE FUEL USED.....	55	734	13.3	.050	915	69	60	568	10.3	11.27
TWO FUELS USED.....	454	5,466	12.0	.604	1,330	110	95	4,471	9.8	7.41
ELEC., NATURAL GAS.....	294	3,530	12.0	.345	1,172	98	87	2,300	7.8	6.66
ELEC., FUEL OIL/KEROSENE..	137	1,445	10.6	.148	1,081	102	106	1,208	8.8	8.18
OTHER.....	23	491	21.5	Q	Q	Q	Q	Q	Q	Q
THREE FUELS USED.....	171	4,758	27.9	.711	4,168	149	110	5,249	30.8	7.38
ELEC., GAS, FUEL OIL/ KEROSENE.....	136	3,505	25.7	.604	4,434	172	121	4,119	30.2	6.82
ELEC., FUEL OIL/KEROSENE, OTHER.....	23	329	Q	.030	1,295	92	116	Q	10.8	8.34
ELEC., GAS, OTHER.....	9	820	88.7	.062	6,755	76	54	772	83.5	12.36
OTHER.....	2	104	Q	Q	Q	Q	Q	Q	Q	Q
FOUR OR MORE FUELS USED.....	7	286	43.9	.034	5,221	119	68	249	38.3	7.33
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY.....	678	11,208	16.5	1.395	2,057	124	98	10,522	15.5	7.54
NATURAL GAS.....	451	8,155	18.1	1.048	2,323	128	99	7,442	16.5	7.10
FUEL OIL/KEROSENE.....	307	5,561	18.1	.813	2,647	146	115	5,795	18.9	7.13
STEAM.....	13	1,228	94.7	.190	14,629	154	83	1,839	141.8	9.70
OTHER.....	51	923	Q	.030	Q	87	89	643	12.6	8.04

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	113	1,195	10.5	0.142	1,255	119	68	1,182	10.4	8.31
RADIANT	32	358	11.3	.026	824	73	81	203	6.4	7.77
COMBINATION/OTHER	31	540	17.7	.042	1,368	77	48	428	14.0	10.26
CENTRAL SYSTEM										
FORCED-AIR	151	2,406	15.9	.265	1,750	110	100	1,947	12.9	7.36
RADIANT	220	3,528	16.0	.517	2,350	147	155	2,944	13.4	5.69
COMBINATION/OTHER	66	2,029	30.9	.251	3,827	124	76	1,957	29.8	7.79
COMBINATION/OTHER	44	1,044	24.0	.149	3,416	142	93	1,816	41.7	12.21
NONE	30	142	4.7	Q	244	52	Q	59	1.9	7.96
PERCENT OF BUILDING HEATED										
1 TO 25	26	404	15.6	.025	962	62	99	212	8.2	8.49
26 TO 50	58	583	10.1	.041	705	70	86	392	6.8	9.64
51 TO 75	63	795	12.6	.069	1,094	87	97	494	7.8	7.16
76 TO 99	52	1,341	25.6	.177	Q	132	72	1,491	Q	8.42
100	457	7,979	17.5	1.030	2,363	135	105	7,889	17.3	7.30
NONE	30	142	4.7	Q	244	52	Q	59	1.9	7.96
PERCENT OF BUILDING COOLED										
1 TO 25	141	3,060	21.7	.437	3,099	143	202	2,338	16.6	5.35
26 TO 50	101	1,214	12.0	.138	1,360	113	86	1,025	10.1	7.44
51 TO 75	57	1,224	21.5	.202	3,545	165	97	2,143	37.7	10.62
76 TO 99	29	1,356	46.9	.140	4,845	103	45	1,361	47.0	9.71
100	106	2,150	20.2	.262	2,469	122	70	2,313	21.8	8.81
NONE	252	2,239	8.9	.220	873	98	146	1,357	5.4	6.18
AIR CONDITIONING SYSTEM										
WINDOW UNITS	199	2,383	12.0	.339	1,701	142	193	1,716	8.6	5.07
PACKAGE UNITS	109	2,243	20.6	.223	2,049	100	71	1,936	17.8	8.67
CENTRAL SYSTEM	81	2,133	26.3	.273	3,363	128	66	2,237	27.6	8.20
COMBINATION/OTHER	45	2,245	49.5	.345	7,600	154	94	3,290	72.5	9.55
NO AIR CONDITIONING	252	2,239	8.9	.220	873	98	146	1,357	5.4	6.18
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	284	3,781	13.3	0.462	1,626	122	114	3,349	11.8	7.25
OWNER OR AGENT IS NOT OCCUPANT	216	2,379	11.0	.247	1,147	104	102	1,858	8.6	7.51
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	81	1,989	24.6	.227	2,815	114	62	2,525	31.3	11.11
OWNER OR AGENT IS NOT OCCUPANT	60	1,465	24.4	.149	2,489	102	72	1,253	20.9	8.40
GOVERNMENT-OWNED AND OCCUPIED	41	1,387	33.8	Q	Q	Q	Q	1,476	35.9	4.86
NOT REPORTED	4	243	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	489	3,714	7.6	.325	663	87	194	2,204	4.5	6.79
10 TO 19	86	1,126	13.1	.121	1,404	107	107	1,037	12.1	8.58
20 TO 49	68	1,874	27.7	.344	5,075	184	164	1,978	29.2	5.75
50 TO 99	20	1,236	63.1	.161	8,189	130	129	1,194	60.9	7.44
100 OR MORE	23	3,293	140.3	.449	19,128	136	56	4,122	175.6	9.18
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	34	269	8.0	.014	414	Q	Q	102	3.0	7.31
39 OR FEWER HOURS	80	672	8.4	.060	752	90	144	427	5.3	7.10
40 TO 48 HOURS	167	2,593	15.5	.257	1,537	99	68	2,503	15.4	10.05
49 TO 60 HOURS	175	2,580	14.8	.339	2,227	151	117	2,238	12.8	5.75
61 TO 84 HOURS	112	2,187	19.5	.241	2,157	110	99	2,001	17.9	8.29
MORE THAN 84 HOURS	119	2,946	24.8	.433	3,634	149	105	3,186	26.8	7.28

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	293	5,311	18.2	0.612	2,090	115	81	5,242	17.9	8.57
NO	355	5,470	15.4	.746	2,097	136	122	4,939	13.9	6.63
DON'T KNOW/NOT REPORTED	38	463	12.1	.042	1,097	90	74	355	9.3	8.47
INSULATION ADDED										
YES	234	3,472	14.8	.326	1,396	94	74	2,546	10.9	7.80
NO	412	7,174	17.4	1.023	2,482	143	113	7,552	18.3	7.38
DON'T KNOW/NOT REPORTED	40	597	14.8	.050	1,238	84	90	439	10.9	8.79
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	151	2,488	16.5	.239	1,585	96	77	1,813	12.0	7.60
NO	499	8,241	16.5	1.116	2,238	135	105	8,312	16.7	7.45
DON'T KNOW/NOT REPORTED	37	515	13.9	.045	1,201	87	92	411	11.1	9.20
REDUCED HEATING										
YES	515	9,164	17.8	1.141	2,216	125	96	8,717	16.9	7.64
NO	138	1,854	13.5	.228	1,656	123	106	1,570	11.4	6.89
NOT REPORTED/ NOT APPLICABLE	34	225	6.7	Q	890	133	183	Q	7.4	8.32
REDUCED COOLING										
YES	202	5,712	28.2	.693	3,422	121	72	5,648	27.9	8.15
NO	30	816	27.2	.132	4,394	162	109	Q	Q	12.64
NOT REPORTED/ NOT APPLICABLE	454	4,715	10.4	.574	1,266	122	169	3,221	7.1	5.61
REDUCED HEATING OR REDUCED COOLING										
YES	528	9,517	18.0	1.207	2,284	127	96	9,133	17.3	7.57
NO	123	1,484	12.0	.167	1,351	112	109	1,180	9.6	7.08
NOT REPORTED/ NOT APPLICABLE	34	242	7.0	.025	Q	104	156	223	Q	3.84

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	1,226	15,259	12.4	1.984	1,619	130	102	11,652	9.5	5.87
END USE BY FUEL TYPE										
HEATING FUEL USED.....	1,155	14,929	12.9	1.969	1,705	132	102	11,495	10.0	5.84
NATURAL GAS.....	841	11,175	13.3	1.541	1,833	138	112	8,272	9.8	5.37
ELECTRICITY.....	150	2,028	13.5	.318	2,125	157	108	2,090	14.0	6.57
FUEL OIL/KEROSENE.....	165	2,255	13.6	.353	2,135	157	136	1,912	11.6	5.41
STEAM.....	16	1,530	98.5	.203	13,096	133	73	1,486	95.7	7.31
OTHER.....	104	955	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	71	330	4.7	.015	Q	Q	Q	156	2.2	10.10
AIR CONDITIONING FUEL USED..	798	12,118	15.2	1.683	2,109	139	96	9,829	12.3	5.84
ELECTRICITY.....	757	11,247	14.9	1.555	2,056	138	96	9,071	12.0	5.83
NATURAL GAS.....	54	1,184	21.9	Q	3,979	182	125	986	18.2	4.58
OTHER.....	6	413	Q	.080	Q	195	89	599	Q	7.45
NO AIR CONDITIONING FUEL....	428	3,141	7.3	.301	704	96	161	1,822	4.3	6.05
WATER-HEATING FUEL USED.....	901	13,359	14.8	1.716	1,904	128	99	9,932	11.0	5.79
NATURAL GAS.....	544	9,106	16.7	1.160	2,131	127	107	6,467	11.9	5.58
ELECTRICITY.....	338	3,876	11.5	.528	1,560	136	97	3,039	9.0	5.76
FUEL OIL/KEROSENE.....	12	621	Q	.098	Q	158	127	479	40.7	4.88
OTHER.....	31	1,010	32.3	.128	4,105	127	59	891	28.5	6.94
NO WATER-HEATING FUEL.....	325	1,900	5.9	.268	827	141	131	1,720	5.3	6.41
MANUFACTURING FUEL USED.....	80	1,597	20.1	.246	3,088	154	148	1,442	18.1	5.87
ELECTRICITY.....	64	1,403	21.9	.210	3,277	150	149	1,256	19.6	5.97
OTHER.....	25	475	Q	.142	Q	300	214	826	Q	5.80
NO MANUFACTURING DONE.....	1,146	13,662	11.9	1.738	1,517	127	98	10,209	8.9	5.87
COOKING FUEL USED.....	409	7,677	18.8	1.014	2,483	132	102	5,596	13.7	5.52
ELECTRICITY.....	235	4,430	18.9	.586	2,499	132	92	3,347	14.3	5.71
NATURAL GAS.....	211	4,686	22.2	.649	3,071	139	106	3,491	16.5	5.38
OTHER.....	25	437	Q	.048	Q	109	Q	305	Q	6.40
NO COOKING FUEL.....	817	7,582	9.3	.970	1,187	128	102	6,055	7.4	6.24
SMSA/NONSMSA										
SMSA.....	678	10,960	16.2	1.444	2,128	132	99	8,835	13.0	6.12
NONSMSA.....	547	4,299	7.9	.541	988	126	112	2,817	5.1	5.21

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD...	240	3,670	15.3	0.447	1,862	122	110	Q	10.3	5.53
<2,000 CDD AND 5,500 TO 7,000 HDD.....	631	8,616	13.7	1.198	1,900	139	108	6,896	10.9	5.75
<2,000 CDD AND 4,000 TO 5,499 HDD.....	355	2,973	8.4	Q	955	114	78	Q	6.4	6.74
BUILDING TYPE										
ASSEMBLY.....	146	1,607	11.0	.190	1,306	119	184	855	5.9	4.49
AUTOMOTIVE SALES & SERVICE..	145	574	3.9	.105	719	182	126	620	4.3	5.93
EDUCATION.....	35	1,933	55.5	.185	5,293	95	136	900	25.8	4.87
FOOD SALES.....	118	702	5.9	.148	1,255	211	89	1,041	8.8	7.03
HEALTH CARE.....	18	690	39.2	.167	9,504	242	112	736	41.8	4.40
LODGING.....	12	592	51.3	.067	5,847	114	171	393	34.1	5.82
OFFICE.....	192	2,237	11.6	.330	1,713	147	52	2,279	11.8	6.92
RESIDENTIAL.....	109	997	9.2	.085	787	86	142	475	4.4	5.56
RETAIL/SERVICES.....	227	2,518	11.1	.220	966	87	82	1,541	6.8	7.02
WAREHOUSE AND STORAGE.....	121	1,940	16.1	.306	2,534	158	245	1,546	12.8	5.06
OTHER.....	68	1,171	17.2	.154	2,258	131	88	1,097	16.1	7.14
VACANT.....	36	293	8.3	.028	775	94	Q	168	4.7	6.09
TOTAL SQUARE FOOTAGE										
1,000 OR LESS.....	181	114	.6	.038	210	335	73	272	1.5	7.14
1,001 TO 5,000.....	522	1,450	2.8	.251	481	173	98	1,539	3.0	6.14
5,001 TO 10,000.....	247	1,781	7.2	.286	1,157	160	117	1,605	6.5	5.62
10,001 TO 25,000.....	157	2,486	15.9	.301	1,920	121	89	1,593	10.2	5.29
25,001 TO 50,000.....	64	2,256	35.2	.281	4,389	125	123	1,865	29.1	6.63
OVER 50,000.....	55	7,172	130.4	.827	15,047	115	100	4,777	86.9	5.77
NUMBER OF FLOORS										
ONE FLOOR.....	618	3,818	6.2	.496	802	130	86	3,427	5.5	6.91
TWO FLOORS.....	320	3,727	11.6	.543	1,696	146	133	3,130	9.8	5.76
THREE FLOORS.....	209	3,275	15.6	.334	1,594	102	101	1,759	8.4	5.27
MORE THAN THREE.....	78	4,439	57.1	.611	7,863	138	97	3,335	42.9	5.45
YEAR CONSTRUCTED										
1900 OR BEFORE.....	122	1,344	11.0	0.154	1,259	114	96	865	7.1	5.63
1901 TO 1920.....	162	2,018	12.4	.213	1,311	105	94	1,250	7.7	5.88
1921 TO 1945.....	247	2,688	10.9	.423	1,716	158	130	2,081	8.4	4.91
1946 TO 1960.....	285	3,032	10.7	.398	1,399	131	107	2,450	8.6	6.15
1961 TO 1970.....	198	3,133	15.8	.411	2,070	131	189	2,402	12.1	5.85
1971 TO 1973.....	59	1,004	17.1	.141	2,402	140	86	862	14.7	6.11
1974 TO 1979.....	153	2,040	13.3	.244	1,598	120	76	1,742	11.4	7.12
FUEL COMBINATIONS USED										
ONE FUEL USED.....	126	759	6.0	Q	411	69	55	Q	4.8	11.71
TWO FUELS USED.....	967	10,240	10.6	1.326	1,371	129	103	7,485	7.7	5.65
ELEC., NATURAL GAS.....	794	8,982	11.3	1.173	1,478	131	110	6,350	8.0	5.41
ELEC., FUEL OIL/KEROSENE..	93	485	5.2	.075	805	153	163	491	5.3	6.53
ELEC., LPG.....	58	199	Q	.019	Q	93	43	173	Q	8.91
OTHER.....	23	575	Q	.059	Q	103	48	472	Q	7.99
THREE FUELS USED.....	122	3,934	32.2	.527	4,313	134	182	3,051	25.0	5.79
ELEC., GAS, FUEL OIL/ KEROSENE.....	74	2,248	30.5	.378	5,130	168	131	2,003	27.2	5.29
ELEC., FUEL OIL/KEROSENE, LPG.....	16	137	8.4	.009	Q	Q	166	68	4.2	7.78
ELEC., GAS, OTHER.....	25	1,260	49.6	.119	4,689	94	64	805	31.7	6.76
OTHER.....	7	289	Q	.021	Q	Q	55	175	Q	8.52
FOUR OR MORE FUELS USED.....	10	326	Q	Q	Q	244	147	Q	Q	6.37
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY.....	1,222	15,250	12.5	1.982	1,621	130	102	11,646	9.5	5.88
NATURAL GAS.....	901	12,793	14.2	1.750	1,942	137	110	9,653	10.7	5.52
FUEL OIL/KEROSENE.....	187	3,132	16.7	.522	2,785	167	133	2,894	15.4	5.54
LIQUID PETROLEUM GAS.....	96	767	8.0	.068	Q	89	67	485	Q	7.12
STEAM.....	16	1,590	97.2	.210	12,867	132	93	1,539	94.1	7.32
OTHER.....	37	807	Q	Q	Q	93	95	Q	Q	7.20

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	329	2,891	8.8	0.344	1,045	119	82	2,334	7.1	6.79
RADIANT	28	231	8.2	.024	866	Q	Q	170	6.1	7.00
COMBINATION/OTHER	72	547	7.6	.065	892	118	97	410	5.7	6.35
CENTRAL SYSTEM										
FORCED-AIR	376	3,442	9.1	.424	1,124	123	91	2,668	7.1	6.29
RADIANT	177	3,346	18.9	.430	2,427	129	112	2,244	12.7	5.21
COMBINATION/OTHER	85	2,863	33.8	.420	4,953	147	119	2,425	28.6	5.77
COMBINATION/OTHER	86	1,611	18.8	.262	Q	162	117	1,246	14.5	4.76
NONE	71	327	4.6	.015	Q	Q	Q	154	2.2	10.15
PERCENT OF BUILDING HEATED										
1 TO 50	169	1,768	10.5	.214	Q	121	192	1,034	6.1	4.84
51 TO 75	89	1,044	11.8	.171	1,928	164	139	884	10.0	5.17
76 TO 99	66	1,080	16.4	.110	1,669	102	74	644	9.7	5.84
100	832	11,040	13.3	1.474	1,773	134	95	8,936	10.7	6.06
NONE	71	327	4.6	.015	Q	Q	Q	154	2.2	10.15
PERCENT OF BUILDING COOLED										
1 TO 25	148	3,521	23.8	.494	3,339	140	156	2,305	15.6	4.67
26 TO 50	210	2,238	10.7	.288	1,369	128	133	1,541	7.3	5.36
51 TO 75	83	1,332	16.0	.194	2,339	146	78	1,242	15.0	6.40
76 TO 99	65	1,437	22.1	.198	3,053	138	76	1,266	19.5	6.38
100	292	3,591	12.3	.509	1,744	142	71	3,475	11.9	6.82
NONE	428	3,141	7.3	.301	704	96	161	1,822	4.3	6.05
AIR CONDITIONING SYSTEM										
WINDOW UNITS	225	1,811	8.0	.215	955	119	120	1,254	5.6	5.83
PACKAGE UNITS	245	3,904	15.9	.441	1,798	113	80	2,874	11.7	6.52
CENTRAL SYSTEM	254	4,050	16.0	.574	2,263	142	88	3,359	13.2	5.85
COMBINATION/OTHER	74	2,353	31.8	.453	6,121	193	119	2,343	31.6	5.17
NO AIR CONDITIONING	428	3,141	7.3	.301	704	96	161	1,822	4.3	6.05

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	676	6,771	10.0	0.860	1,271	127	112	4,966	7.3	5.78
OWNER OR AGENT IS NOT OCCUPANT	273	2,846	10.4	.370	1,354	130	129	2,137	7.8	5.78
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	123	2,031	16.5	.182	1,481	90	49	1,288	10.5	7.06
OWNER OR AGENT IS NOT OCCUPANT	65	1,114	17.1	.141	2,164	127	95	913	14.0	6.47
GOVERNMENT-OWNED AND OCCUPIED	74	2,308	31.1	.334	4,499	145	95	1,975	26.6	5.91
NOT REPORTED	14	188	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	885	4,767	5.4	.491	555	103	176	2,897	3.3	5.90
10 TO 19	142	1,705	12.0	.213	1,499	125	119	1,221	8.6	5.75
20 TO 49	129	3,170	24.6	.450	3,492	142	119	2,535	19.7	5.64
50 TO 99	42	2,031	48.4	.239	5,706	118	88	1,436	34.2	6.00
100 OR MORE	28	3,586	128.7	.591	21,209	165	70	3,562	127.8	6.03
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	46	253	5.5	.025	531	98	Q	158	3.4	6.42
39 OR FEWER HOURS	185	906	4.9	.137	739	151	185	594	3.2	4.34
40 TO 48 HOURS	276	2,832	10.2	.336	1,216	119	92	2,146	7.8	6.39
49 TO 60 HOURS	288	3,583	12.4	.329	1,143	92	76	2,124	7.4	6.45
61 TO 84 HOURS	216	2,912	13.5	.343	1,592	118	93	2,084	9.7	6.07
MORE THAN 84 HOURS	214	4,774	22.3	.814	3,808	170	116	4,545	21.3	5.58
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	523	7,455	14.3	.928	1,775	125	99	5,493	10.5	5.92
NO	634	6,749	10.6	.906	1,429	134	99	5,152	8.1	5.69
DON'T KNOW/NOT REPORTED	69	1,055	15.3	.150	2,178	142	156	1,007	14.6	6.72

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED										
YES	390	4,428	11.4	0.621	1,593	140	120	3,423	8.8	5.51
NO	734	9,621	13.1	1.212	1,651	126	94	7,302	9.9	6.02
DON'T KNOW/NOT REPORTED	102	1,210	11.9	.151	1,485	125	113	927	9.1	6.15
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	251	3,209	12.8	.382	1,522	119	101	2,426	9.7	6.35
NO	886	10,939	12.3	1.463	1,652	134	100	8,381	9.5	5.73
DON'T KNOW/NOT REPORTED	89	1,111	12.5	.139	1,566	125	126	845	9.5	6.08
REDUCED HEATING										
YES	954	11,526	12.1	1.502	1,575	130	100	8,831	9.3	5.88
NO	190	3,145	16.5	.430	2,259	137	108	2,480	13.0	5.77
NOT REPORTED/ NOT APPLICABLE	82	588	7.2	.052	640	89	101	341	4.2	6.54
REDUCED COOLING										
YES	485	8,154	16.8	1.102	2,270	135	87	6,624	13.6	6.01
NO	80	1,954	24.5	.344	4,313	176	118	1,836	23.0	5.34
NOT REPORTED/ NOT APPLICABLE	660	5,151	7.8	.538	815	104	137	3,189	4.8	5.93
REDUCED HEATING OR REDUCED COOLING										
YES	997	12,337	12.4	1.599	1,604	130	100	9,374	9.4	5.86
NO	146	2,285	15.6	.337	2,306	148	114	1,949	13.3	5.78
NOT REPORTED	11	309	Q	.032	2,822	104	95	174	Q	5.39
NOT APPLICABLE	71	327	4.6	.015	Q	Q	Q	154	2.2	10.15

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
COMMERCIAL BUILDINGS.....	1,408	14,033	10.0	1.490	1,058	106	77	10,872	7.7	7.30
END USE BY FUEL TYPE										
HEATING FUEL USED.....	1,262	13,047	10.3	1.449	1,148	111	77	10,477	8.3	7.23
NATURAL GAS.....	488	6,156	12.6	.767	1,571	125	100	4,610	9.4	6.01
ELECTRICITY.....	559	5,186	9.3	.406	727	78	48	4,023	7.2	9.90
FUEL OIL/KEROSENE.....	238	2,565	10.8	.350	1,467	136	91	2,244	9.4	6.42
LIQUID PETROLEUM GAS.....	98	455	4.6	.053	540	116	95	381	3.9	7.18
OTHER.....	58	1,152	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	146	986	6.8	.042	285	42	84	396	2.7	9.53
AIR CONDITIONING FUEL USED..	1,062	12,281	11.6	1.333	1,256	109	73	9,851	9.3	7.39
ELECTRICITY.....	1,032	11,894	11.5	1.244	1,205	105	73	9,347	9.1	7.51
NATURAL GAS.....	30	609	20.5	.117	3,947	192	93	652	22.0	5.57
OTHER.....	13	299	22.5	.050	3,782	168	46	398	29.9	7.91
NO AIR CONDITIONING FUEL....	346	1,752	5.1	.157	453	90	129	1,021	2.9	6.51
WATER-HEATING FUEL USED.....	833	10,535	12.6	1.260	1,513	120	79	8,908	10.7	7.07
NATURAL GAS.....	255	4,247	16.7	.690	2,710	162	112	4,009	15.7	5.81
ELECTRICITY.....	534	5,813	10.9	.525	983	90	61	4,412	8.3	8.40
FUEL OIL/KEROSENE.....	29	737	25.6	.128	4,439	173	98	887	30.9	6.95
OTHER.....	42	722	17.2	.059	1,412	82	41	525	12.5	8.87
NO WATER-HEATING FUEL.....	575	3,499	6.1	.230	400	66	66	1,964	3.4	8.54
MANUFACTURING FUEL USED.....	111	1,601	14.4	.258	2,331	161	143	1,364	12.3	5.28
ELECTRICITY.....	90	1,356	15.0	.187	2,070	138	140	1,035	11.4	5.53
NATURAL GAS.....	18	318	18.1	.144	8,191	454	281	579	32.9	4.01
OTHER.....	15	415	27.9	.141	9,497	340	221	615	41.5	4.37
NO MANUFACTURING DONE.....	1,297	12,432	9.6	1.232	950	99	70	9,508	7.3	7.72
COOKING FUEL USED.....	420	6,476	15.4	.714	1,702	110	73	5,120	12.2	7.17
ELECTRICITY.....	277	4,330	15.6	.473	1,708	109	69	3,638	13.1	7.70
NATURAL GAS.....	120	2,768	23.0	.392	3,256	142	90	2,407	20.0	6.15
LIQUID PETROLEUM GAS.....	55	540	9.7	.040	723	74	56	377	6.8	9.41
OTHER.....	13	249	Q	.024	Q	97	Q	229	Q	9.43
NO COOKING FUEL.....	988	7,557	7.6	.776	785	103	81	5,752	5.8	7.41

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
SMSA/NONSMSA										
SMSA	608	7,855	12.9	0.985	1,620	125	77	7,075	11.6	7.18
NONSMSA	800	6,178	7.7	.505	631	82	76	3,797	4.7	7.52
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND 4,000 TO 5,499 HDD	407	4,439	10.9	.366	900	82	64	2,651	6.5	7.24
<2,000 CDD AND <4,000 HDD	409	3,972	Q	.534	Q	135	104	3,412	Q	6.38
>2,000 CDD AND <4,000 HDD	592	5,622	9.5	.590	996	105	69	4,810	8.1	8.16
BUILDING TYPE										
ASSEMBLY	194	1,701	8.8	.103	532	61	85	755	3.9	7.33
AUTOMOTIVE SALES & SERVICE	120	415	3.4	.038	319	93	71	272	2.3	7.08
EDUCATION	75	1,822	24.2	.158	2,100	87	102	1,031	13.7	6.52
FOOD SALES	139	512	3.7	.102	735	200	93	987	7.1	9.66
HEALTH CARE	15	430	28.6	.138	9,211	322	119	727	48.3	5.25
LODGING	54	687	12.7	.112	2,067	163	136	869	16.1	7.78
OFFICE	198	2,409	12.2	.270	1,364	112	39	2,157	10.9	8.00
RESIDENTIAL	78	395	5.0	.041	521	104	98	280	3.6	6.86
RETAIL/SERVICES	277	2,565	9.3	.209	756	82	63	1,580	5.7	7.55
WAREHOUSE AND STORAGE	125	1,962	15.6	.210	1,676	107	169	1,399	11.2	6.65
OTHER	89	729	8.2	.077	862	106	71	528	5.9	6.86
VACANT	43	407	9.5	.032	738	78	Q	288	6.7	Q
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	288	153	.5	.042	144	272	74	432	1.5	Q
1,001 TO 5,000	617	1,617	2.6	.271	439	167	84	2,173	3.5	8.03
5,001 TO 10,000	223	1,578	7.1	.124	556	79	54	938	4.2	7.56
10,001 TO 25,000	175	2,732	15.6	.224	1,280	82	65	1,738	9.9	7.74
25,001 TO 50,000	59	2,110	36.0	.174	2,966	82	80	1,329	22.7	7.65
OVER 50,000	46	5,842	127.2	.656	14,277	112	85	4,263	92.8	6.50
NUMBER OF FLOORS										
ONE FLOOR	1,021	5,911	5.8	.593	581	100	79	4,770	4.7	8.04
TWO FLOORS	285	3,940	13.8	.303	1,063	77	68	2,200	7.7	7.25
THREE FLOORS	70	1,603	22.9	.190	2,720	119	97	1,259	18.0	6.62
MORE THAN THREE	31	2,579	82.0	.403	12,826	156	74	2,644	84.1	6.56

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
YEAR CONSTRUCTED										
1900 OR BEFORE	52	555	10.6	0.036	694	65	93	221	4.2	6.09
1901 TO 1920	92	1,014	11.0	.106	1,147	104	109	708	7.7	6.70
1921 TO 1945	236	2,516	10.7	.166	705	66	59	1,237	5.2	7.44
1946 TO 1960	404	3,195	7.9	.322	796	101	80	2,175	5.4	6.76
1961 TO 1970	314	3,258	10.4	.430	1,368	132	82	3,105	9.9	7.22
1971 TO 1973	89	1,323	14.9	.209	2,356	158	102	1,408	15.9	6.73
1974 TO 1979	220	2,172	9.9	.221	1,002	102	57	2,018	9.2	9.14
FUEL COMBINATIONS USED										
ONE FUEL USED	480	3,197	6.7	.157	328	49	36	2,179	4.5	13.84
TWO FUELS USED	805	8,061	10.0	.880	1,094	109	84	5,995	7.5	6.81
ELEC., NATURAL GAS	512	6,130	12.0	.638	1,246	104	84	4,227	8.3	6.62
ELEC., FUEL OIL/KEROSENE	170	1,145	6.7	.153	897	133	85	988	5.8	6.48
ELEC., LPG	96	449	4.7	.043	445	95	67	398	4.1	9.31
OTHER	26	338	13.0	.047	1,791	Q	Q	381	14.6	8.18
THREE FUELS USED	106	2,270	21.3	.284	2,667	125	84	1,879	17.7	6.62
ELEC., GAS, FUEL OIL/ KEROSENE	31	904	29.0	.176	5,644	195	102	1,030	33.0	5.85
ELEC., FUEL OIL/KEROSENE, LPG	31	566	18.2	.051	1,651	91	Q	398	12.8	7.77
ELEC., GAS, OTHER	28	620	Q	.045	Q	73	73	337	Q	7.47
OTHER	16	181	Q	Q	Q	64	Q	Q	Q	9.89
FOUR OR MORE FUELS USED	17	505	Q	.169	Q	334	152	819	Q	4.85
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	1,408	14,026	10.0	1.483	1,053	106	77	10,854	7.7	7.32
NATURAL GAS	583	7,980	13.7	1.014	1,740	127	95	6,246	10.7	6.16
FUEL OIL/KEROSENE	251	3,188	12.7	.557	2,218	175	105	3,253	13.0	5.84
LIQUID PETROLEUM GAS	152	1,526	10.0	.204	1,338	134	123	1,360	8.9	6.66
OTHER	71	1,271	17.8	.175	2,447	138	72	1,219	17.1	6.97

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	470	4,402	9.4	0.408	866	93	67	3,371	7.2	8.27
RADIANT	67	317	4.7	.019	289	61	44	177	2.6	9.11
COMBINATION/OTHER	196	1,081	5.5	.096	490	89	87	687	3.5	7.14
CENTRAL SYSTEM										
FORCED-AIR	298	3,544	11.9	.431	1,448	122	73	3,049	10.2	7.07
RADIANT	70	1,375	19.6	.172	2,452	125	102	946	13.5	5.49
COMBINATION/OTHER	25	1,001	39.8	.161	6,408	161	93	1,036	41.2	6.43
COMBINATION/OTHER										
FORCED-AIR	71	612	8.6	.091	1,273	148	90	667	9.4	7.37
RADIANT	8	123	Q	.006	Q	Q	68	42	5.0	7.48
COMBINATION/OTHER	57	597	10.5	.065	1,150	110	77	507	8.9	7.75
NONE	145	982	6.8	.041	281	41	83	390	2.7	9.59
PERCENT OF BUILDING HEATED										
1 TO 25	103	1,346	13.0	.123	1,188	91	113	795	7.7	6.46
26 TO 50	104	683	6.6	.043	411	63	61	312	3.0	7.30
51 TO 75	101	1,105	11.0	.102	1,017	93	58	845	8.4	8.25
76 TO 99	76	1,258	16.5	.174	2,286	139	61	1,415	18.5	8.11
100	879	8,660	9.8	1.007	1,146	116	80	7,116	8.1	7.07
NONE	145	982	6.8	.041	281	41	83	390	2.7	9.59
PERCENT OF BUILDING COOLED										
1 TO 25	156	2,907	18.6	.256	1,634	88	105	1,591	10.2	6.22
26 TO 50	165	1,315	8.0	.109	657	83	76	637	3.9	5.86
51 TO 75	107	1,213	11.3	.117	1,088	96	60	901	8.4	7.72
76 TO 99	65	1,552	23.8	.209	3,198	134	65	1,651	25.3	7.91
100	568	5,298	9.3	.644	1,135	122	70	5,073	8.9	7.88
NONE	346	1,749	5.1	.156	452	89	129	1,019	2.9	6.52
AIR CONDITIONING SYSTEM										
WINDOW UNITS	340	2,554	7.5	.196	578	77	93	1,288	3.8	6.56
PACKAGE UNITS	292	3,640	13.1	.410	1,403	107	64	3,112	10.6	7.58
CENTRAL SYSTEM	302	4,002	13.3	.502	1,666	126	76	3,781	12.5	7.53
COMBINATION/OTHER	128	1,888	14.8	.225	1,759	119	72	1,672	13.1	7.44
NO AIR CONDITIONING	346	1,749	5.1	.156	452	89	129	1,019	2.9	6.52

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	702	5,928	8.4	0.751	1,070	127	106	5,020	7.2	6.69
OWNER OR AGENT IS NOT OCCUPANT	413	2,619	6.3	.231	560	88	70	1,876	4.5	8.13
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	119	1,895	15.9	.160	1,345	84	48	1,291	10.8	8.06
OWNER OR AGENT IS NOT OCCUPANT	75	1,380	18.4	.106	1,416	77	46	941	12.6	8.88
GOVERNMENT-OWNED AND OCCUPIED	74	1,843	24.9	.219	2,951	119	73	1,564	21.1	7.15
NOT REPORTED	26	368	14.1	.024	Q	66	56	181	Q	7.44
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	1,084	5,174	4.8	.407	375	79	128	3,247	3.0	7.98
10 TO 19	148	1,698	11.5	.136	920	80	71	1,109	7.5	8.16
20 TO 49	111	2,262	20.3	.229	2,058	101	69	1,784	16.0	7.80
50 TO 99	39	1,482	38.4	.182	4,729	123	76	1,116	29.0	6.12
100 OR MORE	27	3,417	127.1	.536	19,955	157	63	3,616	134.5	6.74
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	86	530	6.2	Q	307	50	249	200	2.3	Q
39 OR FEWER HOURS	242	1,320	5.5	.083	345	63	77	622	2.6	7.46
40 TO 48 HOURS	371	3,830	10.3	.322	867	84	72	2,210	6.0	6.86
49 TO 60 HOURS	290	3,044	10.5	.274	944	90	53	2,234	7.7	8.16
61 TO 84 HOURS	171	2,437	14.2	.216	1,262	89	58	1,704	10.0	7.89
MORE THAN 84 HOURS	248	2,873	11.6	.569	2,293	198	117	3,902	15.7	6.86
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	467	5,387	11.5	.559	1,198	104	69	4,006	8.6	7.16
NO	885	8,123	9.2	.856	967	105	81	6,305	7.1	7.37
DON'T KNOW/NOT REPORTED	56	522	9.3	.075	1,340	144	98	562	10.0	7.46

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
INSULATION ADDED										
YES	347	3,566	10.3	0.405	1,167	113	76	2,784	8.0	6.88
NO	1,004	9,885	9.8	1.031	1,027	104	77	7,713	7.7	7.48
DON'T KNOW/NOT REPORTED	58	592	10.1	.055	951	94	73	376	6.5	6.85
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	221	2,144	9.7	.236	1,068	110	64	1,778	8.1	7.55
NO	1,138	11,395	10.0	1.210	1,063	106	81	8,725	7.7	7.21
DON'T KNOW/NOT REPORTED	49	495	10.0	.045	917	91	57	369	7.5	8.18
REDUCED HEATING										
YES	1,082	10,795	10.0	1.120	1,036	104	72	8,072	7.5	7.20
NO	154	1,904	12.3	.259	1,675	136	97	1,782	11.5	6.89
NOT REPORTED/ NOT APPLICABLE	172	1,334	7.8	.111	647	83	102	1,018	5.9	9.16
REDUCED COOLING										
YES	631	8,204	13.0	.883	1,400	108	65	6,683	10.6	7.57
NO	78	1,355	17.3	.198	2,532	146	96	1,405	17.9	7.08
NOT REPORTED/ NOT APPLICABLE	699	4,474	6.4	.409	585	91	112	2,785	4.0	6.82
REDUCED HEATING OR REDUCED COOLING										
YES	1,127	11,351	10.1	1.170	1,039	103	71	8,566	7.6	7.32
NO	126	1,640	13.0	.235	1,861	143	108	1,557	12.3	6.63
NOT REPORTED	23	207	8.9	.058	2,476	Q	Q	510	21.9	8.86
NOT APPLICABLE	132	835	6.3	.027	208	Q	73	239	1.8	8.74

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SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	559	6,794	12.2	0.583	1,044	86	54	3,801	6.8	6.52
END USE BY FUEL TYPE										
HEATING FUEL USED.....	490	6,372	13.0	.564	1,151	88	54	3,642	7.4	6.46
NATURAL GAS.....	278	4,066	14.6	.376	1,355	92	56	2,129	7.7	5.66
ELECTRICITY.....	190	2,348	12.3	.190	1,001	81	49	1,446	7.6	7.60
FUEL OIL/KEROSENE.....	61	641	10.6	.065	1,066	101	84	327	5.4	5.06
LIQUID PETROLEUM GAS.....	23	119	5.2	.013	580	112	43	87	3.8	6.52
WOOD.....	31	127	4.1	.006	195	47	67	41	1.3	6.86
OTHER.....	18	475	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	69	422	6.1	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	249	4,061	16.3	.383	1,541	94	47	2,679	10.8	6.99
ELECTRICITY.....	226	3,703	16.4	.336	1,491	91	44	2,287	10.1	6.80
OTHER.....	29	518	18.2	Q	2,211	122	71	Q	17.1	7.73
NO AIR CONDITIONING FUEL....	310	2,733	8.8	.200	645	73	79	1,121	3.6	5.61
WATER-HEATING FUEL USED.....	386	5,572	14.4	.502	1,301	90	56	3,195	8.3	6.36
NATURAL GAS.....	183	3,022	16.5	.323	1,763	107	58	1,895	10.3	5.87
ELECTRICITY.....	200	2,435	12.2	.173	864	71	55	1,255	6.3	7.26
OTHER.....	19	442	23.4	.040	2,139	92	68	229	12.1	5.67
NO WATER-HEATING FUEL.....	172	1,222	7.1	.081	469	66	43	606	3.5	7.49
MANUFACTURING FUEL USED.....	75	888	11.8	.096	1,277	108	86	461	6.1	4.79
ELECTRICITY.....	70	778	11.2	.085	1,219	109	84	403	5.8	4.75
OTHER.....	15	329	21.8	Q	Q	Q	Q	Q	Q	Q
NO MANUFACTURING DONE.....	483	5,906	12.2	.487	1,008	82	50	3,340	6.9	6.86
COOKING FUEL USED.....	174	2,992	17.2	.276	1,584	92	52	1,818	10.4	6.60
ELECTRICITY.....	116	1,761	15.1	.175	1,499	99	61	1,184	10.2	6.78
NATURAL GAS.....	67	1,572	23.5	.147	2,194	93	46	913	13.6	6.22
OTHER.....	8	140	Q	.011	Q	79	47	61	Q	5.55
NO COOKING FUEL.....	385	3,802	9.9	.308	800	81	57	1,983	5.2	6.45
SMSA/NONSMSA										
SMSA.....	384	5,344	13.9	.462	1,202	86	52	3,154	8.2	6.83
NONSMSA.....	174	1,451	8.3	Q	695	83	63	647	3.7	5.34

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
BUILDING TYPE										
ASSEMBLY	46	610	13.3	0.050	Q	Q	120	Q	Q	7.12
AUTOMOTIVE SALES & SERVICE	57	334	5.8	.023	400	69	46	172	3.0	7.53
EDUCATION	28	699	25.1	.049	1,770	71	70	303	10.9	6.15
FOOD SALES	53	281	5.3	.039	729	137	55	289	5.5	7.49
HEALTH CARE	5	170	Q	.029	Q	169	72	157	Q	5.44
LODGING	23	292	12.9	.033	1,472	114	123	187	8.3	5.63
OFFICE	105	1,549	14.8	.128	1,225	83	28	976	9.3	7.60
RESIDENTIAL	29	149	5.2	.019	653	127	138	92	3.2	4.87
RETAIL/SERVICES	96	1,035	10.8	.095	996	92	62	539	5.6	5.65
WAREHOUSE AND STORAGE	70	1,127	16.0	.059	846	53	70	434	6.2	7.30
OTHER	38	474	12.5	.055	1,443	116	84	263	6.9	4.79
VACANT	10	74	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	73	46	.6	.007	93	148	27	52	.7	7.66
1,001 TO 5,000	229	592	2.6	.087	381	147	50	600	2.6	6.89
5,001 TO 10,000	119	883	7.4	.094	793	107	72	505	4.2	5.34
10,001 TO 25,000	85	1,401	16.4	.116	1,361	83	62	873	Q	7.52
25,001 TO 50,000	29	1,018	34.9	.059	2,018	58	55	372	12.7	6.31
OVER 50,000	23	2,854	123.8	.220	9,523	77	49	1,398	60.6	6.37
NUMBER OF FLOORS										
ONE FLOOR	366	2,578	7.0	.221	603	86	56	1,449	4.0	6.57
TWO FLOORS	131	1,826	14.0	.163	1,247	89	77	1,063	8.1	6.53
THREE FLOORS	43	838	19.4	.067	Q	79	58	436	10.1	6.54
MORE THAN THREE	19	1,552	83.3	.133	7,128	86	38	852	45.7	6.41
YEAR CONSTRUCTED										
1900 OR BEFORE	25	160	6.4	Q	551	87	82	Q	Q	4.90
1901 TO 1920	42	583	14.0	.047	1,134	81	Q	198	4.7	4.18
1921 TO 1945	110	1,229	11.2	.100	904	81	84	562	5.1	5.65
1946 TO 1960	152	1,327	8.7	.112	738	84	64	664	4.4	5.92
1961 TO 1970	102	1,563	15.2	.120	1,170	77	44	831	8.1	6.93
1971 TO 1973	34	759	Q	.082	Q	108	41	586	Q	7.15
1974 TO 1979	93	1,173	12.6	.109	1,163	93	47	893	Q	8.23

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
FUEL COMBINATIONS USED										
ONE FUEL USED	137	1,166	8.5	0.060	437	51	40	614	4.5	10.27
TWO FUELS USED	367	4,131	11.3	.370	1,009	90	59	2,314	6.3	6.25
ELEC., NATURAL GAS	289	3,464	12.0	.325	1,126	94	60	2,035	7.0	6.26
ELEC., FUEL OIL/KEROSENE	42	357	8.5	.024	586	Q	67	129	3.1	5.26
OTHER	36	310	8.5	.020	564	66	45	150	4.1	7.33
THREE FUELS USED	49	1,339	27.2	.138	2,806	103	50	783	15.9	5.67
ELEC., GAS, OTHER	26	1,107	Q	.117	Q	105	51	623	Q	5.35
OTHER	23	232	10.0	Q	922	92	42	159	6.9	7.46
FOUR OR MORE FUELS USED	6	159	Q	Q	Q	Q	Q	Q	Q	Q
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	558	6,783	12.2	.582	1,044	86	54	3,793	6.8	6.52
NATURAL GAS	317	4,708	14.8	.455	1,435	97	58	2,735	8.6	6.01
FUEL OIL/KEROSENE	69	1,437	20.9	.135	1,962	94	50	766	11.1	5.67
LIQUID PETROLEUM GAS	31	311	10.1	.031	1,008	100	70	174	5.6	5.60
WOOD	36	158	4.4	.009	256	59	49	65	1.8	6.96
OTHER	27	598	Q	.051	1,885	85	48	328	Q	6.43
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	201	1,898	9.4	.145	723	77	46	1,057	5.3	7.27
COMBINATION/OTHER	76	550	7.2	.037	478	66	55	249	3.3	6.83
CENTRAL SYSTEM										
FORCED-AIR	110	1,754	15.9	.180	1,635	103	57	1,055	9.6	5.86
COMBINATION/OTHER	69	1,494	21.5	.151	2,176	101	57	931	Q	6.16
COMBINATION/OTHER	33	675	20.6	.051	Q	75	61	350	Q	6.90
NONE	69	422	6.1	Q	Q	Q	Q	159	Q	8.25
PERCENT OF BUILDING HEATED										
1 TO 25	56	867	15.6	.072	1,290	83	84	380	6.8	5.29
26 TO 50	45	391	8.8	.033	741	84	68	214	4.8	6.48
51 TO 75	49	463	9.3	.031	616	66	41	200	4.0	6.56
76 TO 99	32	555	17.4	.041	1,273	73	38	260	8.1	6.39
100	308	4,096	13.3	.388	1,259	95	53	2,588	8.4	6.67
NONE	69	422	6.1	Q	Q	Q	Q	159	Q	8.25

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
PERCENT OF BUILDING COOLED										
1 TO 25	66	1,024	15.5	0.107	1,622	105	81	Q	10.3	6.37
26 TO 50	47	428	9.0	.039	830	92	54	266	5.6	6.77
51 TO 75	25	400	16.0	.033	1,316	82	42	236	9.4	7.18
76 TO 99	23	514	22.4	.045	1,954	87	37	300	13.1	6.69
100	88	1,695	19.4	.159	1,819	94	38	1,196	13.7	7.51
NONE	310	2,733	8.8	.200	645	73	79	1,121	3.6	5.61
AIR CONDITIONING SYSTEM										
WINDOW UNITS	48	257	5.4	.019	395	73	49	138	2.9	7.32
PACKAGE UNITS	97	1,423	14.6	.140	1,435	98	61	836	8.6	5.99
CENTRAL SYSTEM	73	1,670	22.8	.152	2,076	91	35	1,189	16.3	7.83
COMBINATION/OTHER	31	711	23.1	Q	2,380	103	61	Q	16.8	7.06
NO AIR CONDITIONING	310	2,733	8.8	.200	645	73	79	1,121	3.6	5.61
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	193	2,084	10.8	.182	944	87	81	1,189	6.2	6.53
OWNER OR AGENT IS NOT OCCUPANT	192	1,384	7.2	.129	672	93	58	807	4.2	6.25
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	59	1,290	22.0	.108	1,836	84	37	685	11.7	6.36
OWNER OR AGENT IS NOT OCCUPANT	57	917	16.2	.067	1,177	73	39	535	9.4	8.01
GOVERNMENT-OWNED AND OCCUPIED	54	1,052	19.6	.094	1,748	89	66	553	10.3	5.88
NOT REPORTED	4	67	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	356	1,930	5.4	.146	410	76	112	826	2.3	5.67
10 TO 19	102	972	9.6	.071	701	73	51	466	4.6	6.54
20 TO 49	67	1,511	22.4	.150	2,229	99	72	965	14.3	6.43
50 TO 99	20	620	30.9	.052	2,595	84	41	397	19.8	7.64
100 OR MORE	14	1,761	129.6	.164	12,060	93	35	1,146	84.3	6.99

SEE NOTES AT END OF TABLE

Total and Average Consumption and Expenditures

Table 3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	19	56	Q	0.004	Q	Q	Q	42	Q	11.31
39 OR FEWER HOURS	59	448	7.6	.029	492	65	89	205	3.5	7.05
40 TO 48 HOURS	133	1,516	11.4	.099	746	65	46	628	4.7	6.33
49 TO 60 HOURS	142	1,651	11.6	.134	944	81	53	768	5.4	5.74
61 TO 84 HOURS	96	1,495	15.5	.137	1,426	92	48	994	10.3	7.24
MORE THAN 84 HOURS	109	1,628	14.9	.180	1,651	110	63	1,162	10.7	6.46
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	153	2,266	14.8	.197	1,290	87	51	1,383	9.0	7.00
NO	374	4,260	11.4	.376	1,004	88	57	2,339	6.3	6.23
DON'T KNOW/NOT REPORTED	31	268	8.6	.010	321	37	45	79	2.5	7.85
INSULATION ADDED										
YES	106	1,183	11.1	.095	894	80	54	505	4.8	5.31
NO	400	5,120	12.8	.454	1,135	89	54	3,063	7.7	6.74
DON'T KNOW/NOT REPORTED	52	491	9.4	.034	653	69	60	233	4.5	6.85
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	61	620	10.2	.051	Q	82	55	289	Q	5.65
NO	457	5,790	12.7	.509	1,114	88	54	3,347	7.3	6.58
DON'T KNOW/NOT REPORTED	41	384	9.4	.023	571	60	53	164	4.0	7.07
REDUCED HEATING										
YES	403	5,159	12.8	.431	1,070	84	52	2,840	7.0	6.58
NO	85	1,165	13.8	.124	1,466	107	60	751	8.9	6.05
NOT REPORTED/ NOT APPLICABLE	71	471	6.6	.028	Q	59	64	210	3.0	7.59
REDUCED COOLING										
YES	164	3,008	18.4	0.297	1,813	99	47	2,032	12.4	6.85
NO	37	755	20.3	.067	1,786	88	43	498	13.4	7.48
NOT REPORTED/ NOT APPLICABLE	358	3,032	8.5	.220	615	73	74	1,270	3.6	5.77
REDUCED HEATING OR REDUCED COOLING										
YES	421	5,442	12.9	.475	1,128	87	54	3,054	7.2	6.43
NO	77	966	12.5	.088	1,138	91	52	590	7.7	6.74
NOT REPORTED/ NOT APPLICABLE	60	386	6.4	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Average Energy Prices

Table 4. Average Prices per Million Btu for Major Fuels for Commercial Buildings, 1979 (Dollars)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
COMMERCIAL BUILDINGS.....	2.70	12.43	12.87	4.09	5.16	6.30
END USE BY FUEL TYPE						
HEATING FUEL USED.....	2.69	12.43	12.83	4.10	5.16	6.31
NATURAL GAS.....	2.67	11.85	12.37	3.92	4.86	6.12
ELECTRICITY.....	2.69	12.18	12.69	4.24	5.18	6.78
FUEL OIL/KEROSENE.....	2.65	14.88	14.45	4.10	5.83	6.01
LIQUID PETROLEUM GAS.....	2.48	10.82	13.38	3.44	5.00	Q
WOOD.....	2.57	12.15	12.89	3.95	5.11	Q
STEAM.....	2.80	11.04	11.50	3.69	Q	6.32
COAL.....	2.58	11.46	12.65	3.76	4.93	Q
OTHER.....	3.12	10.72	11.22	Q	Q	Q
NO HEATING FUEL USED.....	3.02	13.06	13.34	3.34	Q	Q
AIR CONDITIONING FUEL USED..	2.69	12.43	13.22	4.01	5.14	6.11
ELECTRICITY.....	2.68	12.43	-	4.02	5.17	6.09
NATURAL GAS.....	2.49	10.24	13.37	3.66	3.69	Q
OTHER.....	2.69	13.51	13.01	3.83	4.50	6.31
NO AIR CONDITIONING FUEL....	2.73	-	12.68	4.35	5.21	7.32
WATER-HEATING FUEL USED.....	2.70	12.37	13.07	4.07	5.15	6.17
NATURAL GAS.....	2.70	12.03	12.80	3.87	4.91	5.33
ELECTRICITY.....	2.66	11.77	12.96	4.23	5.07	5.90
FUEL OIL/KEROSENE.....	2.81	17.33	15.20	3.99	5.84	6.07
OTHER.....	2.61	11.03	11.80	4.37	5.26	6.41
NO WATER-HEATING FUEL.....	2.69	12.87	12.29	4.26	5.22	6.76
MANUFACTURING FUEL USED.....	2.65	11.69	12.01	3.91	5.01	6.21
ELECTRICITY.....	2.61	11.73	11.73	3.98	5.12	5.20
NATURAL GAS.....	2.58	10.89	13.06	3.63	4.52	7.62
OTHER.....	2.69	10.82	11.29	3.85	4.58	Q
NO MANUFACTURING DONE.....	2.71	12.53	12.96	4.15	5.20	6.31
COOKING FUEL USED.....	2.70	11.95	12.66	4.05	5.22	6.15
ELECTRICITY.....	2.61	11.17	12.03	4.16	5.16	5.81
NATURAL GAS.....	2.72	12.37	13.06	3.89	3.93	6.09
LIQUID PETROLEUM GAS.....	2.24	13.48	12.98	4.36	5.47	Q
OTHER.....	2.73	14.76	14.24	3.73	6.34	6.69
NO COOKING FUEL.....	2.69	12.91	13.04	4.14	5.10	6.47

SEE NOTES AT END OF TABLE

Table 4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
CENSUS REGION						
NORTHEAST	3.00	15.43	15.36	4.08	6.38	6.99
NORTH CENTRAL	2.55	11.71	12.61	4.27	4.87	5.73
SOUTH	2.69	11.80	11.98	3.95	5.44	6.18
WEST	2.71	10.46	11.50	4.68	4.80	7.02
SMSA/NONSMSA						
SMSA	2.77	12.55	13.14	4.01	5.07	6.33
NONSMSA	2.48	12.02	12.18	4.26	5.23	6.03
HEATING AND COOLING DEGREE-DAYS						
<2,000 CDD AND >7,000 HDD	2.55	11.25	11.94	4.28	5.45	5.71
<2,000 CDD AND 5,500 TO 7,000 HDD	2.64	11.38	12.79	4.19	5.00	6.05
<2,000 CDD AND 4,000 TO 5,499 HDD	2.87	15.68	14.33	4.15	4.87	7.48
<2,000 CDD AND <4,000 HDD	2.82	10.79	11.10	3.77	5.70	3.44
>2,000 CDD AND <4,000 HDD	2.53	12.38	14.50	3.87	5.58	7.36
BUILDING TYPE						
ASSEMBLY	2.60	14.34	11.88	4.39	5.42	5.51
AUTOMOTIVE SALES & SERVICE	3.01	14.09	14.65	4.69	5.13	Q
EDUCATION	2.57	11.61	12.99	3.76	4.58	6.19
FOOD SALES	3.00	12.46	12.11	4.55	5.53	5.43
HEALTH CARE	2.55	10.21	12.21	3.81	3.99	4.91
LODGING	2.52	11.53	11.59	3.98	5.37	6.52
OFFICE	2.74	13.71	12.61	4.12	5.28	6.77
RESIDENTIAL	2.93	15.17	14.69	4.33	4.84	8.78
RETAIL/SERVICES	2.89	12.45	15.45	4.21	5.19	5.58
WAREHOUSE AND STORAGE	2.31	11.53	12.73	4.12	5.11	7.44
OTHER	2.75	10.84	12.06	3.91	5.05	6.06
VACANT	3.17	13.32	12.45	3.88	4.34	Q
TOTAL SQUARE FOOTAGE						
1,000 OR LESS	3.04	15.11	14.57	4.49	5.29	Q
1,001 TO 5,000	2.89	14.40	13.62	4.54	5.22	Q
5,001 TO 10,000	2.75	13.96	13.19	4.50	5.21	7.21
10,001 TO 25,000	2.65	13.01	13.62	4.22	5.64	6.71
25,001 TO 50,000	2.75	13.76	12.32	4.14	5.36	5.80
OVER 50,000	2.60	11.02	11.87	3.73	4.41	6.32

SEE NOTES AT END OF TABLE

Table 4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
NUMBER OF FLOORS						
ONE FLOOR	2.84	12.71	13.02	4.32	5.31	7.17
TWO FLOORS	2.64	11.80	13.07	4.22	4.87	7.24
THREE FLOORS	2.72	12.54	12.07	4.02	5.35	5.77
MORE THAN THREE	2.60	12.57	12.84	3.95	4.60	6.19
YEAR CONSTRUCTED						
1900 OR BEFORE	2.53	17.51	14.76	4.19	5.73	Q
1901 TO 1920	2.67	14.01	12.88	4.19	5.28	7.26
1921 TO 1945	2.63	12.25	12.88	4.16	5.25	6.17
1946 TO 1960	2.86	12.98	12.79	4.03	5.38	6.03
1961 TO 1970	2.75	11.55	12.32	3.93	4.74	6.21
1971 TO 1973	2.51	11.28	11.56	4.02	4.78	6.41
1974 TO 1979	2.74	11.80	13.97	4.25	5.38	5.42
FUEL COMBINATIONS USED						
ONE FUEL USED	2.91	12.64	11.99	5.00	Q	Q
TWO FUELS USED	2.72	11.76	13.17	4.35	5.00	6.31
ELEC., NATURAL GAS	2.72	12.04	13.26	-	-	-
ELEC., FUEL OIL/KEROSENE	-	13.39	16.15	4.35	-	-
ELEC., LPG	-	11.15	15.11	-	5.04	-
OTHER	Q	9.06	10.64	Q	Q	6.31
THREE FUELS USED	2.67	14.01	13.38	3.98	5.35	6.40
ELEC., GAS, FUEL OIL/ KEROSENE	2.67	14.19	13.93	3.97	-	-
ELEC., FUEL OIL/KEROSENE, LPG	-	13.54	12.99	3.96	5.69	-
ELEC., GAS, OTHER	2.69	14.09	13.29	-	4.98	6.48
ELEC., FUEL OIL/KEROSENE, OTHER	-	10.82	17.63	4.57	-	5.79
OTHER	Q	11.66	10.31	Q	5.14	6.21
FOUR OR MORE FUELS USED	2.45	10.90	10.64	3.81	5.34	5.91
ENERGY SOURCES SUPPLIED TO THE BUILDING						
ELECTRICITY	2.70	12.43	12.87	4.09	5.19	6.30
NATURAL GAS	2.70	12.71	13.08	3.93	4.85	6.35
FUEL OIL/KEROSENE	2.64	13.61	13.70	4.09	5.57	6.02
LIQUID PETROLEUM GAS	2.28	11.29	11.32	3.95	5.16	6.87
WOOD	2.73	12.70	13.08	4.25	5.52	Q
COAL	2.53	11.65	12.30	3.77	5.15	Q
STEAM	2.73	11.04	11.48	3.73	6.96	6.30
OTHER	2.74	11.19	11.78	3.87	5.47	6.30

SEE NOTES AT END OF TABLE

Table 4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
HEATING SYSTEM						
SELF-CONTAINED UNITS						
FORCED-AIR	2.82	12.39	13.55	4.39	5.11	5.86
RADIANT	3.07	12.95	11.54	4.58	4.38	Q
COMBINATION/OTHER	2.94	12.84	12.44	4.73	6.02	6.95
CENTRAL SYSTEM						
FORCED-AIR	2.72	11.20	12.37	4.14	5.02	6.21
RADIANT	2.65	13.71	13.39	4.04	6.28	6.40
COMBINATION/OTHER	2.66	11.89	12.35	3.93	4.51	6.45
COMBINATION/OTHER						
FORCED-AIR	2.20	11.71	12.41	4.40	4.95	Q
RADIANT	3.10	25.11	13.65	3.87	Q	4.59
COMBINATION/OTHER	2.65	12.20	13.31	4.25	5.62	Q
NONE	3.03	13.15	13.36	3.34	Q	Q
PERCENT OF BUILDING HEATED						
1 TO 25	2.60	12.04	12.90	4.20	4.68	7.05
26 TO 50	2.46	13.72	14.46	4.27	5.47	5.73
51 TO 75	2.66	12.64	13.25	4.46	5.69	6.91
76 TO 99	2.64	12.82	15.16	4.03	4.78	6.38
100	2.73	12.32	12.45	4.06	5.16	6.19
NONE	3.03	13.15	13.36	3.34	Q	Q
PERCENT OF BUILDING COOLED						
1 TO 25	2.58	12.60	14.69	3.98	5.31	5.80
26 TO 50	2.75	12.87	15.29	3.96	5.60	6.39
51 TO 75	2.81	14.90	14.56	3.94	5.51	6.03
76 TO 99	2.61	12.26	15.03	4.02	4.76	5.90
100	2.79	11.59	12.05	4.11	4.90	6.29
NONE	2.73	-	12.68	4.35	5.21	7.32
AIR CONDITIONING SYSTEM						
WINDOW UNITS	2.75	14.47	15.14	4.09	5.35	6.31
PACKAGE UNITS	2.79	12.38	15.47	4.04	4.83	5.41
CENTRAL SYSTEM	2.66	11.70	12.00	3.93	5.43	6.18
COMBINATION/OTHER	2.55	12.71	15.24	3.95	5.18	6.35
NO AIR CONDITIONING	2.73	-	12.68	4.35	5.21	7.32

SEE NOTES AT END OF TABLE

Average Energy Prices

Table 4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
OCCUPANCY CHARACTERISTICS						
SINGLE ESTABLISHMENT BUILDING						
OWNER OR AGENT IS OCCUPANT	2.67	11.72	12.77	4.15	5.34	5.36
OWNER OR AGENT IS NOT OCCUPANT	2.77	13.51	13.88	4.14	5.19	6.20
MULTIPLE ESTABLISHMENT BUILDING						
OWNER OR AGENT IS OCCUPANT	2.88	13.85	14.91	4.09	5.44	6.53
OWNER OR AGENT IS NOT OCCUPANT	2.99	12.55	13.99	4.09	4.84	7.86
GOVERNMENT-OWNED AND OCCUPIED	2.58	11.63	10.84	3.85	4.32	6.46
NOT REPORTED	2.05	10.92	14.38	4.06	9.16	6.37
NUMBER OF PEOPLE WORKING IN THE BUILDING						
LESS THAN 10	2.78	14.15	13.26	4.43	5.21	6.20
10 TO 19	2.88	14.57	12.27	4.46	5.30	6.23
20 TO 49	2.69	12.24	12.98	4.23	5.38	5.95
50 TO 99	2.57	10.92	12.37	3.66	5.01	6.07
100 OR MORE	2.59	11.93	12.44	3.73	4.38	6.41
HOURS OF OPERATION FOR A TYPICAL WEEK						
NONE	3.32	13.34	14.33	4.01	Q	Q
39 OR FEWER HOURS	2.68	12.02	13.66	4.49	6.02	8.69
40 TO 48 HOURS	2.71	14.23	12.15	4.03	5.09	6.23
49 TO 60 HOURS	2.80	13.29	13.04	4.11	5.21	6.49
61 TO 84 HOURS	2.71	11.36	14.01	4.36	4.98	6.02
MORE THAN 84 HOURS	2.60	11.80	12.33	3.98	5.20	6.26
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974						
YES	2.79	12.93	13.16	4.10	5.26	6.33
NO	2.61	12.00	12.71	4.09	5.11	6.27
DON'T KNOW/NOT REPORTED	2.87	12.76	12.03	4.11	4.67	6.77

SEE NOTES AT END OF TABLE

Table 4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
INSULATION ADDED						
YES	2.59	12.35	12.86	4.23	5.24	6.06
NO	2.73	12.49	12.76	4.03	5.11	6.37
DON'T KNOW/NOT REPORTED	2.80	12.19	14.52	4.30	5.06	6.11
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED						
YES	2.80	12.42	12.33	4.22	5.32	6.09
NO	2.67	12.44	12.92	4.06	5.10	6.33
DON'T KNOW/NOT REPORTED	2.80	12.41	14.00	4.38	5.08	7.07
REDUCED HEATING						
YES	2.70	12.69	13.02	4.12	5.12	6.43
NO	2.67	11.74	12.02	4.00	5.32	5.80
NOT REPORTED/ NOT APPLICABLE	2.76	11.34	13.18	4.19	5.85	5.90
REDUCED COOLING						
YES	2.69	12.08	13.32	3.98	5.00	6.18
NO	2.59	12.93	12.34	3.89	5.49	5.68
NOT REPORTED/ NOT APPLICABLE	2.74	13.65	12.74	4.24	5.25	6.85
REDUCED HEATING OR REDUCED COOLING						
YES	2.71	12.66	13.02	4.10	5.13	6.42
NO	2.62	11.50	11.90	4.06	5.31	5.85
NOT REPORTED	2.49	11.05	12.22	4.24	5.57	5.31
NOT APPLICABLE	3.12	17.87	13.36	3.34	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total Consumption and Expenditures by Fuel Type

Table 5. Energy Consumption and Expenditures for Commercial Buildings by Fuel Type, 1979

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
COMMERCIAL BUILDINGS.....	3,879	5.457	2.354	2.055	0.791	0.053	0.204	36,860	6,345	25,717	3,239	272	1,287
END USE BY FUEL TYPE													
HEATING FUEL USED.....	3,563	5.373	2.324	2.005	.789	.052	.204	36,091	6,254	25,051	3,232	269	1,285
NATURAL GAS.....	1,922	3.327	2.119	1.022	.166	.010	.010	18,625	5,660	12,205	652	49	58
ELECTRICITY.....	985	1.072	.326	.638	.071	.023	.015	9,199	877	7,803	299	117	103
FUEL OIL/KEROSENE.....	762	1.545	.427	.399	.702	.011	.006	10,014	1,130	5,901	2,880	65	38
LIQUID PETROLEUM GAS.....	208	.119	.013	.054	Q	.038	Q	879	32	608	Q	190	Q
WOOD.....	94	.039	.005	Q	.013	Q	Q	320	12	Q	50	Q	Q
STEAM.....	45	.513	.055	.258	Q	Q	.197	4,287	155	2,879	Q	Q	1,244
COAL.....	42	Q	.009	.011	Q	Q	Q	325	22	126	Q	4	Q
OTHER.....	8	.026	Q	.015	Q	Q	Q	212	Q	159	Q	Q	Q
NO HEATING FUEL USED.....	316	.084	.030	.050	Q	Q	Q	770	91	667	Q	Q	Q
AIR CONDITIONING FUEL USED..	2,543	4.579	1.971	1.813	.588	.035	.171	31,538	5,299	22,654	2,357	182	1,047
ELECTRICITY.....	2,415	4.191	1.788	1.679	.554	.034	.137	28,912	4,800	20,877	2,226	176	833
NATURAL GAS.....	147	.456	.300	.140	.013	Q	Q	2,463	748	1,656	48	5	Q
OTHER.....	26	.251	.031	.106	.062	.001	.051	2,040	84	1,393	237	6	321
NO AIR CONDITIONING FUEL....	1,335	.877	.383	.242	.203	.017	.033	5,322	1,046	3,063	883	90	240
WATER-HEATING FUEL USED.....	2,663	4.741	2.106	1.753	.681	.042	.160	31,532	5,680	21,881	2,769	217	986
NATURAL GAS.....	1,252	2.750	1.672	.832	.213	.008	.025	15,618	4,514	10,107	827	Q	133
ELECTRICITY.....	1,223	1.474	.471	.695	.259	.023	.026	10,899	1,252	8,280	1,097	115	155
FUEL OIL/KEROSENE.....	169	.666	.137	.204	.315	Q	.007	5,158	384	3,453	1,257	Q	41
OTHER.....	109	.374	.040	.186	.015	.017	.115	3,086	106	2,086	68	90	736
NO WATER-HEATING FUEL.....	1,216	.715	.247	.302	.110	.010	.045	5,328	665	3,836	470	54	302
MANUFACTURING FUEL USED.....	318	.922	.486	.226	.192	.009	.009	4,793	1,289	2,651	751	44	59
ELECTRICITY.....	267	.738	.398	.189	.140	.006	Q	3,871	1,037	2,218	557	Q	Q
NATURAL GAS.....	49	.523	.339	.088	.091	Q	Q	2,217	875	976	331	Q	Q
OTHER.....	39	.408	Q	.055	.128	.004	Q	1,708	Q	593	493	20	Q
NO MANUFACTURING DONE.....	3,561	4.535	1.868	1.829	.599	.044	.195	32,067	5,056	23,067	2,488	227	1,229
COOKING FUEL USED.....	1,324	2.834	1.314	1.005	.379	.029	.107	18,029	3,548	12,135	1,537	151	657
ELECTRICITY.....	741	1.519	.611	.658	.171	.017	.061	10,199	1,592	7,448	711	90	357
NATURAL GAS.....	610	1.792	.955	.540	.234	.003	.062	10,628	2,600	6,734	908	10	375
LIQUID PETROLEUM GAS.....	108	.090	Q	.036	.030	.018	Q	728	10	477	129	99	Q
OTHER.....	20	Q	Q	.051	.044	Q	.020	1,484	Q	744	164	Q	131
NO COOKING FUEL.....	2,555	2.622	1.040	1.050	.412	.024	.097	18,832	2,797	13,583	1,702	120	630

SEE NOTES AT END OF TABLE

Total Consumption and Expenditures by Fuel Type

Table 5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
CENSUS REGION													
NORTHEAST	686	1.399	0.509	0.457	0.364	Q	0.065	10,536	1,529	7,042	1,486	Q	457
NORTH CENTRAL	1,226	1.984	1.086	.643	.141	.019	.095	11,652	2,771	7,643	601	93	543
SOUTH	1,408	1.490	.488	.700	.257	.019	.026	10,872	1,313	8,278	1,015	103	163
WEST	559	.583	.270	.255	.029	.011	.018	3,801	732	2,754	138	52	Q
SMSA/NONSMSA													
SMSA	2,223	4.108	1.786	1.584	.530	.021	.187	28,396	4,940	20,043	2,125	105	1,183
NONSMSA	1,656	1.349	.567	.471	.261	.032	.017	8,465	1,405	5,675	1,114	167	104
HEATING AND COOLING DEGREE-DAYS													
<2,000 CDD AND >7,000 HDD	438	.618	.290	.190	.076	Q	.055	3,592	739	2,174	327	Q	314
<2,000 CDD AND 5,500 TO 7,000 HDD	1,145	2.035	.998	.693	.242	.016	.085	12,340	2,635	8,095	1,016	79	516
<2,000 CDD AND 4,000 TO 5,499 HDD	1,046	1.390	.553	.472	.292	.017	.056	10,580	1,589	7,280	1,211	83	418
<2,000 CDD AND <4,000 HDD	627	.780	.294	.358	.120	Q	.005	5,199	831	3,880	453	Q	18
>2,000 CDD AND <4,000 HDD	623	.634	.218	.343	.060	.010	Q	5,149	552	4,289	232	55	Q
BUILDING TYPE													
ASSEMBLY	443	.412	.207	.122	.058	.007	.018	2,552	539	1,621	254	40	98
AUTOMOTIVE SALES & SERVICE	400	.222	.109	.063	.045	Q	Q	1,463	329	896	212	Q	Q
EDUCATION	161	.509	.211	.162	.106	.002	.027	3,044	544	1,925	398	10	166
FOOD SALES	366	.348	.136	.185	.014	.008	.004	2,838	410	2,295	64	45	23
HEALTH CARE	44	.441	.209	.116	.095	Q	.020	2,216	533	1,219	361	4	99
LODGING	101	.269	.109	.116	.019	Q	.024	1,851	274	1,336	75	Q	153
OFFICE	599	1.014	.346	.482	.123	.003	.060	8,409	947	6,534	509	15	403
RESIDENTIAL	347	.275	.125	.056	.086	Q	Q	1,638	368	849	371	Q	Q
RETAIL/SERVICES	714	.662	.304	.292	.053	.007	Q	4,895	879	3,720	224	35	Q
WAREHOUSE AND STORAGE	366	.648	.290	.230	.102	Q	Q	3,983	668	2,718	422	Q	Q
OTHER	230	.574	Q	.198	.076	.002	.020	3,362	Q	2,171	297	12	119
VACANT	108	.082	.029	.034	.014	Q	Q	609	92	434	53	Q	Q
TOTAL SQUARE FOOTAGE													
1,000 OR LESS	600	.104	.036	.047	.016	.005	Q	906	108	697	73	28	Q
1,001 TO 5,000	1,625	.732	.341	.262	.112	.015	Q	5,299	984	3,717	508	80	Q
5,001 TO 10,000	735	.634	.347	.182	.092	.011	Q	3,939	952	2,496	412	59	Q
10,001 TO 25,000	550	.962	.517	.287	.141	.009	.008	5,840	1,372	3,768	596	50	55
25,001 TO 50,000	204	.719	.253	.329	.113	.003	.021	5,778	694	4,476	469	16	123
OVER 50,000	165	2.306	.861	.948	.317	.009	.171	15,099	2,234	10,564	1,182	39	1,079

SEE NOTES AT END OF TABLE

Total Consumption and Expenditures by Fuel Type

Table 5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
NUMBER OF FLOORS													
ONE FLOOR	2,220	1.531	0.655	0.673	0.170	0.026	0.007	11,386	1,863	8,598	736	136	53
TWO FLOORS	901	1.221	.563	.468	.154	.014	Q	7,991	1,486	5,627	651	67	Q
THREE FLOORS	480	.814	.390	.262	.134	.010	.018	5,015	1,062	3,258	539	55	102
MORE THAN THREE	278	1.891	.745	.653	.332	.003	.157	12,467	1,935	8,235	1,313	14	971
YEAR CONSTRUCTED													
1900 OR BEFORE	317	.361	.156	.120	.067	.002	.016	2,846	396	2,052	279	13	107
1901 TO 1920	402	.501	.217	.145	.107	.003	.029	3,244	581	1,991	447	18	207
1921 TO 1945	755	1.107	.602	.287	.171	.008	.040	6,130	1,584	3,548	711	42	246
1946 TO 1960	976	1.063	.442	.375	.192	.011	.043	7,207	1,266	4,849	773	62	257
1961 TO 1970	720	1.229	.514	.523	.133	.009	.050	8,398	1,412	6,114	522	42	308
1971 TO 1973	203	.517	.217	.232	.048	.009	.012	3,475	544	2,621	193	41	76
1974 TO 1979	506	.679	.205	.374	.074	.010	.016	5,561	562	4,544	315	54	86
FUEL COMBINATIONS USED													
ONE FUEL USED	799	.320	Q	.315	Q	Q	Q	3,970	Q	3,953	Q	Q	Q
TWO FUELS USED	2,593	3.180	1.635	1.166	.288	.027	.063	20,265	4,443	14,036	1,251	137	398
ELEC., NATURAL GAS	1,889	2.482	1.627	.855	-	-	-	14,913	4,421	10,492	-	-	-
ELEC., FUEL OIL/KEROSENE	441	.399	-	.112	.287	-	-	2,816	-	1,568	1,248	-	-
ELEC., LPG	178	.073	-	.046	-	.027	-	667	-	532	-	135	-
OTHER	85	.226	Q	.153	Q	Q	.063	1,870	Q	1,444	Q	Q	398
THREE FUELS USED	448	1.660	.636	.492	.400	.019	.113	10,962	1,698	6,849	1,592	101	722
ELEC., GAS, FUEL OIL/ KEROSENE	250	1.247	.565	.337	.345	-	-	7,648	1,508	4,771	1,369	-	-
ELEC., FUEL OIL/KEROSENE, OTHER	95	.112	-	.042	.055	.009	.005	874	Q	569	222	53	30
ELEC., GAS, OTHER	80	.255	.071	.090	-	.008	.087	2,041	190	1,250	-	Q	563
OTHER	23	.046	Q	.023	Q	.002	.021	399	Q	259	Q	11	129
FOUR OR MORE FUELS USED	39	.298	.080	.081	.101	.006	.028	1,663	197	879	386	33	167
ENERGY SOURCES SUPPLIED TO THE BUILDING													
ELECTRICITY	3,867	5.442	2.343	2.055	.788	.052	.204	36,816	6,316	25,717	3,226	269	1,287
NATURAL GAS	2,252	4.267	2.354	1.349	.442	.011	.112	26,076	6,345	17,234	1,735	53	709
FUEL OIL/KEROSENE	815	2.027	.642	.553	.791	.015	.026	12,708	1,695	7,538	3,239	81	155
LIQUID PETROLEUM GAS	313	.349	.065	.140	.089	.053	Q	2,370	149	1,580	354	272	Q
WOOD	115	.051	.008	.022	.016	.005	Q	404	22	290	66	26	Q
COAL	53	.071	.012	.012	Q	.001	Q	351	30	139	Q	5	Q
STEAM	49	.534	.063	.265	Q	Q	.204	4,417	172	2,949	Q	Q	1,287
OTHER	20	.123	.025	.056	Q	Q	.033	961	72	659	Q	Q	195

SEE NOTES AT END OF TABLE

Total Consumption and Expenditures by Fuel Type

Table 5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
HEATING SYSTEM													
SELF-CONTAINED UNITS													
FORCED-AIR	1,114	1.039	0.453	0.500	0.065	0.020	0.001	7,945	1,276	6,274	285	104	Q
RADIANT	160	.080	.027	.040	.011	Q	Q	642	83	494	51	Q	Q
COMBINATION/OTHER	343	.229	.116	.100	.009	.003	Q	1,684	342	1,277	40	17	Q
CENTRAL SYSTEM													
FORCED-AIR	937	1.300	.509	.545	.183	.014	.049	8,719	1,384	6,202	758	73	301
RADIANT	508	1.221	.621	.271	.274	.002	.054	6,795	1,643	3,687	1,106	13	345
COMBINATION/OTHER	205	.682	.314	.296	.176	.004	.092	5,668	835	3,549	693	16	595
COMBINATION/OTHER													
FORCED-AIR	133	.286	Q	.114	.025	Q	Q	1,775	Q	1,338	109	Q	Q
RADIANT	31	Q	.008	Q	Q	Q	Q	Q	24	Q	Q	Q	Q
COMBINATION/OTHER	135	.267	.130	.100	.027	.006	.003	1,735	345	1,230	117	31	12
NONE	314	.083	.030	.050	Q	Q	Q	762	90	660	Q	Q	Q
PERCENT OF BUILDING HEATED													
1 TO 25	225	.275	.118	.099	.051	.005	Q	1,769	306	1,208	213	23	Q
26 TO 50	335	.274	Q	.071	.030	.003	Q	1,569	411	996	128	17	Q
51 TO 75	302	.373	.176	.122	.044	.004	.027	2,422	466	1,552	197	24	Q
76 TO 99	227	.502	.191	.221	.067	.002	.022	3,810	503	2,888	269	11	139
100	2,476	3.949	1.673	1.492	.597	.037	.150	26,528	4,569	18,414	2,426	193	927
NONE	314	.083	.030	.050	Q	Q	Q	762	90	660	Q	Q	Q
PERCENT OF BUILDING COOLED													
1 TO 25	511	1.294	.726	.311	.220	.009	.027	6,915	1,870	3,964	876	50	156
26 TO 50	524	.573	.305	.168	.080	.004	.018	3,469	837	2,182	317	20	112
51 TO 75	272	.545	.204	.232	.079	Q	.027	4,523	573	3,455	310	Q	160
76 TO 99	182	.592	.211	.290	.055	.003	.033	4,578	552	3,594	219	16	196
100	1,054	1.575	.526	.813	.154	.015	.067	12,056	1,469	9,460	634	71	422
NONE	1,335	.877	.382	.242	.203	.017	.033	5,320	1,045	3,062	883	90	240
AIR CONDITIONING SYSTEM													
WINDOW UNITS	812	.769	.420	.170	.155	.007	.017	4,396	1,157	2,460	633	38	109
PACKAGE UNITS	744	1.214	.487	.521	.162	.014	.029	8,759	1,359	6,517	655	68	159
CENTRAL SYSTEM	709	1.501	.624	.675	.116	Q	.078	10,564	1,684	7,921	455	Q	482
COMBINATION/OTHER	278	1.096	.440	.448	.156	.006	.047	7,821	1,120	5,758	614	33	296
NO AIR CONDITIONING	1,335	.877	.382	.242	.203	.017	.033	5,320	1,045	3,062	883	90	240

SEE NOTES AT END OF TABLE

Total Consumption and Expenditures by Fuel Type

Table 5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
OCCUPANCY CHARACTERISTICS													
SINGLE ESTABLISHMENT BUILDING													
OWNER OR AGENT IS OCCUPANT	1,855	2.255	0.931	0.832	0.418	0.028	0.045	14,524	2,488	9,910	1,732	150	244
OWNER OR AGENT IS NOT OCCUPANT	1,094	.977	.485	.343	.119	.012	.019	6,678	1,342	4,667	493	60	116
MULTIPLE ESTABLISHMENT BUILDING													
OWNER OR AGENT IS OCCUPANT	382	.678	.231	.327	.086	.003	Q	5,789	664	4,556	353	16	Q
OWNER OR AGENT IS NOT OCCUPANT	257	.463	.171	.218	.055	.004	.015	3,642	512	2,767	226	20	116
GOVERNMENT-OWNED AND OCCUPIED	243	.951	.453	.297	.106	Q	.089	5,567	1,171	3,389	409	Q	573
NOT REPORTED	48	Q	Q	.039	.006	Q	.006	660	Q	428	26	1	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING													
LESS THAN 10	2,814	1.369	.641	.439	.246	.026	.016	9,175	1,781	6,066	1,092	137	99
10 TO 19	477	.541	.248	.185	.038	Q	.012	3,834	715	2,614	393	Q	77
20 TO 49	375	1.173	.628	.396	.116	.012	.021	7,263	1,688	4,895	491	62	126
50 TO 99	120	.634	.260	.278	.073	.003	.020	4,143	668	3,074	268	15	119
100 OR MORE	92	1.740	.576	.756	.267	.005	.135	12,446	1,493	9,068	996	23	867
HOURS OF OPERATION FOR A TYPICAL WEEK													
NONE	185	.069	Q	.024	.014	Q	Q	503	84	336	57	Q	Q
39 OR FEWER HOURS	566	.310	.158	.090	.056	.003	Q	1,843	424	1,128	249	17	Q
40 TO 48 HOURS	948	1.014	.387	.399	.192	.008	.028	7,567	1,051	5,528	776	39	173
49 TO 60 HOURS	895	1.126	.547	.366	.158	Q	.041	7,365	1,533	4,846	648	Q	267
61 TO 84 HOURS	595	.938	.370	.444	.084	.009	.030	6,783	1,002	5,185	367	46	183
MORE THAN 84 HOURS	690	2.000	.866	.732	.287	.017	.099	12,795	2,250	8,694	1,142	90	618
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974													
YES	1,435	2.297	.943	.868	.365	.024	.097	16,124	2,633	11,254	1,496	127	614
NO	2,249	2.883	1.281	1.068	.401	.027	.106	18,735	3,341	12,955	1,641	137	661
DON'T KNOW/NOT REPORTED	194	.277	.129	.119	.025	.002	Q	2,002	371	1,509	102	8	12

SEE NOTES AT END OF TABLE

Total Consumption and Expenditures by Fuel Type

Table 5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
INSULATION ADDED													
YES	1,077	1.447	0.673	0.505	0.205	0.024	0.041	9,257	1,743	6,275	867	126	246
NO	2,550	3.723	1.551	1.440	.547	.024	.158	25,629	6,238	18,058	2,202	122	1,009
DON'T KNOW/NOT REPORTED	252	.290	.130	.110	.040	Q	Q	1,975	364	1,385	171	Q	Q
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED													
YES	683	.907	.368	.357	.136	.016	.030	6,306	1,031	4,433	573	83	185
NO	2,960	4.297	1.869	1.594	.631	.033	.171	28,766	4,986	19,969	2,560	169	1,082
DON'T KNOW/NOT REPORTED	216	.252	.117	.104	.024	Q	Q	1,789	328	1,316	106	Q	Q
REDUCED HEATING													
YES	2,954	4.195	1.829	1.549	.612	.043	.161	28,460	4,940	19,740	2,521	222	1,038
NO	567	1.040	.459	.379	.156	Q	.038	6,582	1,224	4,470	624	Q	218
NOT REPORTED/ NOT APPLICABLE	358	.221	.066	.127	.022	.001	Q	1,819	181	1,508	94	Q	Q
REDUCED COOLING													
YES	1,482	2.975	1.216	1.268	.338	.023	.130	20,987	3,273	15,452	1,345	116	801
NO	225	.741	.317	.321	.077	Q	.021	5,409	820	4,141	299	Q	Q
NOT REPORTED/ NOT APPLICABLE	2,171	1.741	.822	.465	.376	.024	.053	10,465	2,252	6,125	1,595	128	365
REDUCED HEATING OR REDUCED COOLING													
YES	3,074	4.452	1.949	1.641	.649	.044	.170	30,127	5,274	20,880	2,660	224	1,089
NO	473	.827	.357	.316	.118	Q	.028	5,277	935	3,656	478	Q	163
NOT REPORTED	39	.116	.024	.064	.022	Q	.006	898	59	712	93	Q	33
NOT APPLICABLE	292	.062	.025	.034	Q	Q	Q	558	77	470	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. Fuel Oil and Kerosene Consumption and Expenditures for Commercial Buildings That Use Fuel Oil or Kerosene or Both, 1979

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
COMMERCIAL BUILDINGS.....	815	13,317	16.3	0.791	5,614	9,711	59	42	3,239	4.0	4.09
END USE BY FUEL TYPE											
HEATING FUEL USED.....	807	13,278	16.5	.789	5,599	9,776	59	42	3,232	4.0	4.10
NATURAL GAS.....	121	4,614	38.3	.166	1,177	13,790	36	20	652	5.4	3.92
ELECTRICITY.....	95	2,042	21.6	.071	500	7,452	35	21	299	3.2	4.24
FUEL OIL/KEROSENE.....	762	10,724	14.1	.702	4,975	9,206	65	52	2,880	3.8	4.10
OTHER.....	55	1,041	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	8	39	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	459	10,450	22.8	.588	4,158	12,810	56	35	2,357	5.1	4.01
ELECTRICITY.....	444	9,918	22.3	.554	3,924	12,474	56	37	2,226	5.0	4.02
OTHER.....	22	1,083	50.2	.071	494	32,921	66	25	270	12.5	3.81
NO AIR CONDITIONING FUEL....	356	2,867	8.1	.203	1,457	5,712	71	85	883	2.5	4.35
WATER-HEATING FUEL USED.....	578	11,748	20.3	.681	4,826	11,781	58	41	2,769	4.8	4.07
NATURAL GAS.....	123	4,804	38.9	.213	1,516	17,293	44	26	827	6.7	3.87
ELECTRICITY.....	301	3,990	13.3	.259	1,850	8,612	65	56	1,097	3.6	4.23
FUEL OIL/KEROSENE.....	169	4,538	26.8	.315	2,220	18,627	69	50	1,257	7.4	3.99
OTHER.....	28	679	23.9	.015	109	5,446	23	14	68	2.4	4.37
NO WATER-HEATING FUEL.....	237	1,569	6.6	.110	789	4,662	70	50	470	2.0	4.26
MANUFACTURING FUEL USED.....	79	2,019	25.6	.192	1,358	24,329	95	70	751	9.5	3.91
ELECTRICITY.....	63	1,539	24.3	.140	988	22,081	91	73	557	8.8	3.98
OTHER.....	29	1,082	37.9	.136	959	47,503	125	82	523	18.3	3.85
NO MANUFACTURING DONE.....	736	11,298	15.4	.599	4,256	8,143	53	37	2,488	3.4	4.15
COOKING FUEL USED.....	331	8,192	24.8	.379	2,684	11,478	46	31	1,537	4.6	4.05
ELECTRICITY.....	179	4,173	23.3	.171	1,219	9,561	41	28	711	4.0	4.16
NATURAL GAS.....	124	4,828	39.1	.234	1,642	18,899	48	28	908	7.4	3.89
LIQUID PETROLEUM GAS.....	51	688	13.4	.030	211	5,763	43	42	129	2.5	4.36
OTHER.....	16	594	Q	Q	298	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	484	5,125	10.6	.412	2,930	8,505	80	61	1,702	3.5	4.14
CENSUS REGION											
NORTHEAST.....	307	5,561	18.1	.364	2,576	11,854	65	51	1,486	4.8	4.08
NORTH CENTRAL.....	187	3,132	16.7	.141	1,005	7,508	45	36	601	3.2	4.27
SOUTH.....	251	3,188	12.7	.257	1,823	10,228	81	49	1,015	4.0	3.95
WEST.....	69	1,437	20.9	.029	211	4,268	20	11	138	2.0	4.68

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
SMSA/NONSMSA											
SMSA	418	9,219	22.0	0.530	3,748	12,669	57	37	2,125	5.1	4.01
NONSMSA	396	4,098	10.3	.261	1,867	6,592	64	54	1,114	2.8	4.26
HEATING AND COOLING DEGREE-DAYS											
<2,000 CDD AND >7,000 HDD	140	1,883	13.4	.076	547	5,458	41	40	327	2.3	4.28
<2,000 CDD AND 5,500 TO 7,000 HDD	244	4,256	17.5	.242	1,725	9,949	57	41	1,016	4.2	4.19
<2,000 CDD AND 4,000 TO 5,499 HDD	306	4,793	15.7	.292	2,067	9,548	61	45	1,211	4.0	4.15
<2,000 CDD AND <4,000 HDD	54	1,444	Q	.120	848	Q	83	Q	453	Q	3.77
>2,000 CDD AND <4,000 HDD	71	941	Q	.060	427	Q	64	40	232	Q	3.87
BUILDING TYPE											
ASSEMBLY	129	1,254	9.7	.058	412	4,491	46	51	254	2.0	4.39
AUTOMOTIVE SALES & SERVICE	132	589	4.4	.045	325	3,419	77	57	212	1.6	4.69
EDUCATION	47	2,241	47.5	.106	749	22,488	47	61	398	8.4	3.76
FOOD SALES	50	424	8.4	.014	102	2,815	33	35	64	1.3	4.55
HEALTH CARE	10	1,083	103.2	.095	662	90,242	87	32	361	34.4	3.81
LODGING	18	423	23.4	.019	133	10,399	44	64	75	4.1	3.98
OFFICE	94	2,346	24.9	.123	883	13,078	53	19	509	5.4	4.12
RESIDENTIAL	107	1,225	11.4	.086	609	7,966	70	127	371	3.5	4.33
RETAIL/SERVICES	113	1,350	12.0	.053	377	4,707	39	31	224	2.0	4.21
WAREHOUSE AND STORAGE	60	1,394	23.3	.102	730	17,149	74	92	422	7.1	4.12
OTHER	43	835	19.4	.076	536	17,616	91	46	297	6.9	3.91
VACANT	10	153	Q	.014	97	Q	88	Q	53	Q	3.88
TOTAL SQUARE FOOTAGE											
1,000 OR LESS	84	56	.7	.016	117	1,921	291	83	73	.9	4.49
1,001 TO 5,000	319	871	2.7	.112	804	3,508	128	75	508	1.6	4.54
5,001 TO 10,000	181	1,289	7.1	.092	654	5,060	71	52	412	2.3	4.50
10,001 TO 25,000	130	2,047	15.7	.141	1,004	10,830	69	61	595	4.6	4.22
25,001 TO 50,000	53	1,855	35.3	.113	807	21,560	61	79	469	8.9	4.14
OVER 50,000	48	7,198	150.9	.317	2,229	66,474	44	27	1,182	24.8	3.73

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
NUMBER OF FLOORS											
ONE FLOOR	339	2,189	6.5	0.170	1,224	5,028	78	62	736	2.2	4.32
TWO FLOORS	222	3,183	14.4	.154	1,104	6,964	49	41	651	2.9	4.22
THREE FLOORS	140	2,586	18.5	.134	951	9,556	52	50	539	3.8	4.02
MORE THAN THREE	114	5,358	47.1	.332	2,335	29,228	62	34	1,313	11.6	3.95
YEAR CONSTRUCTED											
1900 OR BEFORE	100	1,068	10.7	.067	478	6,679	62	72	279	2.8	4.19
1901 TO 1920	91	1,589	17.4	.107	755	11,673	67	74	447	4.9	4.19
1921 TO 1945	191	3,062	16.0	.171	1,207	8,956	56	48	711	3.7	4.16
1946 TO 1960	222	3,139	14.2	.192	1,369	8,652	61	40	773	3.5	4.03
1961 TO 1970	118	2,287	19.4	.133	943	11,249	58	41	522	4.4	3.93
1971 TO 1973	36	952	26.4	.048	344	13,282	50	19	193	5.3	4.02
1974 TO 1979	56	1,220	21.6	.074	519	13,100	61	30	315	5.6	4.25
FUEL COMBINATIONS USED											
ONE FUEL USED	4	25	6.3	Q	Q	Q	Q	Q	Q	Q	Q
TWO FUELS USED	443	3,447	7.8	.288	2,052	6,499	84	70	1,251	2.8	4.35
THREE FUELS USED	345	8,773	25.4	.400	2,822	11,572	46	31	1,592	4.6	3.98
ELEC., GAS, FUEL OIL/ KEROSENE	250	7,497	30.0	.345	2,433	13,773	46	30	1,369	5.5	3.97
ELEC., FUEL OIL/KEROSENE, OTHER	95	1,276	13.4	.055	389	5,787	43	45	222	2.3	4.04
FOUR OR MORE FUELS USED	22	1,072	48.3	.101	725	45,599	95	51	386	17.4	3.81
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	809	13,277	16.4	.788	5,594	9,745	59	42	3,226	4.0	4.09
NATURAL GAS	267	8,372	31.4	.442	3,129	16,581	53	34	1,735	6.5	3.93
FUEL OIL/KEROSENE	815	13,317	16.3	.791	5,614	9,711	59	42	3,239	4.0	4.09
LIQUID PETROLEUM GAS	86	1,561	18.1	.089	635	10,368	57	55	354	4.1	3.95
WOOD	28	313	Q	.016	111	5,561	50	Q	66	2.4	4.25
OTHER	11	640	59.5	Q	Q	Q	Q	Q	Q	Q	3.77

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM											
SELF-CONTAINED UNITS											
FORCED-AIR	117	856	7.3	0.065	467	5,572	76	57	285	2.4	4.39
RADIANT	22	185	8.3	.011	79	4,977	60	72	51	2.3	4.58
COMBINATION/OTHER	43	403	9.4	.009	61	1,971	21	19	40	.9	4.73
CENTRAL SYSTEM											
FORCED-AIR	252	3,391	13.5	.183	1,304	7,285	54	34	758	3.0	4.14
RADIANT	209	4,211	20.1	.274	1,933	13,072	65	54	1,106	5.3	4.04
COMBINATION/OTHER	78	2,581	32.9	.176	1,248	22,497	68	41	693	8.8	3.93
COMBINATION/OTHER	85	1,652	19.3	.071	508	8,292	43	29	298	3.5	4.20
NONE	8	36	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING HEATED											
1 TO 25	43	607	14.1	.051	360	11,764	83	115	213	4.9	4.20
26 TO 50	68	623	9.2	.030	211	4,447	46	64	128	1.9	4.27
51 TO 75	70	964	13.8	.044	314	6,315	46	42	197	2.8	4.46
76 TO 99	51	1,483	29.2	.067	469	13,133	45	24	269	5.3	4.03
100	576	9,604	16.7	.597	4,245	10,377	62	42	2,426	4.2	4.06
NONE	8	36	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 25	130	3,339	25.7	.220	1,561	16,955	66	82	876	6.7	3.98
26 TO 50	94	1,174	12.4	.080	555	8,466	68	52	317	3.4	3.96
51 TO 75	54	1,370	25.5	.079	559	14,650	57	34	310	5.8	3.94
76 TO 99	29	1,742	61.1	.055	384	19,117	31	14	219	7.7	4.02
100	152	2,825	18.6	.154	1,099	10,136	55	25	634	4.2	4.11
NONE	356	2,867	8.1	.203	1,457	5,712	71	85	883	2.5	4.35
AIR CONDITIONING SYSTEM											
WINDOW UNITS	205	2,442	11.9	.155	1,094	7,550	63	81	633	3.1	4.09
PACKAGE UNITS	99	2,431	24.7	.162	1,155	16,434	67	49	655	6.6	4.04
CENTRAL SYSTEM	100	2,952	29.4	.116	813	11,508	39	18	455	4.5	3.93
COMBINATION/OTHER	55	2,626	47.7	.156	1,096	28,285	59	31	614	11.2	3.95
NO AIR CONDITIONING	356	2,867	8.1	.203	1,457	5,712	71	85	883	2.5	4.35

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	412	5,876	14.2	0.418	2,970	10,132	71	60	1,732	4.2	4.15
OWNER OR AGENT IS NOT OCCUPANT	204	2,201	10.8	.119	847	5,818	54	42	493	2.4	4.14
MULTIPLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	82	1,955	23.9	.086	609	10,514	44	20	353	4.3	4.09
OWNER OR AGENT IS NOT OCCUPANT	45	1,109	24.5	.055	390	12,203	50	35	226	5.0	4.09
GOVERNMENT-OWNED AND OCCUPIED	56	2,022	36.3	.106	753	19,086	53	33	409	7.3	3.85
NOT REPORTED	15	155	10.5	.006	47	4,391	Q	Q	26	1.8	4.06
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 10	607	4,004	6.6	.246	1,769	4,059	62	117	1,092	1.8	4.43
10 TO 19	85	1,130	13.3	.088	629	10,406	78	76	393	4.6	4.46
20 TO 49	70	2,074	29.6	.116	824	16,574	56	54	491	7.0	4.23
50 TO 99	24	1,475	60.9	.073	515	30,222	50	47	268	11.1	3.66
100 OR MORE	28	4,634	162.9	.267	1,878	93,959	58	22	996	35.0	3.73
HOURS OF OPERATION FOR A TYPICAL WEEK											
NONE	21	173	8.4	.014	102	6,855	82	Q	57	2.7	4.01
39 OR FEWER HOURS	147	885	6.0	.056	395	3,766	63	59	249	1.7	4.49
40 TO 48 HOURS	164	2,715	16.6	.192	1,374	11,742	71	53	776	4.7	4.03
49 TO 60 HOURS	216	3,074	14.2	.158	1,114	7,289	51	41	648	3.0	4.11
61 TO 84 HOURS	127	2,419	19.0	.084	603	6,625	35	23	367	2.9	4.36
MORE THAN 84 HOURS	139	4,050	29.1	.287	2,026	20,608	71	41	1,142	8.2	3.98
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	375	6,584	17.6	.365	2,590	9,734	55	35	1,496	4.0	4.10
NO	408	6,286	15.4	.401	2,846	9,848	64	51	1,641	4.0	4.09
DON'T KNOW/NOT REPORTED	32	448	13.9	.025	179	7,718	56	39	102	3.2	4.11

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Fuel Oil or Kerosene

Table 6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
INSULATION ADDED											
YES.....	278	4,216	15.1	0.205	1,462	7,357	49	37	867	3.1	4.23
NO.....	477	8,339	17.5	.547	3,869	11,449	66	43	2,202	4.6	4.03
DON'T KNOW/NOT REPORTED.....	59	762	13.0	.040	283	6,747	52	49	171	2.9	4.30
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES.....	183	3,111	17.0	.136	969	7,430	44	34	573	3.1	4.22
NO.....	587	9,620	16.4	.631	4,473	10,740	66	44	2,560	4.4	4.06
DON'T KNOW/NOT REPORTED.....	44	587	13.3	.024	172	5,485	41	32	106	2.4	4.38
REDUCED HEATING											
YES.....	668	10,626	15.9	.612	4,346	9,173	58	40	2,521	3.8	4.12
NO.....	133	2,479	18.7	.156	1,108	11,775	63	46	624	4.7	4.00
NOT REPORTED/ NOT APPLICABLE.....	14	213	14.8	.022	160	Q	106	51	94	Q	4.19
REDUCED COOLING											
YES.....	214	6,389	29.9	.338	2,387	15,793	53	28	1,345	6.3	3.98
NO.....	36	1,445	40.2	.077	545	21,405	53	32	299	8.3	3.89
NOT REPORTED/ NOT APPLICABLE.....	565	5,483	9.7	.376	2,683	6,665	69	81	1,595	2.8	4.24
REDUCED HEATING OR REDUCED COOLING											
YES.....	687	11,274	16.4	.649	4,603	9,445	58	41	2,660	3.9	4.10
NO.....	115	1,813	15.7	.118	840	10,224	65	45	478	4.2	4.06
NOT REPORTED/ NOT APPLICABLE.....	12	230	Q	.024	172	Q	Q	60	100	Q	4.16

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Consumption and Expenditures for Buildings Using LPG

Table 7. Liquid Petroleum Gas Consumption and Expenditures for Commercial Buildings That Use Liquid Petroleum Gas, 1979

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	313	3,102	9.9	0.053	0.576	168	17	14	272	0.9	5.16
END USE BY FUEL TYPE											
HEATING FUEL USED.....	307	3,081	10.0	.052	.571	170	17	14	269	.9	5.16
NATURAL GAS.....	31	676	22.1	.010	.111	332	15	12	49	1.6	4.86
ELECTRICITY.....	87	1,141	13.0	.023	.247	258	20	17	117	1.3	5.18
FUEL OIL/KEROSENE.....	81	1,325	16.3	.011	.122	138	8	8	65	.8	5.83
LIQUID PETROLEUM GAS.....	208	1,075	5.2	.038	.416	182	35	22	190	.9	5.00
OTHER.....	20	291	14.8	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	6	21	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	190	2,334	12.3	.035	.387	186	15	12	182	1.0	5.14
ELECTRICITY.....	184	2,268	12.3	.034	.373	185	15	12	176	1.0	5.17
OTHER.....	8	140	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO AIR CONDITIONING FUEL....	122	768	6.3	.017	.189	141	22	24	90	.7	5.21
WATER-HEATING FUEL USED.....	211	2,692	12.8	.042	.462	200	16	13	217	1.0	5.15
NATURAL GAS.....	17	391	23.2	.008	.083	449	19	14	Q	2.2	4.91
ELECTRICITY.....	118	1,655	14.0	.023	.249	192	14	13	115	1.0	5.07
FUEL OIL/KEROSENE.....	13	485	37.1	Q	Q	Q	Q	Q	Q	Q	Q
OTHER.....	85	645	7.6	.017	.188	203	27	18	90	1.1	5.26
NO WATER-HEATING FUEL.....	102	410	4.0	.010	.114	102	25	20	54	.5	5.22
MANUFACTURING FUEL USED.....	36	741	20.4	.009	.097	243	12	12	44	1.2	5.01
NO MANUFACTURING DONE.....	276	2,361	8.5	.044	.479	158	19	15	227	.8	5.20
COOKING FUEL USED.....	162	1,977	12.2	.029	.318	179	15	13	151	.9	5.22
ELECTRICITY.....	86	1,203	14.0	.017	.190	203	14	13	90	1.0	5.16
LIQUID PETROLEUM GAS.....	108	1,185	11.0	.018	.199	169	15	13	99	.9	5.47
OTHER.....	12	352	Q	.003	.029	Q	Q	6	11	Q	4.03
NO COOKING FUEL.....	151	1,125	7.5	.024	.258	156	21	17	120	.8	5.10
CENSUS REGION											
NORTHEAST.....	33	498	Q	Q	Q	107	7	Q	Q	.7	6.38
NORTH CENTRAL.....	96	767	8.0	.019	.210	200	25	19	93	1.0	4.87
SOUTH.....	152	1,526	10.0	.019	.207	124	12	11	103	.7	5.44
WEST.....	31	311	10.1	.011	.119	353	35	25	52	1.7	4.80

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using LPG

Table 7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
SMSA/NONSMSA											
SMSA	89	1,254	14.1	0.021	0.227	233	17	14	105	1.2	5.07
NONSMSA	224	1,848	8.3	.032	.349	143	17	14	167	.7	5.23
BUILDING TYPE											
ASSEMBLY	42	306	7.2	.007	.081	175	24	32	40	.9	5.42
AUTOMOTIVE SALES & SERVICE	34	133	Q	Q	Q	Q	Q	Q	Q	Q	Q
EDUCATION	12	469	40.4	.002	.025	193	5	7	10	.9	4.53
FOOD SALES	58	294	5.0	.008	.090	140	28	15	45	.8	5.53
HEALTH CARE	2	106	Q	Q	Q	Q	Q	Q	Q	Q	Q
LODGING	13	130	Q	Q	Q	Q	Q	Q	Q	Q	Q
OFFICE	29	197	6.9	.003	.032	Q	15	6	15	.5	5.28
RESIDENTIAL	24	112	4.7	Q	Q	Q	Q	Q	Q	Q	Q
RETAIL/SERVICES	51	389	Q	.007	.074	131	Q	14	35	.7	5.19
WAREHOUSE AND STORAGE	18	699	37.9	Q	Q	506	13	17	Q	2.6	5.11
OTHER	25	247	9.8	.002	.026	95	Q	Q	12	.5	5.05
VACANT	4	19	Q	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE											
1,000 OR LESS	77	45	.6	.005	.057	68	117	29	28	.4	5.29
1,001 TO 5,000	122	322	2.6	.015	.168	126	48	24	80	.7	5.22
5,001 TO 10,000	60	408	6.8	.011	.123	186	28	20	59	1.0	5.21
10,001 TO 25,000	33	567	17.1	.009	.097	267	16	13	50	1.5	5.64
25,001 TO 50,000	10	348	35.6	.003	.033	305	9	8	16	1.6	5.36
OVER 50,000	10	1,412	140.6	.009	.097	885	6	7	39	3.9	4.41
NUMBER OF FLOORS											
ONE FLOOR	191	1,292	6.8	.026	.280	134	20	15	136	.7	5.31
TWO FLOORS	76	877	11.5	.014	.150	180	16	15	67	.9	4.87
THREE FLOORS	42	648	15.6	.010	.112	247	16	18	55	1.3	5.35
MORE THAN THREE	4	284	Q	Q	Q	Q	Q	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using LPG

Table 7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
YEAR CONSTRUCTED											
1900 OR BEFORE	23	210	8.9	0.002	0.025	97	11	Q	13	0.6	5.73
1901 TO 1920	34	295	8.7	.003	.037	Q	Q	17	18	Q	5.28
1921 TO 1945	55	511	9.3	.008	.087	146	16	12	42	.8	5.25
1946 TO 1960	93	625	6.7	.011	.126	123	18	17	62	.7	5.38
1961 TO 1970	36	573	15.8	.009	.096	243	Q	17	42	1.2	4.74
1971 TO 1973	24	400	16.7	.009	.094	358	21	12	41	1.7	4.78
1974 TO 1979	47	487	10.3	.010	.110	214	21	13	54	1.2	5.38
FUEL COMBINATIONS USED											
TWO FUELS USED	178	773	4.4	.027	.299	154	35	21	137	.8	5.00
THREE FUELS USED	116	1,756	15.1	.019	.208	163	11	12	101	.9	5.35
ELEC., FUEL OIL/KEROSENE, LPG	75	1,031	13.7	.009	.102	123	Q	10	53	.7	5.69
OTHER	41	726	Q	.010	.106	237	13	15	49	Q	5.02
FOUR OR MORE FUELS USED	19	573	30.3	.006	.069	331	11	8	33	1.8	5.34
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	313	3,100	9.9	.052	.568	166	17	14	269	.9	5.19
NATURAL GAS	37	947	25.9	.011	.119	297	11	11	53	1.4	4.85
FUEL OIL/KEROSENE	86	1,561	18.1	.015	.160	169	9	9	81	.9	5.57
LIQUID PETROLEUM GAS	313	3,102	9.9	.053	.576	168	17	14	272	.9	5.16
OTHER	25	372	14.8	.006	.064	233	16	12	32	1.3	5.47
HEATING SYSTEM											
SELF-CONTAINED UNITS											
FORCED-AIR	107	866	8.1	.020	.223	190	24	18	104	1.0	5.11
RADIANT	9	61	Q	Q	Q	Q	Q	Q	Q	Q	Q
COMBINATION/OTHER	52	302	5.8	.003	.032	56	10	12	17	.3	6.02
CENTRAL SYSTEM											
FORCED-AIR	75	799	10.7	.014	.158	194	18	15	73	1.0	5.02
RADIANT	27	422	15.5	.002	.023	78	5	5	13	.5	6.28
COMBINATION/OTHER	11	237	21.2	.004	.039	318	15	10	16	1.4	4.51
COMBINATION/OTHER	26	394	15.0	.007	.073	256	17	14	36	1.4	5.44
NONE	6	21	Q	Q	Q	Q	Q	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using LPG

Table 7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
PERCENT OF BUILDING HEATED											
1 TO 50	61	559	9.2	0.008	0.090	135	15	19	41	0.7	4.98
51 TO 99	35	416	12.0	.007	.071	188	16	13	35	1.0	5.38
100	212	2,106	9.9	.037	.410	177	18	14	193	.9	5.16
NONE	6	21	Q	-	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 25	47	851	18.0	.009	.102	197	11	10	50	Q	5.31
26 TO 50	41	354	8.6	.004	.040	88	10	7	20	.5	5.60
51 TO 99	26	378	14.4	.008	.086	301	21	12	41	1.6	5.19
100	76	752	9.9	.015	.159	192	19	15	71	.9	4.90
NONE	122	768	6.3	.017	.189	141	22	24	90	.7	5.21
AIR CONDITIONING SYSTEM											
WINDOW UNITS	85	416	4.9	.007	.077	82	17	11	38	.4	5.35
PACKAGE UNITS	46	966	21.1	.014	.155	309	15	13	68	1.5	4.83
CENTRAL SYSTEM	37	480	12.9	Q	Q	212	Q	11	Q	1.2	5.48
COMBINATION/OTHER	22	471	21.3	.006	.069	286	13	12	33	1.5	5.18
NO AIR CONDITIONING	122	768	6.3	.017	.189	141	22	24	90	.7	5.21
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	174	1,610	9.2	.028	.307	161	17	16	150	.9	5.34
OWNER OR AGENT IS NOT OCCUPANT	84	640	7.6	.012	.126	137	18	13	60	.7	5.19
MULTIPLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	23	385	Q	.003	.032	123	Q	6	16	.7	5.44
OWNER OR AGENT IS NOT OCCUPANT	16	182	11.7	.004	.046	268	23	26	20	1.3	4.84
GOVERNMENT-OWNED AND OCCUPIED	9	264	Q	Q	Q	Q	Q	Q	Q	Q	Q
NOT REPORTED	6	21	3.5	Q	.001	9	3	Q	1	.1	9.16

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using LPG

Table 7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 10	244	1,020	4.2	0.026	0.288	108	26	37	137	0.6	5.21
10 TO 19	27	218	7.9	Q	Q	238	30	17	Q	1.3	5.30
20 TO 49	29	703	23.8	.012	.127	394	17	13	62	2.1	5.38
50 TO 99	7	319	Q	.003	.033	416	9	6	15	2.1	5.01
100 OR MORE	5	841	175.6	.005	.057	1,082	6	4	23	4.7	4.38
HOURS OF OPERATION FOR A TYPICAL WEEK											
NONE	6	54	Q	Q	Q	Q	Q	Q	Q	Q	Q
39 OR FEWER HOURS	55	210	3.8	.003	.031	52	14	20	17	.3	6.02
40 TO 48 HOURS	63	668	10.6	.008	.083	120	11	12	39	.6	5.09
49 TO 60 HOURS	68	638	9.4	Q	Q	200	21	18	Q	1.0	5.21
61 TO 84 HOURS	45	539	Q	.009	.101	204	Q	19	46	1.0	4.98
MORE THAN 84 HOURS	75	994	13.2	.017	.190	231	17	11	90	1.2	5.20
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	135	1,266	9.4	.024	.264	179	19	14	127	.9	5.26
NO	169	1,660	9.8	.027	.292	158	16	15	137	.8	5.11
DON'T KNOW/NOT REPORTED	9	176	Q	Q	Q	Q	Q	Q	Q	Q	Q
INSULATION ADDED											
YES	135	1,216	9.0	.024	.264	179	20	16	126	.9	5.24
NO	158	1,676	10.6	.024	.261	151	14	12	122	.8	5.11
DON'T KNOW/NOT REPORTED	20	210	Q	Q	Q	Q	Q	Q	Q	Q	Q
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES	79	653	8.2	.016	.171	197	24	17	83	1.1	5.32
NO	216	2,209	10.2	.033	.363	153	15	14	169	.8	5.10
DON'T KNOW/NOT REPORTED	17	240	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED HEATING											
YES	270	2,574	9.5	0.043	0.474	160	17	15	222	0.8	5.12
NO	34	451	13.4	Q	Q	256	19	12	Q	Q	5.32
NOT REPORTED/ NOT APPLICABLE	9	76	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED COOLING											
YES	92	1,586	17.2	.023	.254	252	15	13	116	1.3	5.00
NO	13	316	24.8	Q	Q	402	Q	Q	Q	2.2	5.49
NOT REPORTED/ NOT APPLICABLE	208	1,200	5.8	.024	.266	117	20	17	128	.6	5.25
REDUCED HEATING OR REDUCED COOLING											
YES	274	2,703	9.8	.044	.478	159	16	15	224	.8	5.13
NO	31	372	12.1	Q	Q	269	22	12	Q	Q	5.31
NOT REPORTED/ NOT APPLICABLE	7	27	Q	Q	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Consumption and Expenditures for Buildings Using Steam

Table 8. Steam Consumption and Expenditures for Commercial Buildings That Use Steam, 1979

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (TRILLION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	49	3,831	78.9	0.204	0.204	4,208	53	27	1,287	26.5	6.30
END USE BY FUEL TYPE											
HEATING FUEL USED.....	48	3,815	79.6	.204	.204	4,249	53	27	1,285	26.8	6.31
STEAM.....	45	3,675	82.3	.197	.197	4,410	54	27	1,244	27.9	6.32
OTHER.....	9	592	68.0	.034	.034	3,957	58	23	215	24.7	6.25
NO HEATING FUEL USED.....	1	16	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	36	3,384	93.6	.171	.171	4,742	51	24	1,047	29.0	6.11
ELECTRICITY.....	33	2,851	86.2	.137	.137	4,132	48	26	833	25.2	6.09
OTHER.....	4	801	183.3	.052	.052	11,874	65	19	326	74.6	6.28
NO AIR CONDITIONING FUEL....	12	446	36.0	.033	.033	Q	74	Q	240	Q	7.32
WATER-HEATING FUEL USED.....	37	3,190	86.6	.160	.160	4,334	50	25	986	26.8	6.17
NATURAL GAS.....	10	637	63.7	.025	.025	2,503	39	28	133	13.4	5.33
ELECTRICITY.....	12	552	46.8	.026	.026	Q	48	27	155	13.2	5.90
OTHER.....	17	2,221	132.9	.119	.119	7,097	53	24	758	45.4	6.39
NO WATER-HEATING FUEL.....	12	641	54.8	.045	.045	3,814	70	37	302	25.8	6.76
MANUFACTURING FUEL USED.....	2	203	94.5	.009	.009	4,397	47	24	59	27.3	6.21
NO MANUFACTURING DONE.....	46	3,628	78.2	.195	.195	4,200	54	27	1,229	26.5	6.31
COOKING FUEL USED.....	18	2,127	119.9	.107	.107	6,028	50	23	657	37.1	6.15
ELECTRICITY.....	12	1,087	Q	.061	.061	Q	56	20	357	Q	5.81
OTHER.....	8	1,532	201.8	.074	.074	9,685	48	24	462	60.9	6.29
NO COOKING FUEL.....	31	1,704	55.3	.097	.097	3,160	57	32	630	20.5	6.47
CENSUS REGION											
NORTHEAST.....	13	1,228	94.7	.065	.065	5,042	53	29	457	35.2	6.99
NORTH CENTRAL.....	16	1,590	97.2	.095	.095	5,801	60	30	543	33.2	5.73
SOUTH.....	10	631	Q	.026	.026	Q	42	17	163	Q	6.18
WEST.....	9	382	Q	.018	.018	Q	46	26	Q	Q	7.02
SMSA/NONSMSA											
SMSA.....	38	3,458	90.2	.187	.187	4,877	54	25	1,183	30.9	6.33
NONSMSA.....	10	373	Q	.017	.017	Q	47	86	104	Q	6.03

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Steam

Table 8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (TRIL-LION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
HEATING AND COOLING DEGREE-DAYS											
<2,000 CDD AND >7,000 HDD...	15	887	59.0	0.055	0.055	3,652	62	53	314	20.9	5.71
<2,000 CDD AND 5,500 TO 7,000 HDD.....	19	1,505	77.7	.085	.085	4,395	57	30	516	26.6	6.05
<2,000 CDD AND <5,500 HDD...	9	1,320	150.5	.061	.061	6,988	46	16	437	49.8	7.12
>2,000 CDD AND <4,000 HDD...	5	119	Q	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE											
10,000 OR FEWER.....	9	58	6.2	.004	.004	448	73	Q	30	3.2	7.15
10,001 TO 25,000.....	11	187	16.6	.008	.008	727	44	26	55	4.9	6.71
25,001 TO 50,000.....	11	352	33.0	.021	.021	1,984	60	39	123	11.5	5.80
OVER 50,000.....	17	3,233	188.4	.171	.171	9,944	53	26	1,079	62.9	6.32
NUMBER OF FLOORS											
ONE OR TWO FLOORS.....	15	353	23.9	.030	.030	2,013	84	57	214	Q	7.22
THREE FLOORS.....	8	342	42.1	.018	.018	2,180	52	62	102	12.6	5.77
MORE THAN THREE.....	26	3,136	122.1	.157	.157	6,110	50	23	971	37.8	6.19
YEAR CONSTRUCTED											
1920 OR EARLIER.....	11	974	86.3	.044	.044	3,938	46	29	314	27.8	7.06
1921 TO 1945.....	10	876	90.1	.040	.040	4,106	46	25	246	25.3	6.17
1946 TO 1960.....	14	652	46.1	.043	.043	3,016	65	30	257	18.2	6.03
1961 TO 1970.....	9	869	98.4	.050	.050	5,618	57	27	308	34.9	6.21
1971 TO 1979.....	5	459	Q	.028	.028	Q	60	23	162	Q	5.85
FUEL COMBINATIONS USED											
TWO FUELS USED.....	26	1,247	48.3	.063	.063	2,445	51	24	398	15.4	6.31
THREE FUELS USED.....	20	2,179	107.7	.113	.113	5,573	52	29	722	35.7	6.40
STEAM, ELEC., GAS.....	17	1,762	105.6	.087	.087	5,209	49	31	563	33.8	6.48
OTHER.....	4	417	Q	.026	.026	Q	62	26	159	Q	6.12
FOUR OR MORE FUELS USED.....	2	405	163.2	.028	.028	11,424	70	25	167	67.5	5.91

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Steam

Table 8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (TRIL-LION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	49	3,831	78.9	0.204	0.204	4,208	53	27	1,287	26.5	6.30
NATURAL GAS	19	2,106	110.7	.112	.112	5,868	53	30	709	37.2	6.35
STEAM	49	3,831	78.9	.204	.204	4,208	53	27	1,287	26.5	6.30
OTHER	6	822	136.3	.054	.054	9,003	66	25	326	54.1	6.01
HEATING SYSTEM											
SELF-CONTAINED UNITS	Q	47	Q	Q	Q	Q	Q	Q	Q	Q	Q
CENTRAL SYSTEM											
FORCED-AIR	9	944	103.4	.049	.049	5,319	51	20	301	33.0	6.21
RADIANT	23	1,140	50.5	.054	.054	2,383	47	22	345	15.3	6.40
COMBINATION/OTHER	15	1,568	105.6	.092	.092	6,217	59	35	595	40.1	6.45
COMBINATION/OTHER	1	116	Q	.007	.007	Q	58	65	28	Q	4.19
NONE	1	16	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING HEATED											
1 TO 99	9	977	113.7	.054	.054	6,288	55	26	359	Q	6.64
100	39	2,839	72.1	.150	.150	3,804	53	27	927	23.5	6.19
NONE	1	16	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 99	25	2,112	85.8	.104	.104	4,238	49	25	625	25.4	5.99
100	12	1,272	110.3	.067	.067	5,817	53	22	422	36.6	6.29
NONE	12	446	36.0	.033	.033	Q	74	Q	240	Q	7.32
AIR CONDITIONING SYSTEM											
WINDOW UNITS	8	346	Q	.017	.017	Q	50	Q	109	Q	6.31
PACKAGE UNITS	9	555	63.2	.029	.029	3,360	53	26	159	18.2	5.41
CENTRAL SYSTEM	12	1,503	125.6	.078	.078	6,511	52	19	482	40.2	6.18
COMBINATION/OTHER	7	980	133.5	.047	.047	6,352	48	28	296	40.3	6.35
NO AIR CONDITIONING	12	446	36.0	.033	.033	Q	74	Q	240	Q	7.32
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING	23	1,445	62.7	.067	.067	2,890	46	47	379	16.5	5.70
MULTIPLE ESTABLISHMENT BUILDING	7	1,038	140.6	.049	.049	6,610	47	17	333	45.1	6.83
GOVERNMENT-OWNED AND OCCUPIED	18	1,325	Q	.089	.089	Q	67	27	573	Q	6.46
NOT REPORTED	1	250	300.8	.006	.006	7,094	24	56	Q	45.2	6.37

SEE NOTES AT END OF TABLE

Consumption and Expenditures for Buildings Using Steam

Table 8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (TRILLION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 20	17	422	25.4	0.016	0.016	958	38	Q	99	5.9	6.20
20 TO 99	15	920	63.2	.041	.041	2,793	44	64	245	16.8	6.01
100 OR MORE	12	2,307	190.9	.135	.135	11,198	59	20	867	71.8	6.41
HOURS OF OPERATION FOR A TYPICAL WEEK											
LESS THAN 40	2	40	Q	Q	Q	Q	Q	Q	Q	Q	Q
40 TO 48 HOURS	11	618	57.5	.028	.028	2,578	45	21	173	16.1	6.23
49 TO 84 HOURS	15	1,470	98.6	.071	.071	4,797	49	18	450	30.2	6.29
MORE THAN 84 HOURS	20	1,587	80.0	.099	.099	4,979	62	44	618	31.2	6.26
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	22	1,888	87.1	.097	.097	4,472	51	23	614	28.3	6.33
NO	26	1,896	72.0	.106	.106	4,006	56	32	661	25.1	6.27
DON'T KNOW/NOT REPORTED	1	46	Q	Q	Q	Q	Q	Q	Q	Q	Q
INSULATION ADDED											
YES	12	860	72.8	.041	.041	3,435	47	22	246	20.8	6.06
NO	36	2,812	78.2	.158	.158	4,407	56	28	1,009	28.1	6.37
DON'T KNOW/NOT REPORTED	1	159	Q	Q	Q	6,760	33	23	Q	41.3	6.11
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES	9	669	Q	.030	.030	Q	45	21	185	Q	6.09
NO	39	3,066	79.5	.171	.171	4,438	56	28	1,082	28.1	6.33
DON'T KNOW/NOT REPORTED	1	95	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED HEATING											
YES	31	3,040	97.3	.161	.161	5,167	53	24	1,038	33.2	6.43
NO	11	646	57.2	.038	.038	3,320	58	40	218	19.3	5.80
NOT REPORTED/ NOT APPLICABLE	6	144	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED COOLING											
YES	23	2,669	118.2	0.130	0.130	5,739	49	22	801	35.5	6.18
NO	5	320	68.0	.021	.021	4,513	66	25	Q	25.6	5.68
NOT REPORTED/ NOT APPLICABLE	21	841	39.6	.053	.053	2,513	63	62	365	17.2	6.85
REDUCED HEATING OR REDUCED COOLING											
YES	34	3,262	94.9	.170	.170	4,935	52	25	1,089	31.7	6.42
NO	9	435	49.3	.028	.028	3,157	64	39	163	18.5	5.85
NOT REPORTED/ NOT APPLICABLE	5	134	Q	Q	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Distribution of Buildings Supplied with Fuel Oil

Table 9. Distribution of Commercial Buildings Supplied with Fuel Oil, by Number of Tanks, Tank Capacity, and Inventory, as of January 1, 1980 (Thousands of Buildings)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL TANK CAPACITY IN GALLONS					
		NO TANK	LESS THAN 500	500 TO 1,999	2,000 TO 4,999	5,000 TO 9,999	10,000 AND OVER
COMMERCIAL BUILDINGS.....	815	10	305	333	48	56	63
NUMBER OF FUEL OIL TANKS							
NONE.....	10	10	-	-	-	-	-
ONE.....	657	-	287	247	36	51	37
TWO OR MORE.....	147	-	18	87	11	Q	26
INVENTORY							
NONE.....	46	10	27	6	Q	Q	Q
LESS THAN 500.....	410	-	277	132	Q	Q	Q
500 TO 1,999.....	222	-	-	194	21	Q	Q
2,000 TO 4,999.....	54	-	-	-	25	28	2
5,000 TO 9,999.....	43	-	-	-	-	23	21
10,000 AND OVER.....	38	-	-	-	-	-	38

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Total Fuel Oil Tank Capacity and Inventory

Table 10. 1979 Total Fuel Oil Tank Capacity and Inventory by Number of Tanks, as of January 1, 1980 (Million Gallons)

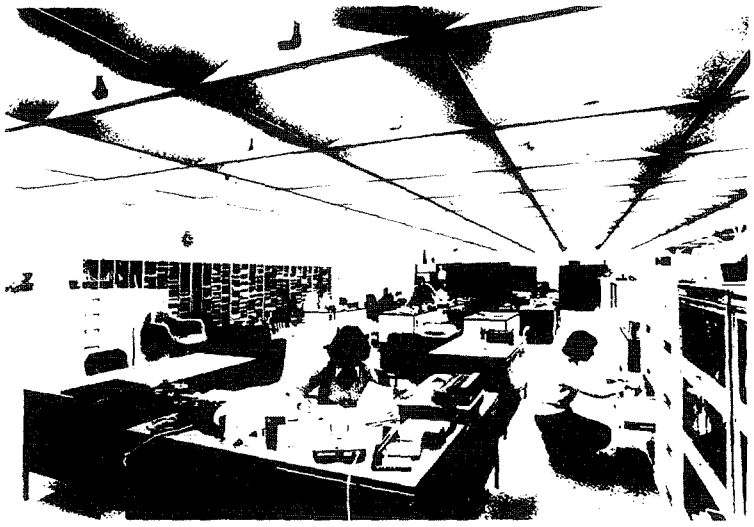
BUILDING CHARACTERISTICS	ALL BUILDINGS WITH FUEL OIL TANKS (THOUSANDS)	TOTAL			NUMBER OF FUEL OIL TANKS			
					ONE		TWO OR MORE	
		NUMBER OF TANKS (THOUSANDS)	TOTAL TANK CAPACITY	TOTAL INVENTORY	TOTAL TANK CAPACITY	TOTAL INVENTORY	TOTAL TANK CAPACITY	TOTAL INVENTORY
COMMERCIAL BUILDINGS.....	804	1,006	3,237	2,253	1,354	952	1,883	1,301
TOTAL TANK CAPACITY IN GALLONS								
LESS THAN 500.....	305	325	72	50	68	47	4	3
500 TO 1,999.....	333	442	248	185	183	142	65	43
2,000 TO 4,999.....	48	67	131	88	101	66	30	22
5,000 TO 9,999.....	56	62	334	236	301	211	Q	25
10,000 AND OVER.....	63	110	2,452	1,694	701	487	1,751	1,207
INVENTORY								
NONE.....	36	45	17	-	13	-	4	-
LESS THAN 500.....	410	474	147	94	117	78	30	16
500 TO 1,999.....	222	293	270	176	214	135	56	41
2,000 TO 4,999.....	54	61	324	155	304	141	20	Q
5,000 TO 9,999.....	43	50	399	299	346	261	53	38
10,000 AND OVER.....	38	83	2,080	1,529	360	337	1,720	1,191

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix A

How the Survey Was Conducted



Appendix A

Introduction

The Nonresidential Buildings Energy Consumption Survey was designed by the Energy Information Administration (EIA) to provide information related to energy consumption in nonresidential buildings, primarily those in the commercial sector. This survey, along with analogous studies for the residential and industrial sectors, will enable analysts to study comprehensive consumption patterns for the United States.

Information on energy use in the commercial sector was collected at the building level. A representative sample of buildings was selected in the 48 contiguous States plus the District of Columbia. Personal interviews were conducted with building representatives to obtain information on building characteristics and on the types and uses of energy found in the buildings. At the conclusion of the interviews, respondents were asked to sign waivers releasing energy consumption and expenditures data for the buildings. The data on actual energy consumption were collected from fuel records maintained by the buildings' fuel suppliers.

Sample Design

The building sample was a multistage, representative area probability sample consisting of 79 primary sampling units (PSU's). The approximately 3,100 counties and independent cities of the contiguous United States were grouped into about 1,900 PSU's by the Census Bureau for its Current Population Survey. These PSU's, with some modifications, were used to construct the first-stage area-sampling frame. The 25 PSU's that had a 1970 population of more than 1.85 million were designated as self-representing; that is, they were chosen with certainty. The remaining non-self-representing PSU's were placed in strata on the basis of metropolitan status, region, rate of growth from 1960 to 1970, percentage of black population, and a measure of socioeconomic status. They were selected with probabilities proportionate to their 1970 population.

The sample PSU's were then divided into secondary sampling units corresponding to zip codes or groups of zip codes. Procedures were designed to handle zip codes that overlapped county boundaries and/or special zip codes that were assigned to large commercial establishments or Government agencies.

Each zip code was assigned a measure of size based jointly on summary data from the 1975 County Business Patterns (CBP) and on proprietary commercial data related to office machines. The CBP data were weighted counts of establishments by 2-digit Standard Industrial Classification (SIC) code and employment size according to zip code. The measure of size assigned to a zip code was an integer equal to the number of segments into which a zip code would be divided if drawn into the sample. The sizes were assigned in such a way that segments would contain an average of 120 establishments based on the CBP tabulations. After assignments of the measures of size were made, a sample of about five zip code groups was selected in each PSU with probabilities proportionate to the number of segments in each zip code group, giving a total second-stage sample of about 400 zip code groups.

The sample of third-stage units consisted of approximately 400 segments, one selected from each of the sampled zip code areas. The selection of the segments was done in such a way that 1 percent of all segments in the contiguous United States was included in the sample, each having an

equal chance of being selected. In zip code groups with measures of size of six or more, the segments were compact areas. It was feasible to define area segments within these selected zip code groups on the basis of preliminary field work done in the selected zip code areas. In the zip code groups with smaller measures of size, the segments were, in effect, selected from listings made for the complete zip code group.

Nonresidential buildings (excluding farm buildings) were selected from the area segments at the fourth stage of sampling (see Glossary for a definition of "Nonresidential Building"). With a few exceptions, a nonresidential building was defined as a structure that was totally enclosed by walls that extend from the foundation to the roof line and housed some type of nonresidential activity. The first step in the selection process was to do a field canvass to identify and list the addresses of all in-scope buildings within each sampled segment. As part of the listing procedure, the lister made rough estimates based on observations of descriptive information related to energy usage, including square footage and general use. This information was used to categorize buildings for subsampling. About 75,000 buildings were listed (this includes the extra listings in zip code groups with measures of less than six) from which approximately 5,800 buildings were selected for a personal interview. Subsampling fractions from the 1-percent sample of segments varied from 1 in 1 for buildings having measures of size of 50,000 or more square feet as assigned by the lister, to 1 in 20 for small buildings (less than 10,000 square feet) of certain types.

Another part of the sampling procedure entailed preparing in advance a list of "large" buildings within the sampled PSU's and placing them on a Special Building List. "Large" buildings were defined as those with 250,000 or more square feet of enclosed floorspace in PSU's that are Standard Metropolitan Statistical Areas (SMSA). In the remaining one-third of the PSU's, buildings of 100,000 square feet or more were listed. The list of large buildings was compiled from existing lists of schools, hospitals, and Government-owned buildings and also through inquiries with chambers of commerce and other local sources. Some of the large buildings listed were clusters of buildings such as a university campus. About 3,200 buildings (or building clusters) were included on the Special Building List, and approximately 1,200 of them were included in the sample with varying probabilities depending on their sizes. In those cases in which the selected unit consisted of a cluster of buildings, the individual buildings were listed and subsampled at rates designed to yield the desired overall selection probabilities. Large buildings sampled from the area sample list were checked against the Special Building List to identify duplicates and assign them appropriate selection probabilities.

A total of 549 sampled buildings were ineligible for interview. Buildings were designated as being ineligible for interview for a number of reasons, including duplication, incorrect or multiple listings, sampled structure failed to meet the building definition, and the sampled structure was demolished after the list was prepared. Duplication resulted from duplicate sample selections from the area sample and the sample selections from the list of large buildings.

Buildings were listed incorrectly or as multiple listings for several reasons. First, the area-sampling technique required that most buildings be listed by observation. Therefore, it was not always possible to determine the exact scope of a building until the interviewing phase, when contact was made with a building owner/manager. Second, since the list of large buildings was obtained through telephone contacts,

what was reported over the telephone to be one building frequently turned out to be a group of buildings. Buildings that did not meet the study definition (e.g., totally residential buildings) were also considered out-of-scope.

Weights were calculated for each sample building to reflect the reciprocals of the probabilities of selection and adjust for differences in the interview completion rate for different classes of buildings. The overall response rate in the survey was 92 percent.

Data Collection

The sample consisted of a total of 7,322 buildings. Of these, 6,773 were eligible to be interviewed; 5,677 were from the area sample, and 1,096 were from the list sample. Westat, Inc., of Rockville, Maryland, conducted the interviews. Extensive follow-up efforts were used in field data collection, and as a result, interviews were initially completed for 91 percent of the eligible buildings. Of those interviewed, 88 percent signed waivers authorizing utility companies to release their buildings' consumption records (see Table A1).

Since the field response was so high, only limited additional follow-up procedures were initiated. In January 1980, an overall refusal-conversion effort was undertaken. An attempt was made to conduct telephone interviews with building owners or managers who had originally refused to be interviewed in person. Calls were made to 197 buildings, and of these, 83 interviews were completed. As a result of this effort, 42 percent of the refusals were converted, and the overall response rate was raised by 1 percentage point, to 92 percent.

Table A1. Number and *Percentage Distribution of* Sample Buildings by Building Disposition

Building Disposition	Number	Percentage of All Buildings	Percentage of Eligible Buildings	Percentage of Interviewed Buildings
Total Buildings	7,322	100.0	--	--
Not Eligible for Interview	549	7.5	--	--
Eligible for Interview	6,773	92.5	100.0	--
Interviewed	6,222	--	91.8	100.0
With Waiver	5,536	--	--	89.0
Without Waiver ...	686	--	--	11.0
Not Interviewed	551	--	8.2	--

"--" Indicates data not applicable.
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Appendix A (Continued)

During December 1979, 734 letters were sent to respondents who had completed the interview but did not sign an authorization form. These letters asked them to reconsider their decision. From the waiver-conversion effort, an additional 108 signed waivers were received, 6 refusals were received, and 620 failed to reply. This effort resulted in an overall conversion rate of 17 percent and increased the waiver response rate by 1 percentage point, to 89 percent.

In addition to these supplemental follow-up efforts, some additional followup was done for a few selected data items that were missing or inconsistent in completed questionnaires. Certain items in the building questionnaire, such as size, building activity, and the names and addresses of fuel suppliers, were designated as being crucial. If any of the crucial items were missing, a telephone call was made to the respondent to try to obtain this information as well as any other missing data.

Initial contacts with the building owners and managers were made through a letter signed by the EIA Administrator. The letter introduced the data collection contractor, stressed the importance of cooperation, and assured the confidentiality of responses.

The building interviews were conducted between October 1979 and January 1980. Respondents were asked about the building as a whole, rather than individual establishments located within the building. Professionals in the areas of architecture, building operations, engineering, statistics, and survey research were consulted during the development of the interview questionnaire. The interviews averaged 50 minutes each and covered structural and operational building features; types of heating, cooling, and ventilation systems; fuel used in these systems and patterns of usage; and a description of the activities found in the building. At the conclusion of the interview, respondents were asked to sign waivers authorizing Westat, Inc., the data collection contractor, to obtain fuel consumption records from the buildings' fuel suppliers.

Nearly 90 percent of the respondents signed waivers to permit fuel suppliers to give Westat, Inc., monthly records of their fuel purchases for the past 14 months. Information was requested on the amount sold, the price of the fuel, the unit of measure, the number of customers, and the billing dates. The suppliers of electricity and natural gas were contacted by mail beginning in August 1979. Two letters were sent to each company. The first, signed by the EIA Administrator, explained the legal authority and need for the data collection. The second letter introduced Westat, Inc., and discussed the data collection procedures and the kind of information that would be requested. Follow-up telephone calls were initiated in September 1979 to ensure the receipt of the letters and to establish a personal contact with the appropriate utility company representative.

After the building interviews were completed and the signed waivers were received, approximately 230 electric and natural gas companies and about 1,300 fuel oil and other energy suppliers were identified for participation.

At the end of February 1980, each supplier was sent a packet containing instructions and explanations, signed waivers, and data-retrieval forms. Follow-up telephone calls were made to the suppliers of electricity and natural gas in March 1980 to make sure the utility companies received the forms, to answer any of their questions, and to obtain an estimated completion date. A letter was then sent to confirm the completion date. If the data were not received within a week of the completion date, a second telephone call was made to deal with any problems that might have arisen and to arrange a second date. Suppliers were not required to

transcribe data to the survey forms. Any format (such as computer printout) providing the required information was acceptable. A telephone followup of energy suppliers other than electricity and natural gas was implemented in August 1980. Most of the suppliers of LPG, fuel oil, and coal had only one customer in the survey. Therefore, it was considered feasible to obtain the required information over the telephone. During this operation, calls were placed to 429 suppliers, almost 300 of which supplied the requested data.

For the Utility Survey, 13,386 questionnaires were mailed to the 1,509 companies, organizations, and agencies that supplied varying types of energy to the 6,222 buildings participating in the Building Survey. Of the questionnaires mailed, 534 were determined to be ineligible for the Utility Survey. Of the 12,852 eligible cases, there were 11,210 questionnaires with data, for an overall response rate of 87 percent.

Some buildings had many tenants who were metered and billed separately. Interviewers were instructed to obtain lists of tenants in buildings where establishments were separately metered. If there were three or fewer establishments within a building, the interviewer attempted to get a signed waiver for each establishment. In buildings with four or more establishments, the building owner or manager was asked to sign a waiver releasing the aggregate utility records for the occupants of the building.

Companies were asked to supply limited consumption data for those buildings where an interview was completed but a signed waiver was not obtained. Suppliers were requested to aggregate cost and consumption information for a group of buildings and to report a yearly total. While energy suppliers will not provide individual building data without a waiver, some will provide aggregate data for groups of nonrespondent buildings. This information will be used to analyze the potential bias introduced by nonresponse and to improve the accuracy of consumption estimates in the commercial sector.

Field Procedures

Once the sampled zip code groups and segments had been selected, the initial field step was to prepare a listing of building addresses located within the sampled segments (see "Sample Design"). The sample consisted of approximately 400 segments, which were listed by a team of 85 listers. Supervisors attended a 3-day training session during the first week of June 1979. During this session, a combination of slides, exercises, lectures, and an actual listing were used as training devices. Supervisors were also given an annotated manual that described the session. This manual was used as a guidebook to supervisors in order to conduct identical training sessions for the listers.

Before their training, each lister received a copy of a Listing Manual and a home study package with assignments to be turned in before training began. The supervisors trained 85 listers in 2-day sessions conducted in nine cities. As soon as possible after the listing procedure began, the supervisors relisted at least one segment for each lister. This verification provided immediate feedback for the lister and corrected any misunderstandings. The check also served to identify any definitional problems or procedural weaknesses.

Once all the segments had been listed, the field supervisors relisted a subsample of 53, not including the segments that had already been checked. The relisting showed that less than 1 percent of the buildings had been missed. Buildings were usually missed because of questions concerning segment boundaries.

Training for the interview phase began with a 3-day session for supervisors and their assistants in September 1979. Approximately 170 interviewers were trained in 3-day sessions held during October and November 1979. Using a variety of techniques, Westat, Inc., conducted the training of both the supervisors and the interviewers. The training materials used included an annotated manual, interactive lectures, role-playing exercises, audiovisual presentations of the interview techniques, and slides relating specific building types to the questionnaire. The supervisors and their assistants functioned as small-group leaders during the interview training.

The completed questionnaires were initially screened by the field supervisors. They were reviewed for completeness, correct identifying information, and ambiguities requiring clarification. The supervisors mailed the completed questionnaires to Westat, Inc., where they were subjected to a similar check. Also at this time, certain data were categorized, and some of the more complex data items, such as open-ended questions, were put into special processing. After the manual editing, the questionnaires were coded, keypunched, verified, and computerized. A machine edit check was made for reasonable values, proper skip patterns and logical inconsistencies. Additional edit checks were performed on the consumption and expenditures data received from the buildings' energy suppliers. Data retrieval procedures were instituted in cases in which data were incomplete, inconsistent, or unreasonable. In cases in which data retrieval was not possible, cost and consumption estimates were imputed (see Appendix B, "Limitations of the Data").

Weather Data

Two types of weather data are used in conjunction with the building interview and consumption data. The first type is the long-term average heating degree-days (HDD) and cooling degree-days (CDD) for the National Oceanic and Atmospheric Administration (NOAA) weather division in which the building is located. These data were used in the preparation of this report. They will be used to analyze the effects of weather on trends in basic building structure and equipment.

The second type of data are the HDD and CDD totals for each building by billing period. These totals are calculated by NOAA division for the appropriate billing period. For example, one building may be billed on the first of the month, while another may be billed on the fifth. Thus, there are different 30-day averages of HDD and CDD for each billing period. These data will allow more complete analysis of fuel consumption. They will be included in the public-use data tape of the consumption file. Analyses of usage patterns and operation characteristics can be undertaken only if the confounding effects of the weather are controlled.

Adjusting for Nonresponse

The amount of data collected from this survey was reduced by two types of nonresponse: unit nonresponse (e.g., noninterview) and nonresponse to particular items in an otherwise completed interview. As mentioned in the section, "Sample Design," unit nonresponse was handled by adjusting the sampling weights of responding buildings. Item nonresponse

for selected building characteristics was treated by imputing data from responding cases, using a separate hot-deck procedure for each item. (For more information on the imputation procedures used for this survey, see Appendix B, "Limitations of the Data.") The only data element for which a hot-deck procedure was not used was square footage. For this variable, the lister's guess was used, unless that guess was less than 10,000 or greater than 100,000 square feet. When the lister's square footage estimate was in either of these categories, an average unweighted square foot per floor was computed for all responding buildings of the same type in the same size class. This value was then multiplied by the number of floors in the building of interest to produce an estimate of square footage for the building. Most of the imputed building characteristics items had less than 2-percent nonresponse; two of them (year constructed and square footage) had about 3-percent nonresponse, and one item (hours of operation) had about 7-percent nonresponse.

Table A2 shows the effect of unit nonresponse adjustment and item imputations on estimates of numbers of buildings by square footage category and year built. The left column of the table contains the estimated numbers using the basic inflation weight without nonresponse adjustment and eliminating those buildings whose value for the stub variable was imputed. In the center column, the nonresponse adjustment has been incorporated into the building weight, but the buildings with imputed values are still eliminated. The entries in the right column match those in the detailed tables because nonresponse adjustments and imputed cases are both included in the estimation procedure.

Table A2. Effects of Nonresponse Adjustment and Item Imputation on Estimated Numbers of Buildings, by Square Footage and Year Built

Population Subgroup	Estimated Number of Buildings (Thousands)		
	Without Nonresponse Adjustment or Imputations	With Nonresponse Adjustment; Without Imputations	With Nonresponse Adjustment and Imputations
All Buildings (Square Feet)	3,681	4,081	4,238
Less Than or Equal to 1,000 ...	604	677	677
1,001-5,000	1,510	1,697	1,729
5,001-10,000	667	749	801
10,001-25,000	498	537	596
25,001-50,000	217	226	237
Over 50,000	185	195	199
All Buildings (Year Built)	3,638	4,029	4,238
1900 or Before ...	281	314	329
1901-1920	373	419	432
1921-1945	716	793	829
1946-1960	912	1,010	1,064
1961-1970	663	732	789
1971-1973	206	225	235
1974-Present	487	536	561

Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Appendix B

Limitations of the Data

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

Appendix B

Data from the Nonresidential Buildings Energy Consumption Survey (NBECS) are subject to many sources of sampling error, nonsampling error, and bias. Sampling error is a measure of variability in the data because a subset of buildings was surveyed rather than the entire population. Because probability sampling was used for the NBECS, estimates of sampling error could be computed for survey statistics. These estimates were computed using a balanced half-sample replication procedure described later in this section of the report. Nonsampling error and bias are measures of variability and lack of accuracy in survey data due to the conduct of the survey. Components of these error measures include coverage bias, respondent bias and response variance, interviewer error, coding and/or keypunching error, and nonresponse bias. Survey logistics such as wording and format of the survey questionnaires, the procedures used to select and train interviewers, and the quality control built into the data collection, data receipt, and data processing operations were all designed to minimize these sources of error (for discussion of these procedures, see Appendix A, "How the Survey Was Conducted"). Even so, nonsampling error, especially error due to nonresponse, is of major concern for the statistics shown in this report. Caution should be used in analyzing the data, especially in the use of statistical tests of hypotheses based on sampling errors only. Readers should be conservative in drawing conclusions based on statistical tests of hypotheses. Because of the extent of nonresponse for important data items in this survey, extensive and rather complex procedures were devised to impute for missing data items. The procedures used to adjust for unit nonresponse and impute building characteristics have been described in Reference 1, the companion to this report, and will not be repeated here. Discussion of consumption and cost imputations for fuel oil or kerosene, LPG, and purchased steam (the fuels highlighted in this report) is given in the context of the procedures used for electricity and natural gas. Imputation procedures for these two fuels are also described in Reference 1. Further information on data limitations is given in Reference 2. This appendix also discusses the computation and use of sampling errors.

One way to judge the validity of survey estimates is to compare them with similar types of estimates from other sources. Unfortunately, since no national counts of the nonresidential building stock exists, and since no national probability sample surveys of this population are known to have been previously undertaken, such comparisons cannot be made for building characteristics data. The lack of prior information also made it impossible to use techniques such as ratio estimation or post-stratification to improve the survey estimator. However, certain comparisons can be made between energy consumption data from this survey and data from other sources. The comparisons are mentioned later in this section.

Imputing for Missing Cost and Consumption Data

One of the major goals of the NBECS was to produce estimates of energy consumption and expenditures (cost) for nonresidential buildings during calendar year 1979. To accomplish this, consumption and cost data were collected from fuel suppliers. The suppliers were given permission to release the data by means of waivers signed by building representatives.

The fuels used in buildings can be split into two major types:

1. Fuels that are transmitted from the suppliers to the building as needed for immediate use, such as electricity, natural gas, and steam. These fuels, referred to as continuous delivery fuels, are ordinarily not stored. Their consumption is usually measured by meters or gauges attached to the transmission medium (wires or pipes).

2. Fuels that are delivered in bulk to the building and can be stored for future use, such as fuel oil, LPG, and coal. These fuels, measured at the time of delivery, are referred to as discrete delivery fuels.

Billing for continuous delivery fuels is accomplished by reading the gauge(s) or meter(s), usually at regular intervals. The fuel amount on the bill thus represents fuel consumption since the last meter reading. Discrete delivery fuel bills are based on the amount of fuel delivered. The actual consumption occurs later. The delivered amount may or may not equal the amount consumed since the previous delivery.

Ideally, the data for each continuous delivery fuel used in each sample building should have been in the form of complete data records for consecutive billing periods[1] either totally or partially contained in calendar year 1979, covering exactly the energy consumed within the sampling building. The data for each discrete delivery fuel should have been in the form of complete data records for all deliveries from December 1978 through January 1980. The delivered fuel should have been used entirely within the sampling building. However, there were several ways in which the actual data varied from the ideal. The major problems were:

1. The data covered more than the energy used in the sample building. The data could cover such activities as consumption in other buildings or consumption for outside lighting, signs, security equipment, or other activities affiliated with, but not carried on inside, the sample building.

2. The utility would not or could not provide the cost and/or consumption data for some or all billing periods or deliveries in 1979. Reasons for missing data include utility company refusal; archived, lost, or destroyed billing records; and waiver refusal on the part of the building respondent.

3. When several sample buildings in an energy supplier service area did not grant a waiver allowing individual collection of consumption and expenditures data, the supplier was asked to supply aggregate data for all such buildings. The aggregation procedure was carried out to protect the confidentiality of the sample buildings while collecting their consumption data.

4. Data were supplied for billing periods or deliveries in 1979, but the month and/or day of the meter reading or delivery was omitted.

5. Most of the cases of complete reporting of 1979 data for continuous delivery fuels included billing periods that overlapped into 1978 and 1980.

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[1]A billing period is the time period between two adjacent estimates or meter readings for purposes of billing a customer. A meter reading date or billing date marks the end of a billing period. The next billing period begins on the following day.

Problems 1 and 3 required disaggregation of fuel consumption. Disaggregation was performed for fuel oil or kerosene, LPG, and steam consumption in exactly the same way as for electricity and natural gas (see Appendix B of Reference 1 for details). Problems 4 and 5, overlapping billing periods and missing dates, were handled in exactly the same way for steam (a continuous delivery fuel) as they were for electricity and natural gas (Reference 1). Overlapping billing periods did not affect the discrete delivery fuels because, for them, all deliveries during 1979 were accumulated. There was no such thing as an "overlapping delivery." For the same reasons, missing dates did not matter for fuel oil or kerosene and LPG records, as long as all deliveries in 1979 could be identified.

The remaining problem, missing cost and/or consumption data for some or all billing periods or deliveries, was common to all fuels, but the procedures used for imputation were somewhat different for the other three fuels than they were for electricity and natural gas. Of the three fuels highlighted in this report, the fuel whose delivery method most closely resembles that of electricity and natural gas is, of course, steam, the other continuous delivery fuel. As a matter of fact, many of the same utilities that produce/distribute natural gas and electricity also distribute steam, which is a byproduct of their other processing operations. There the similarities end, however. Whereas electricity and natural gas are supplied to a majority of nonresidential buildings, steam is supplied to only about 1 percent. Most buildings supplied with steam are very large, and the vast majority of buildings that are supplied with steam use it for space heating. Also, a large percentage of sample buildings supplied with steam had no consumption or cost data reported (48 percent or 221 buildings out of 461). The results for industrial buildings were especially bad, with complete consumption data available for only 3 of 38 sample buildings, and most of the rest having no consumption data at all. Because end-use patterns for steam in industrial buildings are different from the patterns in commercial buildings, EIA felt that steam consumption for industrial buildings could not be imputed. Therefore, industrial buildings were excluded from the imputation procedures.

Because of the large proportion of cases with missing data and because the buildings without data were smaller than the ones with data, regression procedures to impute for totally missing steam consumption in commercial buildings did not yield adequate results (details of problems encountered are discussed in Reference 2). Instead, EIA took the input records for the final attempted steam regression and the records needing imputation and sorted them into four strata defined by the predicted consumption values. For each imputation record in a stratum, EIA selected a random input record from the same stratum and computed its actual steam consumption per square foot. That ratio was then multiplied by the square footage of the building associated with the imputation record to produce a consumption estimate for the imputation record. Stated algebraically, the consumption estimate Q for the imputation record is given by

$$Q = \frac{Q_i}{F_i} \cdot F_p,$$

where Q_i is the actual 1979 steam consumption for the input record, F_i is the square footage of the associated building, and F_p is the square footage of the building associated with the imputation record. After consumption was imputed, cost was imputed using separate unweighted linear regression of cost on consumption for records in two classes: consumption <30 million pounds and consumption $\geq$30 million pounds. The procedures used were exactly the same as those for electricity and natural gas. The cost-consumption regressions were well behaved and produced quite reasonable results.

Appendix B (Continued)

Imputations for partially missing steam data were carried out using the same procedures followed for electricity and natural gas. Because only a relatively few records had partially missing steam data (Table B1), the effect of these imputation procedures on total steam consumption was insignificant.

Table B1 also shows the response pattern for the two discrete delivery fuels for which imputations were performed, fuel oil or kerosene and LPG. There were many cases in which part of a year's data was available, but some deliveries were known to be missing, or data for one or more of several suppliers were missing, even though responding suppliers had reported all their 1979 deliveries. For purposes of imputation, these cases were treated as if no data were available. Thus no cases are shown in the middle columns of the table for these fuels.

Table B1. Number of Sample Buildings Supplied with Fuel Oil or Kerosene, LPG, and Steam, by Number of Days of 1979 Consumption Data Reported by All Fuel Suppliers for the Building

Fuel	Days of 1979 Consumption Data Reported			
	<30	30-329	330-364	365
Fuel Oil or Kerosene	491	a	a	1,002
LPG	92	a	a	337
Steam[b]	186	13	24	200

[a]Not applicable.
[b]Industrial sample buildings excluded.
Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

All missing consumption was imputed by an unweighted multiple linear regression procedure similar to that used for completely missing electricity and natural gas consumption. The set of potential prediction variables for fuel oil or kerosene and LPG is shown in Table B2. The final regressions were carried out in 20 building-type categories for fuel oil or kerosene and 11 categories for LPG. The number of input records in the regression categories ranged from 16 to 75 for fuel oil or kerosene and from 17 to 41 for LPG. R^2 values (which measure the proportion of the total sum of squares of the input records that is explained by the regression equations) ranged from 0.436 to 0.965 for fuel oil or kerosene and from 0.539 to 0.977 for LPG. Cost was then imputed from consumption using a single linear regression model. The final cost and consumption values for a record were the predicted values from the appropriate regression adjusted by a residual selected from the set of residuals for the records. However, if a record needing imputation had partial consumption data that were greater than the imputed value, the reported consumption and cost (if available) were used as the final consumption and cost for the record; that is, the partial data were treated as being essentially complete.

Table B2. Predictor Variables Used in Fuel Oil or Kerosene and LPG Consumption Regressions

1. End-use dummy variables--Yes/No for space heating, air conditioning, water heating, cooking, manufacturing, and electricity generation
2. Use of another fuel for heat
3. Year constructed
4. Square footage
5. Square footage, heated
6. Hours of operation
7. Number of employees
8. Percentage of glass on outside walls
9. Whether or not insulation added
10. Number of floors
11. Heating degree-days
12. Cooling degree-days
13. Tank capacity
14. Tank inventory
15. Weather zone (coded as a set of dummy variables)
16. Ability to control heat
17. Number of boilers

Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

Although consumption and cost imputations for fuel oil or kerosene and LPG were carried out for all sample buildings (as was the case for electricity and natural gas, but not steam), the statistics in this report pertain only to commercial buildings. Buildings that are totally or primarily industrial vary enormously in their fuel consumption and expenditures, so much so that national consumption and expenditures totals for industrial buildings are unpublished. National totals for all nonresidential buildings had sampling errors more than twice as large as the errors shown for all commercial buildings in this report, solely because of the variability inherent in industrial buildings. The commercial buildings population upon which this report is largely based includes buildings whose main activity or activities are commercial, but may also have one or more industrial activities occupying a minority of the floor space.

Comparison of Consumption Estimates with Data from Other Sources

Because no known energy consumption surveys of the U. S. building stock had been attempted before the NBECS, there are no other estimates of commercial consumption based on statistics collected for the point of consumption. However, the Energy Information Administration has published

other statistics on commercial consumption by fuel, in its Monthly Energy Review (MER), its Annual Report to Congress (ARC), and its State Energy Data Report (References 3-5). These data are based on utility sales and supply data. Although each of the three data systems uses different methods to generate its final estimate, the estimates are somewhat related. For example, the introduction to the State Energy Data Systems (SEDS) Report states that "a prime requisite in the development of the SEDS data series was that the summations of State data to national totals in SEDS equals as closely as possible the national totals for each energy type and end-use sector that appear in ... the Monthly Energy Review (MER),..., and Annual Report to Congress, Volume Two (ARC-2)."

Comparisons of NBECS consumption estimates for natural gas and electricity with values from these other sources are shown in Reference 1. Unfortunately, uniform comparisons with all these sources are not possible for fuel oil or kerosene, LPG, and purchased steam because of problems of definition and allocation of fuels to sectors. Steam consumption (or production, or sales) is not identified in any other source, and petroleum products are handled so differently by each of the other three sources that it is impossible to make any meaningful comparisons.

Computation of Sampling Errors

One component of total survey error that can be estimated is sampling error. However, the complex multistage, multiframe design of a survey such as the NBECS makes it almost impossible to construct an exact algebraic variance estimator. The method used to produce sampling variances for this survey is balanced half-sample replication (see References 6 and 7). To apply the half-sample technique to this survey, the 79 sample primary sampling units (PSU's) were grouped into 37 strata. Eighteen of the strata were self-representing; that is, they consisted of large metropolitan areas (each represented by one or more sample PSU's) that came into the sample with certainty. In these strata, segments were divided into two replication groups. Each of the remaining 19 strata consisted of two or more sample PSU's belonging to the same Census region. The two replication groups in these strata consisted of one or more PSU's each.

Variance estimates for survey statistics were created by computing 40 half-sample estimates for each statistic. Each half-sample estimate was formed by selecting one of the two replication groups from each stratum using an orthogonal matrix technique adapted from an article by Plackett and Burman (Reference 8). Then the sampling weights were adjusted so that the half-sample estimates would be essentially unbiased estimates of the corresponding population parameter, as was the estimate based on the entire national sample.

The variance estimate for the survey estimate X' of characteristic X is given by

$$S^2_{X'} = \frac{1}{40} \sum_{i=1}^{40} (X'_i - X')^2,$$

where X_i is the ith half-sample estimate of X. The standard error of X', the measure of variability used in the text, is given by

$$S_{X'} = S^2_{X'}.$$

The relative standard error (RSE) of X', the error form used in the error tables (Appendix C), is given by

$$RSE(X') = \frac{S_{X'}}{X'}.$$

Appendix B (Continued)

Use of Error Tables

Tables C1 through C10 show relative standard errors for each statistic presented in the detailed tables. Certain statistics have been suppressed from both the detailed tables and the error tables because of concerns about their sampling variability. They have been replaced by entries of "Q" in the appropriate table cells. Each estimate of consumption, expenditures, and average square footage per building whose relative standard error exceeded 50 percent was suppressed. In some cases, estimates with RSE's under 50 percent were also suppressed if the estimates would have stood out in rows of otherwise suppressed data, since the acceptability of the estimate may have been due to the instability of its RSE estimate. All estimates of number of buildings and aggregate square footage have been retained to give the reader some idea, however rough, of the size of each population subgroup.

There are two types of statistics presented in the text whose errors cannot be found in Tables C1 through C10: percentage statistics and statistics for collapsed population subgroups not found in the tables. The relative standard errors of percentage statistics $P' = X'/Y'$ were computed using the formula

$$RSE\ (P') = [RSE\ (X')]^2 - [RSE(Y')]^2.$$

For example, the last two sentences of the third paragraph under the heading "Fuel Oil" in the "Summary of Findings" state that 20 percent ($\pm$ 3) of the buildings supplied with fuel oil use it for water heating. The statistic is based on a numerator of 169,000 buildings and a denominator of 815,000 buildings (Table 6). From Table C6 the RSE's of these two estimates are 13.1 percent and 10.3 percent, respectively, so that the RSE of the ratio is estimated by

$$RSE\ (P') = (0.131)^2 - (0.103)^2 = 0.081.$$

The two standard error interval around the 20-percent estimate is of width (20) (0.081) (2) = 3 percent, the value given in parentheses following the statistic.

The relative standard error of an estimate for a collapsed population subgroup was approximated by the relative standard error of the same type of statistic with about the same value, for a population subgroup with a similar estimated number of buildings. For example, the first paragraph in the "Building Type" section of the "Summary of Findings" states that office buildings, retail sales and service buildings, and warehouse and storage buildings together consumed 43 percent ($\pm$ 3) of the total energy used in commercial buildings. These three building types comprise an estimated 1,679,000 buildings and an estimated 2.324 quadrillion Btu of consumption (Table 2). The population subgroup with the consumption estimate closest to this value is buildings for which weatherstripping or caulking has been added since 1974, with an estimated 2.297 quadrillion Btu consumed by 1,435,000 buildings. Since the number of buildings in this subgroup is reasonably close to the combined total for three building types, the estimated RSE of 0.075 for the consumption estimate (Table C2) is used as the RSE of the 2.324 value for the combined building types. Total commercial consumption, an estimated 5.457 quadrillion Btu, has an RSE of 0.064 (Tables 2 and C2); therefore, the RSE for the 43-percent estimate is given by

$$RSE\ (0.43) = (0.075)^2 - (0.064)^2 = 0.039,$$

and the two standard error interval around the estimate is of width (43) (0.039) (2) = 3 percent, the value given in parentheses.

Appendix B (Continued)

Using Error Estimates to Test Statistical Hypotheses

The analytical statements in this report can be divided into three types. The first type is the expository statement, which presents a statistic for its own sake, without reference or comparison to any other statistic. An example of such a statement is found in sentence 3 of the second paragraph in the "Summary of Findings." "Average consumption was 115,000 Btu per square foot (± 10,000) and 85 million Btu per employee (± 9)." No statistical tests of hypothesis are needed or were performed for such statements; twice the standard error is given in parentheses after the estimate. This value serves as a measure of the level of variability in the statistic and allows the reader to compute an approximate 95-percent confidence interval for the estimate by adding and subtracting the value in parentheses.

The second type of statement is the descriptive statement, which is intended as a summary statement of a data relationship or relationships that exist in a table. An example of this type of statement is found in the first sentence of the second to last paragraph in the "Fuel Oil" section of the "Summary of Findings": "Fuel oil buildings that had undertaken conservation measures usually had lower estimates of consumption per square foot than those that did not (although the differences were not significant)." Such statements are meant to give general impressions and are not subject to statistical justification.

The third, and most commonly occurring type of statement, is the stated or implied comparison between two or more statistics. Such comparisons are meant to point out specific similarities and differences between population subgroups, sometimes in support of the summary statements discussed earlier. Since these statements imply specific relationships among population subgroups based on sample data, they are inferential and subject to statistical testing. Examples of such comparisons are

1. The last sentence in the "Building Type" section: "The average price per million Btu varied widely by building type, ranging from \$5.02 (± \$0.54) for health care buildings to \$8.30 (± \$1.28) for office buildings."

2. The second sentence of the third paragraph in the "Location" section: "Average per building consumption and expenditures were about twice as high for buildings in the Northeast ... as in the South and West regions."

The test used to check this kind of statement is the standard normal deviate test. To test the significance of the difference between estimates X' and Y', X' and Y' are assumed to be normally distributed by appeal to the Central Limit Theorem. Then the test statistic

$$Z_{X',Y'} = \frac{X' - Y'}{S^2_{X'} + S^2_{Y'}}$$

is computed, with Z having approximately a standard normal distribution. The null hypothesis, that there is no difference between X' and Y', is rejected if $Z_{X',Y'}$ is greater than some critical value G. In this report, G is set so that the level of significance of the test (the probability of incorrectly detecting a significant difference) is 0.05. Ordinarily, this level of significance corresponds to a critical value of 1.96, and when a comparison is the only possible one of its type, 1.96 is the correct value. However, most of the statements in this report involve comparisons that were selected from a larger set of C possible comparisons, each of which had an opportunity to be tested and

falsely yield a significant difference. To attain a true level of significance no greater than 0.05 for a particular test from such a set, the critical value G was adjusted so that the probability of falsely detecting any significant difference was 0.05/G. The rationale for this adjustment is based on the Bonferroni inequality, which is discussed elsewhere (see References 9 and 10).

The normal test of a hypothesis with adjusted critical value can be applied to the examples as follows:

1. The range statement for price variability (for all five fuels combined) implies a significant difference between the two prices shown. The number of possible comparisons among the 12 building-type categories is the combinational $\binom{12}{2} = 66$, so the critical value for the test is the normal two-tailed 0.05/66 = 0.00076 critical value, which, from the normal tables, is 3.40.

   The test statistic for the comparison is

$$Z = \frac{\$8.30 - \$5.02}{(\$0.64)^2 + (\$0.27)^2} = \frac{3.28}{0.70} = 4.69.$$

   The Z value exceeds the critical value of 3.40, so the difference is significant and the statement is justified.

2. The pertinent parameter and error estimates came from Tables 2 and C2, and are summarized below:

	Consumption per Building (Million Btu)		Expenditures per Building (Thousand Dollars)	
Region	Estimate	Standard Error	Estimate	Standard Error
Northeast	2,039	285	15.4	1.8
South	1,058	105	7.7	0.5
West	1,044	129	6.8	1.3

Source: Energy Information Administration, 1979 Nonresidential Buildings Energy Consumption Survey.

The total number of possible regional comparisons for each of the two statistics is the combinational $\binom{4}{2} = 6$, so the total number of possible comparisons is 12. The critical value for all tests is, therefore, the normal two-tailed 0.05/12 = 0.42 critical value, which, from the normal tables, is 2.865.

Appendix B (Continued)

Four different comparisons are being made: Northeast versus South and West for average consumption and average expenditures. The test statistics for these comparisons are

$$Z_1 = \frac{2{,}039 - 1{,}058}{(285)^2 + (105)^2} = \frac{918}{304} = 3.23$$

$$Z_2 = \frac{2{,}039 - 1{,}044}{(285)^2 + (129)^2} = \frac{995}{312} = 3.19$$

$$Z_3 = \frac{15.4 - 7.7}{(1.8)^2 + (0.5)^2} = \frac{7.7}{1.9} = 4.05$$

$$Z_4 = \frac{15.4 - 6.8}{(1.8)^2 + (1.3)^2} = \frac{8.6}{2.2} = 3.91$$

All four Z values exceed the critical value of 2.865, so the differences are significant and the statement is justified.

References

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Appendix C

Relative Standard Error Tables

571 MILLION Btu (± 273)

Appendix C

Table C1. Total Square Footage for Commercial Buildings, as of January 1, 1980—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
COMMERCIAL BUILDINGS.....	5.3	4.0	4.6	6.0	9.3	5.4	7.3	7.9	9.1	7.6
END USE BY FUEL TYPE										
HEATING FUEL USED.....	5.3	3.6	3.9	6.0	9.8	5.7	6.8	7.8	9.0	7.6
NATURAL GAS.....	8.7	4.6	4.0	8.6	11.5	9.1	11.4	12.4	13.3	8.8
ELECTRICITY.....	13.0	6.7	9.5	12.1	12.1	16.9	21.0	19.6	10.2	12.2
FUEL OIL/KEROSENE.....	10.3	6.2	6.8	9.4	15.9	11.9	11.9	13.4	18.9	10.3
LIQUID PETROLEUM GAS.....	15.7	17.5	42.8	13.6	29.6	18.7	27.9	32.0	30.2	34.5
WOOD.....	23.8	31.4	44.0	27.7	30.8	26.0	Q	Q	Q	Q
STEAM.....	22.0	14.2	12.8	19.4	Q	Q	44.2	29.0	30.1	20.2
COAL.....	24.0	25.1	32.1	22.9	Q	29.5	Q	46.3	49.5	28.1
OTHER.....	43.2	65.7	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	12.7	12.9	18.7	13.3	19.2	18.6	31.0	25.4	29.7	29.1
AIR CONDITIONING FUEL USED..	7.1	4.6	4.0	6.9	12.6	7.5	9.5	9.0	11.2	7.8
ELECTRICITY.....	7.4	4.8	4.3	7.1	12.5	7.7	10.6	9.4	11.3	8.2
NATURAL GAS.....	9.3	14.3	23.2	11.9	49.2	16.7	28.0	17.6	21.9	18.9
OTHER.....	17.7	16.3	44.5	9.4	Q	33.6	Q	Q	47.5	8.8
NO AIR CONDITIONING FUEL....	9.1	5.4	6.4	10.4	11.3	9.9	10.9	18.8	16.8	14.1
WATER-HEATING FUEL USED.....	5.8	3.5	2.9	6.4	9.9	6.4	7.0	8.4	9.0	7.9
NATURAL GAS.....	8.0	4.6	5.1	8.2	18.3	7.7	11.8	12.4	12.6	9.3
ELECTRICITY.....	7.9	4.9	3.6	8.7	10.4	11.1	7.2	9.6	10.9	13.1
FUEL OIL/KEROSENE.....	13.1	12.0	22.6	11.3	44.9	19.2	19.3	22.6	27.9	13.3
OTHER.....	16.5	20.0	28.7	16.2	31.9	26.7	40.0	30.5	18.8	20.0
NO WATER-HEATING FUEL.....	6.5	5.7	9.0	7.1	11.1	9.3	12.2	17.1	15.7	15.0
MANUFACTURING FUEL USED.....	11.2	7.4	7.2	11.0	30.2	14.3	27.7	23.7	23.7	13.1
ELECTRICITY.....	13.3	7.8	7.7	12.9	31.9	13.6	31.5	27.0	25.5	15.9
NATURAL GAS.....	11.1	14.7	Q	14.7	Q	19.1	48.9	41.5	37.5	18.0
OTHER.....	24.1	27.7	Q	18.4	Q	47.5	Q	35.0	39.1	21.9
NO MANUFACTURING DONE.....	5.5	4.3	5.0	6.2	9.1	6.3	7.3	8.2	9.3	8.2
COOKING FUEL USED.....	7.5	5.1	4.7	8.6	16.2	8.8	10.0	10.7	10.4	10.6
ELECTRICITY.....	9.8	6.2	4.7	10.1	20.1	11.0	16.0	13.0	14.4	12.0
NATURAL GAS.....	8.3	8.1	10.5	10.7	17.5	10.1	13.8	14.1	14.2	13.6
LIQUID PETROLEUM GAS.....	19.8	12.4	27.2	15.8	31.0	20.4	40.1	32.8	38.7	18.3
OTHER.....	28.6	68.0	Q	26.2	Q	45.7	Q	43.2	Q	30.0
NO COOKING FUEL.....	5.3	3.5	4.8	5.1	10.4	5.7	8.2	7.6	10.4	8.1
CENSUS REGION										
NORTHEAST.....	12.5	8.0	9.4	9.3	37.8	16.4	14.9	11.9	17.3	9.0
NORTH CENTRAL.....	10.3	8.8	6.0	9.6	19.8	10.2	10.4	14.3	16.0	13.2
SOUTH.....	9.8	6.7	9.7	11.8	14.1	10.2	16.9	15.5	17.9	13.9
WEST.....	11.8	9.2	6.5	13.1	18.9	14.7	6.6	20.6	22.3	15.3

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
SMSA/NONSMSA										
SMSA	7.8	5.5	4.1	6.8	10.2	7.9	9.9	8.9	10.6	7.8
NONSMSA	7.3	6.4	6.0	10.6	14.0	7.5	9.5	16.2	17.1	17.2
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD	37.3	16.6	10.3	35.3	Q	38.6	33.3	38.8	48.4	36.3
<2,000 CDD AND 5,500 TO 7,000 HDD	13.2	9.3	6.3	10.1	26.2	13.4	14.5	11.7	15.1	12.5
<2,000 CDD AND 4,000 TO 5,499 HDD	25.5	12.4	13.6	18.3	29.8	29.1	29.8	25.0	22.6	13.7
<2,000 CDD AND <4,000 HDD	31.3	19.4	11.2	26.6	35.8	30.4	31.1	27.7	29.0	26.7
>2,000 CDD AND <4,000 HDD	45.6	17.0	15.3	37.3	Q	47.3	Q	41.1	26.3	36.7
BUILDING TYPE										
ASSEMBLY	12.8	6.9	12.4	12.4	31.0	15.2	17.8	25.9	19.3	15.9
AUTOMOTIVE SALES & SERVICE	9.7	10.8	21.1	13.1	17.8	12.7	33.3	28.1	49.5	49.5
EDUCATION	14.2	11.9	30.4	10.1	40.0	39.2	44.0	24.3	16.7	12.3
FOOD SALES	7.4	6.4	5.1	8.6	15.3	8.9	17.6	19.3	24.5	34.5
HEALTH CARE	16.5	16.6	37.1	11.0	33.5	44.6	41.3	39.8	36.2	11.7
LODGING	13.4	15.8	18.9	12.8	41.5	22.8	14.7	31.4	23.9	18.9
OFFICE	6.1	6.4	8.0	7.0	16.4	9.2	9.3	13.5	14.4	10.6
RESIDENTIAL	9.4	7.0	8.7	12.0	27.4	10.9	19.1	19.3	42.2	20.9
RETAIL/SERVICES	8.8	6.8	4.8	11.6	13.9	13.1	13.6	11.5	17.4	18.3
WAREHOUSE AND STORAGE	8.0	6.9	15.3	7.9	24.7	14.5	23.2	20.8	15.9	12.6
OTHER	11.4	7.0	10.2	11.5	20.2	18.2	22.2	20.4	33.7	12.6
VACANT	14.2	12.8	16.4	18.6	19.3	20.7	37.8	36.0	23.5	31.6
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	9.5	2.9	3.9	9.3	9.3	-	-	-	-	-
1,001 TO 5,000	5.7	1.4	3.1	5.4	-	5.4	-	-	-	-
5,001 TO 10,000	7.4	1.6	2.6	7.3	-	-	7.3	-	-	-
10,001 TO 25,000	8.5	1.4	2.2	7.9	-	-	-	7.9	-	-
25,001 TO 50,000	8.9	1.3	1.9	9.1	-	-	-	-	9.1	-
OVER 50,000	8.3	4.0	4.9	7.6	-	-	-	-	-	7.6
NUMBER OF FLOORS										
ONE FLOOR	6.3	4.9	5.4	6.3	9.9	7.4	9.3	10.8	13.2	11.2
TWO FLOORS	8.7	7.1	7.9	9.1	29.6	11.0	14.4	13.4	14.8	13.7
THREE FLOORS	12.3	6.8	10.8	8.7	Q	19.5	19.6	10.9	16.8	9.3
MORE THAN THREE	9.0	7.7	9.3	7.7	39.7	22.0	21.3	13.7	17.2	8.3

SEE NOTES AT END OF TABLE

Table C1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
YEAR CONSTRUCTED										
1900 OR BEFORE	14.5	8.2	8.7	11.2	43.8	16.0	22.7	14.5	23.1	15.8
1901 TO 1920	10.1	6.4	8.2	10.7	29.9	12.4	16.5	21.3	15.1	14.9
1921 TO 1945	7.5	9.8	11.1	10.9	17.2	8.5	15.3	12.9	16.1	18.8
1946 TO 1960	7.5	5.3	7.1	8.7	13.9	7.4	15.5	12.2	15.2	12.0
1961 TO 1970	7.2	6.7	9.2	7.9	17.1	12.7	10.3	11.6	16.9	10.8
1971 TO 1973	7.8	11.1	15.8	12.2	29.0	15.8	19.9	20.2	14.5	18.8
1974 TO 1979	8.7	8.2	11.6	8.2	22.1	11.7	20.8	15.1	13.7	14.2
FUEL COMBINATIONS USED										
NO FUEL USED	25.9	21.0	36.9	17.0	41.9	32.2	Q	Q	Q	Q
ONE FUEL USED	18.1	8.3	11.3	13.5	14.4	24.3	33.1	25.7	12.9	12.1
ELECTRICITY	17.8	8.1	11.9	13.5	14.3	24.2	32.7	26.0	12.9	12.1
OTHER	91.9	31.7	38.2	Q	Q	Q	Q	Q	Q	Q
TWO FUELS USED	6.9	3.9	4.1	7.4	13.1	7.0	8.0	10.0	10.4	9.2
ELEC., NATURAL GAS	8.7	4.7	4.2	9.4	11.9	8.8	11.3	12.7	13.1	10.9
ELEC., FUEL OIL/KEROSENE	12.4	5.2	7.0	13.3	18.9	13.9	15.6	17.5	25.5	20.1
ELEC., LPG	14.7	19.1	34.0	20.8	28.7	15.0	29.3	28.9	Q	Q
OTHER	17.3	21.8	31.6	18.1	37.6	24.6	Q	25.9	37.9	24.1
THREE FUELS USED	8.3	8.8	13.2	9.6	28.7	13.9	14.7	12.5	16.2	12.3
ELEC., GAS, FUEL OIL/ KEROSENE	11.1	8.6	9.3	9.7	Q	19.6	18.9	13.9	19.5	11.9
ELEC., FUEL OIL/KEROSENE, LPG	29.8	20.3	13.8	16.8	Q	27.0	44.8	33.6	39.1	19.7
ELEC., GAS, OTHER	15.4	24.3	42.2	21.9	Q	31.0	35.8	35.9	37.8	25.0
ELEC., FUEL OIL/KEROSENE, OTHER	37.5	46.4	Q	37.5	Q	43.3	Q	Q	Q	35.9
OTHER	26.7	40.2	Q	26.5	Q	36.3	Q	Q	40.6	33.2
FOUR OR MORE FUELS USED	24.2	25.1	45.2	18.7	Q	43.4	38.1	41.2	Q	18.7
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	5.5	3.9	4.2	6.1	9.3	5.7	6.9	7.9	9.1	7.7
NATURAL GAS	7.7	5.0	4.2	7.5	11.2	7.5	10.4	11.0	11.7	8.7
FUEL OIL/KEROSENE	10.3	5.7	7.2	8.8	16.4	11.5	12.1	12.8	16.9	9.2
LIQUID PETROLEUM GAS	13.9	11.5	20.9	15.0	25.4	15.3	23.8	22.7	23.2	19.4
WOOD	20.5	27.6	46.4	21.5	30.0	26.7	Q	38.9	Q	Q
COAL	22.9	22.3	26.8	22.9	Q	28.4	Q	44.9	49.5	26.9
STEAM	20.8	15.3	17.7	19.4	Q	Q	40.0	27.0	29.9	20.5
OTHER	25.2	19.7	Q	21.6	Q	Q	35.0	36.1	Q	17.8
NONE	25.9	21.0	36.9	17.0	41.9	32.2	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Table C1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	7.1	5.4	4.8	7.4	15.3	8.8	10.7	14.5	10.7	13.9
RADIANT	13.5	18.9	46.4	15.8	23.9	18.6	17.2	32.0	43.0	33.6
COMBINATION/OTHER	9.0	9.7	8.9	11.1	13.4	15.6	23.8	20.5	24.0	22.5
CENTRAL SYSTEM										
FORCED-AIR	7.1	5.4	8.2	6.0	15.9	9.8	10.0	8.8	15.5	10.3
RADIANT	9.8	6.6	9.2	10.4	27.8	8.1	16.2	15.2	15.9	14.0
COMBINATION/OTHER	10.1	8.0	16.4	8.1	45.4	19.6	18.7	20.7	29.3	9.8
COMBINATION/OTHER										
FORCED-AIR	14.3	16.3	18.2	21.7	40.0	17.6	32.9	38.0	38.0	30.6
RADIANT	19.1	19.5	30.9	24.7	29.5	40.5	Q	40.8	45.5	48.5
COMBINATION/OTHER	13.4	10.2	14.7	13.4	36.5	30.8	25.1	26.8	20.4	14.9
NONE	12.8	13.0	18.8	13.3	19.2	18.7	31.0	25.4	29.7	29.4
PERCENT OF BUILDING HEATED										
1 TO 25	8.6	7.1	12.8	9.4	36.4	18.7	16.9	18.9	21.0	13.2
26 TO 50	11.1	9.2	7.6	10.9	25.8	14.5	17.4	17.4	38.1	25.0
51 TO 75	10.6	11.3	7.6	10.3	30.8	12.3	12.8	19.9	18.1	21.7
76 TO 99	12.7	12.9	8.8	11.3	46.4	11.1	28.7	24.8	17.5	16.4
100	6.1	4.2	5.5	7.0	10.0	7.3	8.9	9.8	11.0	8.1
NONE	12.8	13.0	18.8	13.3	19.2	18.7	31.0	25.4	29.7	29.4
PERCENT OF BUILDING COOLED										
1 TO 25	7.0	5.1	8.8	7.1	28.1	9.5	15.8	12.2	16.8	8.6
26 TO 50	9.4	5.4	5.1	9.6	22.1	12.0	14.5	18.6	16.8	16.2
51 TO 75	9.7	12.1	9.8	7.1	26.1	13.6	15.1	17.5	18.6	13.3
76 TO 99	13.4	14.1	15.0	10.3	Q	15.2	29.2	19.9	20.0	13.4
100	12.7	8.5	6.3	11.2	15.0	16.0	14.3	18.2	15.5	11.5
NONE	9.1	5.5	6.4	10.4	11.3	9.9	10.9	18.8	16.8	14.1
AIR CONDITIONING SYSTEM										
WINDOW UNITS	8.2	7.8	9.1	10.9	20.5	7.4	12.6	14.0	25.3	17.6
PACKAGE UNITS	12.9	6.5	8.8	9.3	17.0	17.8	19.2	13.1	11.8	11.4
CENTRAL SYSTEM	7.2	7.4	8.0	8.3	15.8	9.8	13.2	12.8	16.6	10.6
COMBINATION/OTHER	10.3	12.7	22.5	9.5	47.5	19.2	16.9	17.3	19.2	12.7
NO AIR CONDITIONING	9.1	5.5	6.4	10.4	11.3	9.9	10.9	18.8	16.8	14.1

SEE NOTES AT END OF TABLE

Table C1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	7.1	4.8	5.6	7.3	14.2	6.0	10.1	10.8	9.9	8.7
OWNER OR AGENT IS NOT OCCUPANT	7.4	6.0	7.3	8.1	10.8	10.5	12.6	16.4	14.6	12.8
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	8.3	11.1	10.3	12.3	27.3	17.3	13.1	12.8	17.8	20.5
OWNER OR AGENT IS NOT OCCUPANT	13.6	9.6	11.9	11.0	49.1	20.7	20.6	20.4	20.1	11.5
GOVERNMENT-OWNED AND OCCUPIED	13.2	9.3	16.3	10.3	32.2	22.0	22.3	22.7	24.9	10.0
NOT REPORTED	20.6	29.6	30.2	18.3	Q	29.8	37.7	Q	34.9	34.3
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	5.8	4.2	5.4	7.2	9.9	6.3	7.4	13.4	12.7	21.4
10 TO 19	12.0	8.0	10.9	10.0	Q	17.1	17.1	12.8	20.7	18.7
20 TO 49	9.0	6.1	5.6	8.1	Q	21.0	14.4	13.7	13.8	13.2
50 TO 99	11.6	8.0	11.0	9.2	Q	34.4	27.5	23.9	17.4	9.3
100 OR MORE	11.5	11.3	18.2	9.5	Q	Q	Q	26.7	19.4	10.0
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	17.1	12.7	15.5	17.8	23.9	22.6	39.5	28.4	27.8	31.6
39 OR FEWER HOURS	9.2	9.2	18.8	14.8	16.0	9.9	16.7	35.2	26.9	27.7
40 TO 48 HOURS	6.7	5.9	5.3	8.8	11.8	8.6	10.2	13.7	11.8	13.1
49 TO 60 HOURS	8.2	4.3	3.9	8.6	19.3	10.4	11.1	12.3	11.9	11.3
61 TO 84 HOURS	6.5	8.8	12.0	9.9	21.6	8.8	14.7	15.3	17.5	13.9
MORE THAN 84 HOURS	7.6	6.3	8.9	6.2	15.7	8.2	11.3	13.6	14.0	6.9
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	5.8	4.3	4.6	7.0	9.4	6.2	10.0	10.4	11.3	9.5
NO	6.1	4.4	4.8	6.5	11.2	6.6	9.0	7.5	11.2	8.2
DON'T KNOW/NOT REPORTED	9.4	9.3	11.3	13.7	19.7	14.1	23.0	24.9	36.1	18.2

SEE NOTES AT END OF TABLE

Table C1. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	MEDIAN SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL SQUARE FOOTAGE BY BUILDING SQUARE FOOTAGE CATEGORIES (MILLION SQUARE FEET)						
				TOTAL	1,000 OR LESS	1,001 TO 5,000	5,001 TO 10,000	10,001 TO 25,000	25,001 TO 50,000	OVER 50,000
INSULATION ADDED										
YES	6.4	4.9	4.2	8.3	11.7	9.1	9.9	12.4	13.6	10.7
NO	5.7	4.8	5.6	6.2	11.2	6.5	7.0	8.6	9.9	8.6
DON'T KNOW/NOT REPORTED	10.6	11.8	10.6	12.2	25.3	12.3	26.6	19.0	31.0	21.4
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	6.5	5.6	4.6	8.5	14.0	10.3	9.9	11.2	17.2	12.1
NO	5.7	4.5	5.1	6.2	11.1	6.0	6.6	8.6	9.6	8.0
DON'T KNOW/NOT REPORTED	9.2	10.8	9.7	12.0	32.6	11.4	26.9	22.6	30.5	20.2
REDUCED HEATING										
YES	5.7	3.8	4.4	6.2	10.1	6.4	8.2	9.9	8.6	7.6
NO	7.6	6.7	7.6	8.9	19.9	10.4	11.6	11.7	16.3	12.6
NOT REPORTED/ NOT APPLICABLE	12.4	11.9	22.6	14.0	18.0	18.7	28.4	20.6	24.1	27.6
REDUCED COOLING										
YES	7.8	5.1	6.1	7.4	14.8	9.2	11.1	11.2	10.3	8.3
NO	13.1	8.8	8.0	11.7	41.2	20.7	26.4	16.5	15.8	15.6
NOT REPORTED/ NOT APPLICABLE	6.7	4.6	6.3	8.0	10.8	7.3	9.0	11.4	13.0	11.8
REDUCED HEATING OR REDUCED COOLING										
YES	5.7	3.8	4.1	6.1	10.1	6.3	8.0	9.3	8.9	7.5
NO	8.6	7.3	9.0	11.0	20.6	11.6	13.4	14.6	14.9	16.9
NOT REPORTED	22.5	27.7	Q	22.2	44.6	42.1	39.0	38.8	47.0	28.1
NOT APPLICABLE	11.9	15.0	17.9	14.8	18.8	19.0	32.3	31.2	30.5	34.1

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C2. Consumption and Expenditures for Major Fuels (Natural Gas, Electricity, Fuel Oil or Kerosene, LPG, and Steam) in Commercial Buildings Supplied with One or More of These Fuels, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	5.5	6.1	4.0	6.4	5.9	4.5	5.2	6.3	4.9	4.5
END USE BY FUEL TYPE										
HEATING FUEL USED.....	5.3	6.0	3.6	6.5	5.5	4.4	5.3	6.2	4.9	4.4
NATURAL GAS.....	8.7	8.6	4.6	8.9	8.9	6.9	7.1	7.9	7.2	3.8
ELECTRICITY.....	13.0	12.1	6.7	14.8	11.3	9.1	8.2	15.2	6.7	7.9
FUEL OIL/KEROSENE.....	10.3	9.4	6.2	11.2	13.1	10.8	11.9	10.2	11.2	9.9
LIQUID PETROLEUM GAS.....	15.7	13.6	17.5	19.9	23.9	12.0	14.1	18.3	20.1	5.5
WOOD.....	24.0	28.1	31.3	31.4	42.5	24.8	26.2	47.5	Q	14.8
STEAM.....	22.0	19.4	14.2	15.0	18.7	13.6	13.4	15.7	18.4	4.0
COAL.....	23.2	22.6	27.2	Q	Q	Q	38.6	41.2	49.6	35.9
OTHER.....	43.2	33.8	Q	44.8	Q	30.2	37.8	42.6	48.9	13.7
NO HEATING FUEL USED.....	16.6	15.6	14.6	27.2	22.1	28.0	21.3	27.7	17.2	12.3
AIR CONDITIONING FUEL USED..	7.1	6.9	4.6	7.6	7.3	5.1	6.0	7.3	4.7	5.0
ELECTRICITY.....	7.4	7.1	4.8	7.6	7.8	5.6	6.6	7.1	5.1	5.3
NATURAL GAS.....	9.3	11.9	14.3	26.9	28.2	23.8	21.8	19.4	19.7	15.3
OTHER.....	17.7	9.4	16.3	13.1	20.6	10.2	12.0	14.2	22.4	6.1
NO AIR CONDITIONING FUEL....	9.1	10.5	5.8	9.1	5.3	7.4	7.0	8.6	6.3	4.8
WATER-HEATING FUEL USED.....	5.8	6.4	3.5	7.5	5.8	4.9	5.1	7.1	5.1	4.4
NATURAL GAS.....	8.0	8.2	4.6	10.0	8.2	6.8	7.4	9.1	7.8	3.8
ELECTRICITY.....	7.9	8.7	4.9	10.2	7.1	6.3	8.0	10.0	6.5	6.8
FUEL OIL/KEROSENE.....	13.1	11.3	12.0	11.7	13.1	9.0	13.5	17.6	14.8	12.3
OTHER.....	16.5	16.2	20.0	18.3	22.7	14.4	16.3	18.2	22.2	4.7
NO WATER-HEATING FUEL.....	6.8	7.5	5.8	12.1	13.0	11.7	14.7	13.5	12.8	9.0
MANUFACTURING FUEL USED.....	11.2	11.0	7.4	19.5	19.9	19.6	16.7	13.0	13.8	9.2
ELECTRICITY.....	13.3	12.9	7.8	23.5	22.6	22.3	19.4	15.6	15.5	11.0
NATURAL GAS.....	11.1	14.7	14.7	32.4	30.8	32.9	29.7	24.7	23.0	14.4
OTHER.....	24.1	18.4	27.7	40.3	Q	37.3	29.2	30.5	40.5	20.8
NO MANUFACTURING DONE.....	5.7	6.2	4.2	5.8	5.3	3.6	4.5	6.9	5.4	4.2
COOKING FUEL USED.....	7.5	8.6	5.1	11.1	10.0	7.8	7.2	10.2	8.2	4.5
ELECTRICITY.....	9.8	10.1	6.2	12.0	11.1	7.8	7.8	11.6	9.8	5.8
NATURAL GAS.....	8.3	10.7	8.1	13.1	13.3	10.0	9.9	11.5	12.0	5.3
LIQUID PETROLEUM GAS.....	19.8	15.8	12.4	20.9	19.8	20.3	13.4	23.9	20.2	7.2
OTHER.....	28.6	26.2	Q	Q	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	5.3	5.1	3.5	6.4	6.6	5.2	9.1	7.3	6.7	6.9

SEE NOTES AT END OF TABLE

Table C2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
CENSUS REGION										
NORTHEAST	12.7	9.4	8.3	12.9	14.0	12.2	11.6	10.3	11.6	9.2
NORTH CENTRAL	10.0	9.6	8.5	9.3	12.1	6.9	6.8	8.6	11.1	5.2
SOUTH	10.6	12.0	6.2	11.3	9.9	8.0	11.1	10.9	6.6	10.6
WEST	11.2	13.0	9.3	13.1	12.4	12.0	11.4	16.1	18.6	7.0
SMSA/NONSMSA										
SMSA	7.7	6.8	5.3	8.0	7.3	5.1	5.6	7.3	5.9	4.4
NONSMSA	8.1	10.7	6.4	9.3	11.1	9.0	12.4	9.2	8.6	11.7
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD	37.9	35.4	17.1	37.9	18.2	6.5	9.8	40.4	20.2	7.2
<2,000 CDD AND 5,500 TO 7,000 HDD	13.1	10.1	9.1	13.2	11.3	6.9	6.4	12.2	11.6	4.1
<2,000 CDD AND 4,000 TO 5,499 HDD	25.7	18.3	12.4	19.3	17.1	13.1	10.7	17.1	17.4	9.7
<2,000 CDD AND <4,000 HDD	30.9	26.5	18.4	31.4	10.2	11.6	18.1	30.8	11.8	5.3
>2,000 CDD AND <4,000 HDD	44.4	37.0	15.9	29.5	24.1	9.5	14.9	37.1	12.7	12.3
BUILDING TYPE										
ASSEMBLY	12.5	12.4	6.6	12.6	15.6	11.9	13.4	12.2	20.7	11.1
AUTOMOTIVE SALES & SERVICE	9.4	13.1	11.0	13.8	12.5	12.9	11.4	12.5	12.6	7.1
EDUCATION	14.2	10.1	11.9	10.5	11.6	6.5	5.7	10.3	11.1	3.5
FOOD SALES	7.4	8.6	6.4	8.7	6.8	6.1	6.9	11.1	8.9	9.2
HEALTH CARE	16.5	11.0	16.6	15.0	17.6	10.9	10.0	13.3	15.6	5.4
LODGING	13.4	12.8	15.8	13.5	16.5	11.2	15.9	16.7	18.1	6.7
OFFICE	6.1	7.0	6.4	8.0	7.1	7.0	9.4	12.0	10.1	7.7
RESIDENTIAL	9.4	12.0	7.0	14.5	11.0	9.0	10.8	13.4	9.8	4.6
RETAIL/SERVICES	8.8	11.6	6.8	11.7	10.3	8.9	7.6	14.9	10.9	6.1
WAREHOUSE AND STORAGE	8.2	8.0	7.1	16.8	19.0	16.4	15.4	8.8	10.3	10.9
OTHER	11.9	11.5	7.0	29.7	34.3	34.5	28.9	17.9	20.7	20.6
VACANT	15.3	22.8	15.4	29.4	29.9	30.0	39.0	18.4	21.8	25.5
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	9.9	9.1	3.4	25.2	26.6	26.7	24.9	12.5	10.5	25.7
1,001 TO 5,000	6.0	5.7	1.5	6.8	5.3	5.0	8.4	9.4	6.5	8.0
5,001 TO 10,000	7.2	7.0	1.6	9.3	8.8	8.6	11.6	8.5	6.2	7.5
10,001 TO 25,000	8.5	7.9	1.4	21.0	20.2	20.3	20.4	13.6	12.5	13.0
25,001 TO 50,000	8.8	9.1	1.3	12.3	8.0	8.0	6.9	18.1	16.3	10.1
OVER 50,000	8.4	7.7	4.1	7.3	6.3	4.7	5.5	7.8	7.7	3.1

SEE NOTES AT END OF TABLE

Table C2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF FLOORS										
ONE FLOOR	6.7	6.5	4.7	6.5	4.9	4.9	6.9	8.3	4.4	5.8
TWO FLOORS	8.6	9.0	7.0	7.2	6.2	5.4	5.0	8.7	10.1	5.9
THREE FLOORS	12.4	8.7	6.9	6.9	10.8	6.1	8.9	7.6	12.3	4.4
MORE THAN THREE	9.0	7.7	7.6	12.4	14.0	11.7	10.3	6.3	8.7	9.4
YEAR CONSTRUCTED										
1900 OR BEFORE	14.6	11.4	8.0	17.4	14.4	13.7	20.3	33.6	33.2	21.5
1901 TO 1920	10.1	10.7	6.5	13.1	9.4	7.1	10.0	13.1	11.0	6.7
1921 TO 1945	7.6	10.9	9.8	18.0	21.6	18.3	18.9	11.8	14.3	10.5
1946 TO 1960	8.3	8.9	5.7	7.4	6.3	6.5	6.8	8.9	8.1	6.6
1961 TO 1970	7.1	8.0	6.4	10.4	8.6	6.2	6.5	9.5	7.0	4.0
1971 TO 1973	8.0	12.2	11.3	15.3	13.5	9.7	14.1	12.0	10.2	6.0
1974 TO 1979	9.1	8.2	8.2	10.9	9.7	7.8	8.3	13.8	9.9	6.6
FUEL COMBINATIONS USED										
ONE FUEL USED	18.1	13.5	8.3	21.1	9.6	11.3	10.3	24.5	9.0	6.0
TWO FUELS USED	6.9	7.4	3.9	7.2	6.2	4.5	5.1	7.2	6.6	3.3
ELEC., NATURAL GAS	8.7	9.4	4.7	7.9	7.3	5.6	5.1	8.4	7.0	3.7
ELEC., FUEL OIL/KEROSENE	12.4	13.3	5.2	14.0	10.7	9.5	12.2	13.6	10.3	3.3
ELEC., LPG	14.7	20.8	19.1	20.3	22.1	15.4	18.4	23.5	24.4	9.9
OTHER	17.2	18.2	21.5	29.3	37.3	28.2	30.5	27.1	35.0	6.0
THREE FUELS USED	8.3	9.6	8.8	11.3	13.8	9.9	11.2	7.8	9.7	8.7
ELEC., GAS, FUEL OIL/ KEROSENE	11.1	9.7	8.6	13.7	17.2	13.6	15.4	11.2	11.3	12.9
ELEC., FUEL OIL/KEROSENE, OTHER	26.5	14.4	16.7	24.3	15.6	14.4	15.0	30.0	12.2	10.8
ELEC., GAS, OTHER	15.4	21.9	24.3	17.6	19.0	9.3	9.7	21.1	22.6	6.9
OTHER	26.7	26.5	40.2	33.4	Q	24.6	32.4	33.1	Q	6.9
FOUR OR MORE FUELS USED	24.2	18.7	25.1	25.5	29.5	18.5	15.1	27.0	26.5	14.1
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	5.5	6.1	3.9	6.3	5.9	4.5	5.2	6.3	5.0	4.5
NATURAL GAS	7.7	7.5	5.0	7.7	7.7	5.2	5.6	6.8	6.7	4.3
FUEL OIL/KEROSENE	10.3	8.8	5.7	9.9	11.2	9.1	9.6	8.3	9.1	8.1
LIQUID PETROLEUM GAS	13.9	15.0	11.5	12.7	15.6	15.7	15.9	12.0	12.9	8.4
WOOD	20.5	21.8	27.5	24.5	34.8	20.3	23.0	37.1	46.4	13.9
COAL	22.3	22.7	23.6	Q	Q	Q	35.8	38.5	49.3	31.7
STEAM	20.8	19.4	15.3	14.6	18.7	13.2	13.2	15.4	18.7	4.0
OTHER	25.2	21.6	19.7	34.8	27.7	19.0	32.3	38.7	30.2	8.1

SEE NOTES AT END OF TABLE

Table C2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	7.1	7.4	5.4	9.7	8.8	7.0	9.7	9.6	6.3	8.1
RADIANT	13.5	15.8	18.9	19.8	21.5	12.6	15.0	19.2	21.1	4.4
COMBINATION/OTHER	8.7	11.2	9.6	13.6	13.1	12.6	11.5	13.8	13.4	10.0
CENTRAL SYSTEM										
FORCED-AIR	7.1	6.0	5.4	6.8	7.9	6.7	7.4	7.7	8.9	4.3
RADIANT	9.8	10.4	6.6	13.7	14.5	14.0	16.2	9.7	11.1	10.5
COMBINATION/OTHER	10.1	8.1	8.0	9.8	8.5	5.5	6.0	8.8	9.2	3.9
COMBINATION/OTHER										
FORCED-AIR	14.3	21.7	16.3	40.8	38.4	29.6	35.9	30.7	24.9	24.3
RADIANT	19.1	24.7	19.5	Q	Q	Q	Q	Q	Q	Q
COMBINATION/OTHER	13.4	13.4	10.2	12.0	9.5	9.2	9.7	10.7	10.2	4.4
NONE	16.9	15.7	14.8	27.7	22.2	28.3	21.6	28.2	17.3	12.4
PERCENT OF BUILDING HEATED										
1 TO 25	8.6	9.4	7.1	17.3	17.7	18.5	22.9	11.5	10.3	13.9
26 TO 50	11.1	10.9	9.2	34.0	39.3	35.1	35.1	15.9	20.2	22.1
51 TO 75	10.6	10.3	11.3	12.1	15.1	8.5	11.0	11.5	18.4	9.0
76 TO 99	12.9	11.3	13.0	14.8	17.2	7.4	9.8	15.8	17.7	7.1
100	6.1	7.0	4.2	7.3	5.8	5.2	5.7	7.8	5.8	5.0
NONE	16.9	15.7	14.8	27.7	22.2	28.3	21.6	28.2	17.3	12.4
PERCENT OF BUILDING COOLED										
1 TO 25	7.0	7.1	5.1	14.9	15.2	14.7	14.9	10.6	9.4	8.5
26 TO 50	9.4	9.6	5.4	11.6	11.3	10.2	9.8	9.4	9.4	5.9
51 TO 75	9.7	7.1	12.1	9.0	12.7	8.3	7.8	20.4	22.6	12.6
76 TO 99	13.4	10.3	14.1	11.9	15.3	5.3	6.5	11.5	13.9	5.0
100	12.7	11.2	8.5	10.5	9.4	5.9	7.8	12.1	7.1	4.9
NONE	9.1	10.5	5.8	9.1	5.3	7.4	7.0	8.6	6.3	4.8
AIR CONDITIONING SYSTEM										
WINDOW UNITS	8.2	10.9	7.8	21.6	20.9	23.1	21.8	14.5	12.5	13.1
PACKAGE UNITS	12.9	9.3	6.5	9.2	8.7	5.5	7.8	9.7	5.7	6.2
CENTRAL SYSTEM	7.2	8.3	7.4	8.7	8.0	4.6	7.8	7.9	6.0	5.5
COMBINATION/OTHER	10.3	9.5	12.7	11.2	14.9	8.9	10.7	11.3	13.3	9.0
NO AIR CONDITIONING	9.1	10.5	5.8	9.1	5.3	7.4	7.0	8.6	6.3	4.8

SEE NOTES AT END OF TABLE

Table C2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	7.1	7.3	4.9	8.1	6.8	5.8	6.6	6.7	6.9	5.3
OWNER OR AGENT IS NOT OCCUPANT	7.8	8.3	5.9	10.0	9.3	6.6	9.8	10.3	7.5	6.5
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	8.3	12.3	11.2	10.2	9.1	7.3	10.7	16.4	14.5	10.7
OWNER OR AGENT IS NOT OCCUPANT	13.5	10.9	9.6	11.8	11.4	9.4	10.1	12.9	9.9	5.7
GOVERNMENT-OWNED AND OCCUPIED	12.9	10.3	9.2	18.9	20.0	17.5	17.1	14.2	13.9	10.3
NOT REPORTED	17.2	20.6	24.3	Q	Q	Q	Q	31.8	37.0	35.8
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	5.9	7.3	4.1	7.3	5.3	6.6	5.3	7.3	5.8	6.8
10 TO 19	12.0	10.0	8.0	11.7	12.5	9.4	12.4	10.6	8.2	8.7
20 TO 49	9.0	8.1	6.1	18.2	15.2	15.9	15.0	12.3	8.8	10.4
50 TO 99	11.6	9.2	8.0	14.0	10.4	10.9	10.6	15.3	9.7	3.4
100 OR MORE	11.5	9.5	11.3	10.0	10.8	7.0	7.7	10.1	9.3	5.7
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	18.3	21.1	14.8	35.2	31.8	33.2	37.1	24.5	24.2	24.0
39 OR FEWER HOURS	9.5	14.8	9.1	18.7	15.6	16.6	18.1	17.2	15.0	8.8
40 TO 48 HOURS	6.8	8.8	5.5	10.9	9.0	8.8	11.4	15.5	13.6	8.9
49 TO 60 HOURS	8.2	8.6	4.2	15.0	14.7	13.7	13.2	10.6	9.1	8.9
61 TO 84 HOURS	6.6	9.9	8.8	12.8	11.9	8.2	8.9	12.6	10.9	5.3
MORE THAN 84 HOURS	7.4	6.2	6.3	6.7	9.2	6.0	7.1	6.3	6.1	5.5
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	5.8	7.0	4.3	7.5	5.1	5.0	6.2	8.3	7.1	5.3
NO	6.3	6.6	4.3	7.6	8.6	7.6	7.7	7.3	6.1	5.5
DON'T KNOW/NOT REPORTED	9.9	13.9	9.3	18.6	19.0	14.6	14.1	18.1	17.0	10.4

SEE NOTES AT END OF TABLE

Table C2. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED										
YES	6.5	8.3	4.9	7.5	8.1	7.1	8.2	7.7	7.1	5.2
NO	6.0	6.3	4.7	7.1	6.5	5.6	6.3	7.1	5.6	5.6
DON'T KNOW/NOT REPORTED	10.7	12.1	12.4	12.8	16.0	12.7	14.0	10.2	13.5	7.4
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	6.4	8.5	5.7	8.0	7.6	6.7	7.6	9.1	8.4	3.7
NO	5.9	6.2	4.3	6.8	7.0	5.5	6.0	6.8	5.6	5.3
DON'T KNOW/NOT REPORTED	9.4	12.0	11.2	15.1	16.4	13.5	16.4	11.4	13.4	9.9
REDUCED HEATING										
YES	5.7	6.2	3.8	7.0	6.6	5.2	5.7	6.5	5.5	5.0
NO	7.6	8.9	6.7	10.2	8.4	5.8	6.5	9.7	9.7	4.3
NOT REPORTED/ NOT APPLICABLE	15.2	15.2	13.2	17.5	16.0	16.9	15.1	17.8	12.5	7.3
REDUCED COOLING										
YES	7.8	7.4	5.1	6.8	6.9	5.0	6.4	7.2	5.0	4.3
NO	13.1	11.7	8.8	16.2	11.4	8.2	10.4	20.3	17.1	13.5
NOT REPORTED/ NOT APPLICABLE	6.9	8.0	4.7	10.7	9.3	10.3	10.4	8.1	6.8	6.2
REDUCED HEATING OR REDUCED COOLING										
YES	5.7	6.1	3.8	6.6	6.2	4.8	5.5	6.2	5.2	4.9
NO	8.6	11.0	7.3	13.0	9.2	5.7	8.0	12.7	11.1	4.9
NOT REPORTED	22.5	22.2	27.7	22.8	17.9	20.1	17.7	23.7	19.5	9.4
NOT APPLICABLE	15.5	17.6	17.0	26.2	20.5	29.3	24.9	24.5	16.0	10.1

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C3. Consumption and Expenditures for Major Fuels (Natural Gas, Electricity, Fuel Oil or Kerosene, LPG, and Steam) in Commercial Buildings Supplied with One or More of These Fuels, 1979—Relative Standard Errors (Percent), Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	12.7	9.4	8.3	12.9	14.0	12.2	11.6	10.3	11.6	9.2
END USE BY FUEL TYPE										
HEATING FUEL USED.....	11.8	9.1	7.7	12.9	13.6	12.3	11.8	10.3	10.9	9.3
NATURAL GAS.....	19.2	12.4	10.2	25.2	25.3	23.4	27.7	17.1	18.0	13.0
ELECTRICITY.....	18.7	16.5	17.8	21.1	16.6	14.4	17.1	24.2	20.3	6.5
FUEL OIL/KEROSENE.....	13.6	11.5	11.6	18.8	24.3	21.0	21.4	16.3	16.7	19.2
STEAM.....	44.3	32.2	22.0	37.2	44.5	34.9	33.0	31.3	38.1	11.5
OTHER.....	61.8	54.3	Q	Q	30.2	39.9	45.0	Q	29.5	Q
NO HEATING FUEL USED.....	39.4	42.5	30.8	Q	45.8	43.8	Q	45.4	41.8	26.9
AIR CONDITIONING FUEL USED..	7.9	9.2	5.4	15.6	14.7	15.1	13.1	12.0	9.4	11.5
ELECTRICITY.....	7.3	8.8	5.2	17.1	16.2	17.4	14.3	12.9	10.4	12.4
NATURAL GAS.....	24.3	28.6	26.6	31.8	40.2	18.7	20.5	25.4	29.0	13.6
OTHER.....	40.8	15.1	46.4	18.4	46.9	16.9	15.0	15.7	Q	10.2
NO AIR CONDITIONING FUEL....	31.8	19.9	12.1	20.4	12.9	9.5	12.9	25.1	8.4	5.5
WATER-HEATING FUEL USED.....	13.7	9.6	8.6	14.8	14.3	13.5	12.3	11.2	11.6	9.9
NATURAL GAS.....	19.6	16.6	8.9	30.2	26.1	26.4	29.8	22.9	17.7	14.1
ELECTRICITY.....	17.8	8.8	13.8	10.0	13.2	8.5	7.5	10.7	15.2	4.2
FUEL OIL/KEROSENE.....	16.5	14.7	15.3	13.4	14.4	12.3	21.1	23.4	19.1	15.6
OTHER.....	57.0	20.5	Q	37.9	Q	33.2	35.2	30.2	Q	13.3
NO WATER-HEATING FUEL.....	11.3	16.4	15.9	24.3	25.3	17.2	36.7	24.8	24.4	7.2
MANUFACTURING FUEL USED.....	34.4	19.5	30.1	Q	43.9	42.5	33.4	36.6	30.8	24.6
ELECTRICITY.....	40.6	23.8	30.4	Q	Q	Q	42.1	48.7	36.7	34.5
OTHER.....	30.1	36.1	35.1	Q	Q	Q	Q	Q	Q	Q
NO MANUFACTURING DONE.....	11.9	10.7	7.3	11.0	10.7	7.1	8.8	11.9	11.7	5.9
COOKING FUEL USED.....	19.1	12.2	11.0	20.9	20.2	19.0	17.8	15.4	15.4	11.2
ELECTRICITY.....	20.4	7.9	17.1	12.3	18.0	6.8	8.7	14.1	17.5	3.7
NATURAL GAS.....	15.6	17.1	7.4	26.5	26.5	26.4	25.0	18.6	17.7	15.9
LIQUID PETROLEUM GAS.....	72.1	27.8	Q	20.7	Q	15.2	19.8	23.2	Q	5.0
OTHER.....	51.9	48.7	Q	Q	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	8.1	7.8	7.2	15.5	15.4	13.1	16.3	21.8	21.1	12.4
SMSA/NONSMSA										
SMSA.....	11.6	10.8	5.8	14.9	14.8	14.3	13.3	11.7	10.3	10.7
NONSMSA.....	42.9	7.5	29.9	5.7	41.1	12.5	6.3	2.2	38.1	3.8

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD...	80.2	45.6	34.9	Q	29.1	4.9	4.3	Q	26.4	2.3
<2,000 CDD AND 5,500 TO 7,000 HDD.....	17.6	16.6	6.4	16.6	13.3	9.9	11.1	18.2	12.4	2.7
<2,000 CDD AND 4,000 TO 5,499 HDD.....	13.5	11.1	11.1	23.9	26.4	25.9	22.5	15.8	13.7	22.4
BUILDING TYPE										
ASSEMBLY.....	16.9	24.0	16.6	22.0	18.3	15.8	10.5	25.7	18.3	12.6
AUTOMOTIVE SALES & SERVICE..	17.4	24.0	16.4	24.3	22.9	18.1	21.9	20.1	18.4	11.1
EDUCATION.....	30.5	12.4	23.1	15.9	19.0	8.7	7.7	11.8	22.8	7.4
FOOD SALES.....	27.5	18.0	19.7	18.0	24.3	12.9	16.2	17.8	23.9	9.6
HEALTH CARE.....	34.4	12.0	Q	22.1	Q	17.7	19.6	21.4	Q	6.6
LODGING.....	24.0	36.0	27.6	29.7	31.4	35.0	33.3	33.2	30.6	22.1
OFFICE.....	8.7	12.0	9.9	24.8	21.3	22.3	24.5	31.3	28.0	16.2
RESIDENTIAL.....	15.8	17.5	11.7	21.1	17.7	11.1	17.3	17.6	14.9	6.6
RETAIL/SERVICES.....	17.7	15.3	15.7	21.8	20.3	11.9	20.9	28.1	22.9	11.3
WAREHOUSE AND STORAGE.....	24.7	20.3	18.2	15.1	20.0	16.8	25.9	22.7	14.0	13.9
OTHER.....	27.0	19.0	16.3	Q	Q	Q	Q	Q	Q	Q
VACANT.....	47.0	67.7	38.7	Q	41.5	Q	Q	37.7	41.7	26.3
TOTAL SQUARE FOOTAGE										
1,000 OR LESS.....	23.3	38.3	15.9	18.6	32.9	42.1	31.5	20.1	29.9	11.1
1,001 TO 5,000.....	19.4	17.1	3.0	10.5	13.8	12.1	8.1	13.6	14.0	4.7
5,001 TO 10,000.....	14.5	14.9	2.9	12.3	13.8	13.8	18.3	13.5	10.2	8.5
10,001 TO 25,000.....	12.4	11.9	2.2	49.4	49.0	Q	48.5	31.1	29.6	29.3
25,001 TO 50,000.....	16.9	17.3	2.7	26.4	19.5	18.0	17.3	41.0	38.8	21.6
OVER 50,000.....	12.3	9.0	7.6	13.7	13.0	10.1	10.3	15.2	13.9	4.3
NUMBER OF FLOORS										
ONE FLOOR.....	11.2	11.4	9.3	12.9	14.5	7.5	9.5	13.1	14.6	4.1
TWO FLOORS.....	20.9	12.5	12.6	10.9	16.4	8.6	9.2	11.4	16.3	3.9
THREE FLOORS.....	21.8	9.8	13.5	5.9	17.1	8.3	15.4	8.7	14.3	6.1
MORE THAN THREE.....	12.5	13.8	11.4	21.3	24.1	25.5	22.4	14.4	12.7	19.5
YEAR CONSTRUCTED										
1900 OR BEFORE.....	23.1	19.1	18.0	29.7	25.6	24.0	23.6	Q	Q	29.9
1901 TO 1920.....	22.6	17.3	16.2	16.9	22.2	13.5	25.8	24.2	28.8	11.8
1921 TO 1945.....	14.2	15.2	8.6	38.5	39.5	42.5	41.4	24.5	24.3	23.4
1946 TO 1960.....	13.3	15.5	10.0	12.6	14.1	13.4	13.8	19.3	17.3	10.4
1961 TO 1970.....	28.8	20.1	16.1	26.6	23.7	11.9	12.3	25.2	22.6	6.7
1971 TO 1973.....	26.8	16.8	18.9	22.4	22.7	9.7	18.4	15.2	17.4	14.1
1974 TO 1979.....	14.2	24.1	16.6	20.5	22.6	23.8	16.0	19.9	23.3	10.9
FUEL COMBINATIONS USED										
ONE FUEL USED.....	19.7	12.0	17.1	31.5	24.4	29.4	24.6	25.5	23.0	9.5
TWO FUELS USED.....	15.8	11.8	6.2	15.2	12.3	9.8	12.6	13.3	12.8	3.1
ELEC., NATURAL GAS.....	23.0	16.3	7.6	15.2	11.8	6.5	13.8	12.2	11.9	3.8
ELEC., FUEL OIL/KEROSENE..	18.5	17.5	11.8	17.4	19.3	14.0	13.3	15.9	18.0	3.7
OTHER.....	50.7	25.1	36.2	Q	Q	Q	Q	Q	Q	Q
THREE FUELS USED.....	11.5	10.6	17.0	20.1	28.1	22.6	21.0	12.5	16.9	20.0
ELEC., GAS, FUEL OIL/ KEROSENE.....	13.4	10.5	13.6	23.7	31.2	26.1	25.7	20.2	19.0	25.8
ELEC., FUEL OIL/KEROSENE, OTHER.....	83.2	31.6	Q	49.3	44.4	22.8	26.5	Q	18.5	23.3
ELEC., GAS, OTHER.....	33.4	41.9	22.7	36.2	16.5	17.8	13.2	37.4	21.9	7.3
OTHER.....	79.1	79.1	Q	Q	Q	Q	Q	Q	Q	Q
FOUR OR MORE FUELS USED.....	55.4	22.4	37.3	19.5	40.1	10.9	25.2	16.6	39.1	9.5
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY.....	12.4	9.3	8.1	13.0	13.8	12.3	11.6	10.3	11.4	9.3
NATURAL GAS.....	14.3	10.8	6.5	14.3	16.5	14.9	15.2	10.1	12.0	12.4
FUEL OIL/KEROSENE.....	14.4	10.9	12.7	17.9	24.7	20.2	18.9	15.5	17.5	18.3
STEAM.....	44.0	32.2	22.0	36.7	44.0	34.1	32.4	31.1	38.2	11.1
OTHER.....	64.5	14.2	Q	15.3	Q	10.6	19.3	24.5	45.5	11.8

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	15.9	13.8	8.9	14.7	7.3	10.2	18.8	15.9	5.0	6.6
RADIANT	14.2	22.1	18.4	25.9	23.3	15.8	17.3	23.5	20.6	8.2
COMBINATION/OTHER	23.0	26.0	20.5	33.6	24.0	24.5	24.1	36.3	27.7	11.9
CENTRAL SYSTEM										
FORCED-AIR	17.8	6.3	14.0	22.4	25.3	22.4	23.2	22.4	24.9	6.8
RADIANT	14.7	15.5	7.5	25.7	28.0	31.3	32.3	8.9	11.9	22.6
COMBINATION/OTHER	11.7	15.6	12.2	16.8	10.4	9.5	11.7	17.6	11.3	2.6
COMBINATION/OTHER	21.4	20.2	20.8	24.7	27.7	28.7	45.7	43.8	45.9	23.5
NONE	39.4	42.5	30.8	Q	45.8	43.8	Q	45.4	41.8	26.9
PERCENT OF BUILDING HEATED										
1 TO 25	24.1	17.0	20.3	31.3	32.9	25.1	42.3	29.6	19.4	20.7
26 TO 50	18.7	19.0	14.0	18.0	22.0	25.9	29.5	28.4	27.8	13.7
51 TO 75	16.3	19.3	27.8	20.8	33.2	29.6	15.5	15.9	30.2	5.9
76 TO 99	35.0	22.0	44.7	23.6	Q	12.1	20.5	29.2	Q	12.0
100	15.4	11.2	8.0	16.4	17.6	16.0	15.2	15.5	16.8	13.6
NONE	39.4	42.5	30.8	Q	45.8	43.8	Q	45.4	41.8	26.9
PERCENT OF BUILDING COOLED										
1 TO 25	9.8	13.1	7.3	33.2	32.5	35.0	27.3	18.6	17.0	19.2
26 TO 50	13.6	7.4	12.1	15.5	18.9	12.8	11.2	15.8	18.9	8.2
51 TO 75	16.3	13.1	16.2	22.6	19.3	20.9	20.8	41.1	40.7	22.9
76 TO 99	17.1	21.5	27.0	22.3	26.1	6.6	8.5	24.0	28.7	5.4
100	12.9	11.8	13.0	24.5	27.5	22.4	28.3	19.9	20.5	10.0
NONE	31.8	19.9	12.1	20.4	12.9	9.5	12.9	25.1	8.4	5.5
AIR CONDITIONING SYSTEM										
WINDOW UNITS	6.7	9.9	6.6	43.5	42.9	47.1	41.8	26.1	26.1	28.3
PACKAGE UNITS	19.9	12.7	10.7	16.9	10.9	7.2	9.3	17.2	12.4	7.0
CENTRAL SYSTEM	18.6	12.2	13.4	19.0	17.8	10.2	17.6	17.0	18.1	5.6
COMBINATION/OTHER	12.7	18.8	19.5	19.8	21.4	20.8	22.4	21.0	21.9	16.0
NO AIR CONDITIONING	31.8	19.9	12.1	20.4	12.9	9.5	12.9	25.1	8.4	5.5

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	14.0	12.4	12.7	16.0	20.1	10.5	15.3	15.5	18.5	3.5
OWNER OR AGENT IS NOT OCCUPANT	19.2	12.8	9.2	14.5	19.8	12.1	8.7	12.6	17.3	6.0
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	12.7	17.9	17.2	15.5	13.0	12.1	17.8	32.3	28.5	20.7
OWNER OR AGENT IS NOT OCCUPANT	25.6	18.2	17.8	22.2	10.5	13.2	18.2	20.5	12.8	7.7
GOVERNMENT-OWNED AND OCCUPIED	20.4	12.4	10.6	Q	Q	Q	Q	34.5	30.1	33.1
NOT REPORTED	57.3	59.9	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	14.3	12.3	9.5	10.6	14.1	10.8	9.3	12.2	9.5	6.8
10 TO 19	17.7	15.5	8.6	21.2	8.1	13.9	9.8	22.6	11.6	11.6
20 TO 49	17.3	20.1	7.3	47.3	42.5	41.5	40.5	26.8	20.9	30.1
50 TO 99	22.9	18.0	16.5	35.8	33.9	32.5	32.8	29.7	27.9	9.7
100 OR MORE	17.0	10.8	19.2	11.2	17.0	9.9	15.0	17.9	18.4	12.8
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	33.5	52.8	35.2	33.5	39.7	Q	Q	29.7	41.3	16.2
39 OR FEWER HOURS	25.7	29.4	24.7	29.2	25.4	14.4	16.9	38.7	31.3	13.9
40 TO 48 HOURS	9.4	11.0	7.1	19.2	20.3	16.1	24.8	35.4	35.3	18.3
49 TO 60 HOURS	9.4	12.1	6.0	39.6	41.8	41.1	39.9	22.4	22.5	26.3
61 TO 84 HOURS	21.1	14.2	14.4	28.4	23.9	25.7	26.8	25.1	22.3	9.3
MORE THAN 84 HOURS	22.3	12.1	15.8	7.4	20.2	9.0	7.7	9.9	18.8	4.5

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: Northeast

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	15.4	10.8	9.8	9.5	14.7	9.5	12.9	15.6	19.7	11.1
NO	12.5	12.7	9.9	22.3	21.7	25.1	22.6	15.7	12.5	12.6
DON'T KNOW/NOT REPORTED	16.2	19.5	15.3	16.8	20.9	16.4	25.0	22.5	22.6	13.3
INSULATION ADDED										
YES	19.7	15.3	11.0	12.3	14.7	6.5	8.0	16.5	16.7	8.5
NO	12.2	11.4	9.5	14.9	18.0	18.3	15.8	12.9	14.5	14.6
DON'T KNOW/NOT REPORTED	18.5	20.4	11.0	19.9	15.1	12.9	16.2	12.8	12.5	10.8
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	19.1	17.4	11.2	14.1	16.2	8.9	10.2	17.9	19.5	8.1
NO	12.4	10.8	9.2	14.9	15.9	16.5	14.5	12.4	12.5	12.7
DON'T KNOW/NOT REPORTED	18.8	23.1	17.8	23.0	23.9	19.4	22.4	17.2	18.3	11.9
REDUCED HEATING										
YES	12.9	8.6	9.2	15.6	17.3	15.2	13.5	11.1	13.7	11.4
NO	17.7	15.2	15.9	9.9	17.9	15.7	9.6	13.4	21.4	11.8
NOT REPORTED/ NOT APPLICABLE	37.3	29.0	28.4	Q	38.3	42.3	14.8	Q	47.0	13.2
REDUCED COOLING										
YES	15.9	10.7	12.1	13.4	15.8	9.9	12.0	13.3	17.1	3.7
NO	28.5	26.2	23.8	40.8	34.8	28.4	23.6	Q	Q	27.1
NOT REPORTED/ NOT APPLICABLE	18.4	12.0	8.9	26.3	24.4	26.1	28.9	18.2	13.7	14.2
REDUCED HEATING OR REDUCED COOLING										
YES	12.6	8.2	8.7	14.0	15.9	14.0	12.5	10.0	12.7	10.5
NO	19.2	19.4	16.5	13.2	15.2	13.6	15.1	19.6	24.0	15.7
NOT REPORTED/ NOT APPLICABLE	33.4	25.8	31.0	40.9	Q	30.8	40.0	48.9	Q	13.2

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	10.0	9.6	8.5	9.3	12.1	6.9	6.8	8.6	11.1	5.2
END USE BY FUEL TYPE										
HEATING FUEL USED.....	9.6	10.0	8.3	9.5	10.9	6.6	7.0	8.8	10.3	5.1
NATURAL GAS.....	10.9	11.2	7.9	10.2	12.7	10.0	10.4	8.7	9.8	5.1
ELECTRICITY.....	21.4	16.5	15.7	34.5	30.2	24.7	24.6	23.0	13.5	19.3
FUEL OIL/KEROSENE.....	23.9	18.4	19.1	12.7	23.4	13.7	12.1	8.3	24.2	6.7
STEAM.....	42.6	39.2	18.1	24.8	21.6	17.3	20.0	29.5	18.5	8.4
OTHER.....	103.1	62.0	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	37.0	38.2	24.1	49.1	Q	Q	Q	45.9	42.0	10.5
AIR CONDITIONING FUEL USED..	11.3	10.8	10.1	11.0	13.2	6.9	8.5	10.6	10.4	5.1
ELECTRICITY.....	12.0	11.0	10.3	10.8	13.7	6.2	8.6	10.8	10.8	5.5
NATURAL GAS.....	13.8	22.7	26.3	Q	42.6	48.8	40.2	27.8	22.6	24.0
OTHER.....	51.4	16.1	Q	21.1	Q	10.8	32.9	32.3	Q	12.8
NO AIR CONDITIONING FUEL....	16.1	16.2	10.3	10.5	12.2	13.2	14.5	9.0	20.4	9.0
WATER-HEATING FUEL USED.....	9.3	10.1	7.6	9.7	9.1	7.7	7.3	9.1	8.8	5.1
NATURAL GAS.....	10.9	10.5	7.2	8.8	7.8	7.1	7.7	8.0	9.0	4.2
ELECTRICITY.....	10.1	15.5	10.9	20.6	15.1	14.5	16.9	16.0	8.2	11.4
FUEL OIL/KEROSENE.....	22.0	25.7	Q	24.4	Q	21.9	19.0	20.9	47.9	8.6
OTHER.....	20.5	35.3	46.9	21.5	34.2	20.8	20.6	28.6	41.1	9.1
NO WATER-HEATING FUEL.....	18.8	18.7	11.7	27.5	26.5	16.1	13.6	31.4	27.2	14.7
MANUFACTURING FUEL USED.....	30.6	24.8	39.1	21.4	44.7	20.2	11.8	18.9	43.7	6.2
ELECTRICITY.....	28.7	25.1	33.0	20.7	37.1	20.3	12.8	17.9	38.3	6.9
OTHER.....	58.7	34.6	Q	42.4	Q	36.2	26.3	45.1	Q	16.0
NO MANUFACTURING DONE.....	9.8	9.7	8.8	10.0	12.0	7.3	7.1	10.5	10.9	5.7
COOKING FUEL USED.....	12.6	13.4	13.8	16.4	23.7	13.0	11.0	13.6	20.6	6.4
ELECTRICITY.....	18.6	19.1	19.4	23.0	34.1	15.7	16.6	16.7	27.5	11.4
NATURAL GAS.....	10.6	10.0	14.3	13.2	16.5	12.1	10.9	13.1	18.8	4.0
OTHER.....	55.8	27.9	Q	26.5	Q	11.4	Q	30.7	Q	9.8
NO COOKING FUEL.....	10.9	11.0	6.3	10.2	8.2	3.5	10.4	8.8	7.3	8.6
SMSA/NONSMSA										
SMSA.....	14.2	11.9	9.7	11.4	9.2	6.0	6.6	11.1	10.4	4.3
NONSMSA.....	11.8	19.1	15.1	17.5	27.7	25.8	23.4	3.7	18.1	20.3

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND >7,000 HDD...	49.0	47.6	15.7	48.7	8.4	8.7	13.2	Q	17.7	10.0
<2,000 CDD AND 5,500 TO 7,000 HDD.....	24.1	18.5	17.7	20.2	22.8	9.7	8.3	18.8	21.3	6.3
<2,000 CDD AND 4,000 TO 5,499 HDD.....	62.8	54.4	25.1	Q	25.8	10.0	18.7	Q	33.1	11.0
BUILDING TYPE										
ASSEMBLY.....	5.7	13.4	11.6	18.5	15.5	17.8	18.2	12.6	9.7	11.5
AUTOMOTIVE SALES & SERVICE..	19.9	21.3	24.8	27.4	26.4	17.1	24.4	27.7	35.3	11.6
EDUCATION.....	19.6	17.2	19.7	16.7	23.2	10.7	19.4	16.9	15.0	7.6
FOOD SALES.....	17.4	19.1	12.5	16.3	10.3	10.9	19.9	18.6	15.0	10.8
HEALTH CARE.....	32.1	16.4	44.3	24.1	39.9	24.2	18.1	19.4	37.7	6.7
LODGING.....	24.7	27.5	27.8	20.4	36.6	19.0	13.1	23.1	34.7	6.1
OFFICE.....	6.4	9.9	9.2	10.9	11.0	5.2	12.9	14.2	13.6	8.2
RESIDENTIAL.....	18.7	20.5	14.6	26.2	18.8	21.1	30.5	23.5	17.8	6.1
RETAIL/SERVICES.....	15.3	15.5	10.5	21.8	13.2	10.4	12.3	25.8	15.9	7.7
WAREHOUSE AND STORAGE.....	15.1	13.6	12.9	35.4	45.2	33.7	19.3	18.8	25.1	20.4
OTHER.....	26.6	20.1	18.1	15.0	36.8	19.0	18.1	17.3	34.4	8.4
VACANT.....	21.6	24.8	37.8	30.1	37.4	25.7	Q	29.4	41.8	13.1
TOTAL SQUARE FOOTAGE										
1,000 OR LESS.....	18.8	19.1	3.1	27.8	17.6	18.0	19.4	30.3	19.0	9.7
1,001 TO 5,000.....	11.1	10.1	3.0	12.8	8.0	7.7	11.6	15.3	10.2	11.5
5,001 TO 10,000.....	11.4	10.4	1.8	18.5	16.5	15.7	17.1	16.1	16.4	14.9
10,001 TO 25,000.....	15.2	14.3	2.2	30.7	30.9	29.9	28.9	15.4	12.2	18.8
25,001 TO 50,000.....	16.6	16.0	1.5	20.5	12.2	12.7	10.5	27.1	16.6	7.2
OVER 50,000.....	15.2	13.2	6.7	11.9	11.1	6.5	7.8	12.3	14.3	4.2
NUMBER OF FLOORS										
ONE FLOOR.....	17.0	15.5	8.1	16.6	7.6	5.4	5.1	18.7	10.0	4.9
TWO FLOORS.....	16.6	13.5	15.0	10.5	17.0	7.7	7.3	10.7	24.5	7.6
THREE FLOORS.....	24.2	17.4	10.7	13.6	20.9	12.2	14.8	14.2	23.7	7.0
MORE THAN THREE.....	21.4	13.8	15.9	23.3	17.7	15.1	15.7	19.3	20.0	10.2

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
YEAR CONSTRUCTED										
1900 OR BEFORE	32.3	28.6	10.0	30.7	28.5	22.7	37.3	32.5	39.9	17.9
1901 TO 1920	15.5	13.4	8.4	14.0	10.2	7.5	10.2	10.2	13.2	7.1
1921 TO 1945	15.1	13.3	21.6	22.1	37.5	18.7	25.0	14.7	26.0	14.8
1946 TO 1960	15.4	11.9	10.9	14.1	12.8	13.7	11.4	13.3	18.5	9.0
1961 TO 1970	13.3	14.3	10.4	13.8	9.8	7.4	6.9	10.4	8.2	4.0
1971 TO 1973	18.0	22.8	13.5	29.9	29.0	16.6	19.2	26.7	22.3	8.2
1974 TO 1979	19.0	21.5	13.6	20.7	11.5	11.2	14.8	23.6	8.0	9.5
FUEL COMBINATIONS USED										
ONE FUEL USED	35.1	29.3	12.0	Q	26.8	30.4	29.5	Q	25.7	3.1
TWO FUELS USED	11.1	11.1	7.5	10.9	12.0	8.3	7.8	9.3	10.1	5.2
ELEC., NATURAL GAS	11.7	13.7	8.7	12.3	12.9	11.3	10.7	11.8	9.8	5.9
ELEC., FUEL OIL/KEROSENE	26.9	33.4	11.8	39.0	27.7	28.5	29.2	37.6	23.3	9.8
ELEC., LPG	25.8	19.6	Q	25.3	Q	14.6	13.8	27.9	Q	6.0
OTHER	36.7	45.0	Q	41.4	Q	17.7	18.9	48.6	Q	10.0
THREE FUELS USED	18.7	20.4	14.5	16.5	18.9	10.7	10.6	16.6	20.7	4.6
ELEC., GAS, FUEL OIL/ KEROSENE	22.3	17.2	14.6	15.9	18.7	12.9	14.1	12.7	21.0	6.3
ELEC., FUEL OIL/KEROSENE, LPG	40.8	53.3	35.6	43.5	Q	Q	27.1	40.3	29.7	19.6
ELEC., GAS, OTHER	18.8	32.2	21.5	25.2	18.1	13.3	19.0	30.9	22.1	6.3
OTHER	40.7	33.9	Q	35.0	Q	Q	43.4	34.8	Q	4.9
FOUR OR MORE FUELS USED	58.5	57.3	Q	Q	Q	21.1	23.6	Q	Q	18.5
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	10.2	9.7	8.5	9.3	12.3	7.0	6.8	8.7	11.4	5.2
NATURAL GAS	10.8	10.5	8.7	10.6	12.5	7.9	8.8	9.8	10.6	4.7
FUEL OIL/KEROSENE	23.8	18.3	14.9	13.5	20.0	10.7	10.9	11.8	20.0	4.4
LIQUID PETROLEUM GAS	27.0	20.7	27.4	23.3	Q	32.6	9.8	18.5	Q	6.4
STEAM	40.7	39.6	17.4	25.3	19.1	16.9	18.4	29.7	16.3	8.2
OTHER	34.6	28.3	Q	Q	Q	37.4	28.8	Q	Q	12.7

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	14.4	12.9	12.6	11.1	12.7	11.3	11.7	15.6	14.6	7.2
RADIANT	28.6	33.4	22.5	36.4	33.5	Q	Q	33.7	28.4	12.2
COMBINATION/OTHER	23.6	15.6	14.8	25.6	10.4	14.2	16.8	24.1	17.5	12.7
CENTRAL SYSTEM										
FORCED-AIR	9.7	12.9	12.4	10.4	10.6	6.1	5.1	11.5	13.4	5.9
RADIANT	18.8	14.2	10.2	14.5	14.7	10.8	19.9	13.8	19.0	8.3
COMBINATION/OTHER	17.9	13.0	16.7	11.9	14.4	6.4	9.4	10.2	16.4	4.8
COMBINATION/OTHER	15.4	14.7	16.7	36.8	Q	37.9	45.3	17.9	28.7	21.9
NONE	37.0	38.4	24.3	49.8	Q	Q	Q	46.4	42.2	10.7
PERCENT OF BUILDING HEATED										
1 TO 50	23.0	17.2	14.6	43.2	Q	45.4	45.7	24.6	29.3	25.9
51 TO 75	23.6	24.1	18.8	23.5	22.9	22.2	21.7	16.9	26.1	13.8
76 TO 99	16.5	14.0	16.7	16.3	18.6	15.0	19.3	12.1	14.8	17.8
100	9.9	10.3	8.4	8.9	6.0	5.9	5.6	10.5	7.4	4.5
NONE	37.0	38.4	24.3	49.8	Q	Q	Q	46.4	42.2	10.7
PERCENT OF BUILDING COOLED										
1 TO 25	16.6	13.5	13.2	21.3	32.1	19.8	25.9	16.0	22.1	10.6
26 TO 50	14.9	14.5	12.1	19.7	19.3	14.6	15.9	17.2	18.6	8.2
51 TO 75	18.8	14.5	29.0	10.3	22.5	7.7	8.2	10.7	22.2	3.4
76 TO 99	28.8	14.7	27.3	14.5	28.9	7.6	8.5	15.2	24.1	6.4
100	24.9	21.2	16.5	19.6	15.2	6.9	10.6	24.2	16.5	5.6
NONE	16.1	16.2	10.3	10.5	12.2	13.2	14.5	9.0	20.4	9.0
AIR CONDITIONING SYSTEM										
WINDOW UNITS	12.8	13.6	15.8	19.9	17.3	21.0	21.9	18.6	17.6	9.4
PACKAGE UNITS	24.8	19.6	13.2	15.7	12.3	7.5	9.8	18.5	11.1	5.4
CENTRAL SYSTEM	11.0	16.0	10.7	15.6	12.0	8.7	13.1	13.9	11.3	5.7
COMBINATION/OTHER	13.8	12.2	19.8	21.2	35.8	16.1	21.0	12.4	23.1	11.5
NO AIR CONDITIONING	16.1	16.2	10.3	10.5	12.2	13.2	14.5	9.0	20.4	9.0

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	12.5	11.7	6.6	11.4	6.8	4.6	5.6	8.4	8.4	6.1
OWNER OR AGENT IS NOT OCCUPANT	16.1	16.1	16.9	19.2	19.3	11.0	15.1	20.9	16.1	10.6
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	17.8	19.0	28.0	21.4	31.0	14.4	17.8	27.6	38.6	7.9
OWNER OR AGENT IS NOT OCCUPANT	19.5	19.3	10.8	22.6	20.8	17.6	16.1	24.2	23.6	6.3
GOVERNMENT-OWNED AND OCCUPIED	11.8	13.6	15.4	15.6	16.5	5.6	12.4	21.2	19.5	7.2
NOT REPORTED	43.9	65.8	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	11.1	11.0	6.1	14.8	8.7	11.2	10.2	15.6	12.9	9.2
10 TO 19	13.7	18.2	9.8	22.4	19.7	19.8	18.7	17.1	12.0	11.1
20 TO 49	14.7	15.1	11.2	23.9	16.9	20.4	16.8	15.4	9.7	13.1
50 TO 99	24.8	18.2	20.6	25.9	14.2	14.8	13.7	33.9	14.9	8.1
100 OR MORE	13.3	13.7	11.0	15.8	14.2	6.4	10.0	17.8	14.3	4.4
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	35.0	25.2	32.1	37.7	45.6	31.4	Q	42.6	49.7	13.5
39 OR FEWER HOURS	15.0	16.2	9.4	33.8	30.2	35.1	33.5	27.8	25.8	11.7
40 TO 48 HOURS	5.3	9.1	10.2	13.3	11.6	10.5	12.2	18.4	16.7	8.1
49 TO 60 HOURS	14.3	15.2	12.0	16.4	9.8	7.6	12.4	18.5	12.8	6.1
61 TO 84 HOURS	13.7	15.1	8.7	18.8	10.8	5.6	11.3	16.8	11.1	7.6
MORE THAN 84 HOURS	14.7	11.1	14.9	13.1	24.1	13.4	15.5	9.2	16.8	8.7
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	9.9	10.9	7.9	10.3	8.2	8.6	9.1	8.5	8.4	5.4
NO	14.8	13.1	8.1	10.9	16.7	10.1	8.4	13.8	13.9	7.9
DON'T KNOW/NOT REPORTED	17.3	23.0	15.8	29.4	30.4	21.7	10.7	29.9	27.9	9.0

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: North Central

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED										
YES	13.3	13.6	8.2	13.8	15.4	11.6	12.3	9.0	10.9	8.7
NO	12.6	9.3	10.2	11.4	12.7	5.4	5.9	13.9	13.6	6.4
DON'T KNOW/NOT REPORTED	20.4	21.0	25.7	23.6	38.9	23.6	24.3	20.0	33.5	13.0
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	12.1	13.7	8.4	9.6	9.5	9.3	12.5	9.8	11.0	4.8
NO	11.9	9.4	8.9	10.5	16.0	8.5	7.7	11.6	14.2	6.7
DON'T KNOW/NOT REPORTED	19.9	22.7	22.8	26.3	38.0	25.5	27.8	23.4	31.7	14.7
REDUCED HEATING										
YES	11.1	9.9	9.4	8.9	11.8	6.7	7.3	7.9	10.8	5.9
NO	14.4	16.2	8.8	20.4	14.6	8.8	10.3	20.2	15.0	2.1
NOT REPORTED/ NOT APPLICABLE	36.2	30.4	18.8	34.7	31.9	28.6	19.2	40.3	31.5	18.1
REDUCED COOLING										
YES	14.3	11.1	10.8	10.2	13.4	6.3	8.7	9.5	10.9	5.3
NO	23.9	22.8	12.4	29.9	20.9	13.5	19.5	28.5	17.5	7.5
NOT REPORTED/ NOT APPLICABLE	13.2	12.4	7.9	11.2	10.6	12.3	8.2	8.7	14.4	7.6
REDUCED HEATING OR REDUCED COOLING										
YES	11.2	10.1	9.4	9.0	11.0	6.0	7.0	8.2	10.3	5.6
NO	17.6	20.5	12.2	25.0	18.8	10.9	14.4	24.4	19.1	3.3
NOT REPORTED	38.3	30.3	Q	27.5	46.6	16.3	28.2	36.9	Q	28.7
NOT APPLICABLE	37.0	38.4	24.3	49.8	Q	Q	Q	46.4	42.2	10.7

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
COMMERCIAL BUILDINGS.....	10.6	12.0	6.2	11.3	9.9	8.0	11.1	10.9	6.6	10.6
END USE BY FUEL TYPE										
HEATING FUEL USED.....	10.2	11.3	5.7	12.0	8.3	7.5	11.5	10.5	6.8	10.4
NATURAL GAS.....	24.7	22.7	10.3	20.2	12.6	12.2	13.7	18.3	17.0	8.6
ELECTRICITY.....	19.9	22.0	7.7	14.2	9.2	8.1	8.6	20.6	5.1	9.6
FUEL OIL/KEROSENE.....	18.2	18.2	3.7	20.7	15.7	13.8	11.8	18.7	14.4	7.0
LIQUID PETROLEUM GAS.....	19.5	17.7	21.0	33.5	38.4	26.6	36.4	27.2	29.0	11.8
OTHER.....	90.7	53.8	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	30.6	31.7	29.8	40.8	31.3	47.4	26.1	46.6	21.6	24.9
AIR CONDITIONING FUEL USED..	11.6	12.1	6.5	12.0	11.6	8.0	11.9	11.3	6.1	11.9
ELECTRICITY.....	11.9	12.2	6.7	11.7	11.9	8.5	13.0	11.2	6.7	12.3
NATURAL GAS.....	27.6	28.8	43.2	29.5	29.4	14.8	7.0	30.6	25.5	7.1
OTHER.....	21.5	17.0	19.7	27.4	34.1	30.3	20.4	30.9	36.5	16.2
NO AIR CONDITIONING FUEL....	12.7	22.1	18.2	13.0	12.7	24.0	17.3	14.7	13.0	5.0
WATER-HEATING FUEL USED.....	11.8	13.2	6.6	15.9	11.7	7.5	11.8	13.4	6.7	10.3
NATURAL GAS.....	20.5	19.4	8.4	21.0	14.1	8.0	12.0	19.7	17.8	8.6
ELECTRICITY.....	15.5	16.7	7.9	18.1	12.0	9.6	13.7	16.6	6.1	11.3
FUEL OIL/KEROSENE.....	27.6	17.6	20.6	31.4	20.5	17.7	13.5	27.8	22.7	15.5
OTHER.....	27.4	26.2	45.4	27.9	47.1	6.7	18.4	29.2	45.7	5.7
NO WATER-HEATING FUEL.....	9.7	12.4	9.9	16.1	23.0	24.6	24.8	16.8	19.2	18.8
MANUFACTURING FUEL USED.....	23.9	28.8	10.4	26.3	35.5	35.4	31.4	16.0	27.0	19.5
ELECTRICITY.....	30.4	32.2	9.2	26.5	37.9	37.9	36.4	16.9	30.4	20.2
NATURAL GAS.....	19.2	38.7	34.3	46.9	46.5	29.1	34.0	41.5	41.3	22.2
OTHER.....	24.2	32.5	25.8	37.8	41.0	43.2	37.1	27.4	31.6	28.9
NO MANUFACTURING DONE.....	11.0	12.0	6.8	9.6	7.7	6.4	9.3	12.1	7.6	9.7
COOKING FUEL USED.....	15.0	17.1	9.4	16.2	11.2	8.5	8.2	14.6	10.9	7.9
ELECTRICITY.....	20.7	22.2	10.1	20.7	14.9	12.9	11.5	18.8	12.2	9.3
NATURAL GAS.....	26.7	24.6	21.3	20.6	27.0	18.7	10.6	19.3	32.3	8.1
LIQUID PETROLEUM GAS.....	20.1	27.2	12.4	32.6	18.1	12.6	15.2	38.4	21.5	8.7
OTHER.....	40.0	43.3	Q	41.5	Q	32.8	Q	47.0	Q	10.6
NO COOKING FUEL.....	9.8	9.2	5.6	9.2	11.9	11.0	16.9	9.9	8.4	13.8

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
SMSA/NONSMSA										
SMSA	15.2	12.1	13.1	15.1	14.7	4.9	12.0	14.1	8.0	10.8
NONSMSA	15.5	21.9	7.3	12.5	9.5	14.4	19.4	20.4	10.8	18.7
HEATING AND COOLING DEGREE-DAYS										
<2,000 CDD AND 4,000 TO 5,499 HDD	38.6	33.6	19.8	26.4	32.9	11.8	7.0	22.5	42.0	6.8
<2,000 CDD AND <4,000 HDD	45.2	45.3	Q	44.0	Q	15.4	33.7	45.8	Q	10.4
>2,000 CDD AND <4,000 HDD	45.0	36.5	16.4	28.3	25.9	10.7	16.0	37.0	13.4	13.2
BUILDING TYPE										
ASSEMBLY	23.6	26.3	15.7	20.4	30.8	21.6	26.9	19.7	39.4	12.2
AUTOMOTIVE SALES & SERVICE	15.6	22.8	9.3	23.6	20.6	25.2	23.9	15.6	9.5	16.6
EDUCATION	26.6	20.9	24.2	21.6	24.7	13.2	14.8	22.3	24.5	3.8
FOOD SALES	15.1	24.3	16.3	16.4	6.8	15.3	15.7	27.5	16.1	20.7
HEALTH CARE	25.9	24.4	29.8	27.9	23.8	19.6	21.2	26.0	21.8	16.4
LODGING	23.5	22.0	15.4	26.8	28.7	21.4	41.2	30.7	28.2	8.2
OFFICE	14.8	13.5	9.3	15.3	14.2	9.0	12.5	15.6	10.0	11.4
RESIDENTIAL	24.7	27.6	17.9	26.7	17.8	26.1	20.1	29.2	17.1	11.9
RETAIL/SERVICES	12.8	21.9	14.5	14.3	21.3	22.0	17.3	13.0	13.1	11.0
WAREHOUSE AND STORAGE	18.1	17.1	13.5	21.3	21.2	26.3	30.3	14.6	19.4	15.9
OTHER	14.9	22.7	13.5	35.7	29.2	30.1	31.5	27.8	20.8	26.0
VACANT	17.6	28.1	18.6	49.0	48.2	48.3	Q	32.6	35.7	Q
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	14.5	13.5	5.7	38.5	44.3	44.2	60.3	14.3	17.0	Q
1,001 TO 5,000	10.8	11.1	3.1	15.3	9.1	8.2	16.6	18.8	11.0	15.5
5,001 TO 10,000	15.1	16.0	3.8	13.6	14.4	17.5	29.0	16.6	10.2	9.9
10,001 TO 25,000	17.3	15.5	3.5	12.7	11.4	10.6	16.5	14.9	14.6	14.5
25,001 TO 50,000	16.5	17.8	3.2	27.9	19.6	19.6	18.2	23.9	19.0	13.1
OVER 50,000	16.6	14.0	7.7	12.9	14.3	11.1	10.7	12.2	15.7	8.2
NUMBER OF FLOORS										
ONE FLOOR	9.6	10.5	7.5	7.8	8.3	9.6	14.6	13.1	6.3	13.8
TWO FLOORS	19.1	20.6	10.9	15.3	13.3	12.2	8.1	14.9	16.6	7.3
THREE FLOORS	21.5	16.4	11.5	12.9	26.7	17.2	15.4	16.6	28.5	10.5
MORE THAN THREE	18.5	13.7	17.4	22.0	22.7	15.8	16.5	17.4	20.5	13.1

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
YEAR CONSTRUCTED										
1900 OR BEFORE	22.8	19.2	27.9	23.3	23.3	18.0	18.1	26.3	33.1	15.6
1901 TO 1920	17.0	28.6	15.6	33.3	22.6	19.8	18.4	35.2	25.4	12.3
1921 TO 1945	15.5	24.8	14.4	18.4	15.7	16.0	13.3	17.4	17.1	12.6
1946 TO 1960	13.3	17.0	9.5	13.8	14.5	14.8	17.3	13.9	9.7	18.0
1961 TO 1970	9.8	13.7	12.2	21.7	18.8	15.3	13.6	18.7	14.3	9.8
1971 TO 1973	9.8	15.7	11.5	22.9	19.8	20.1	27.5	14.6	8.9	16.9
1974 TO 1979	16.9	10.3	15.7	17.3	20.0	13.7	7.8	20.3	15.7	12.0
FUEL COMBINATIONS USED										
ONE FUEL USED	27.1	25.2	12.7	29.5	11.7	12.4	11.6	35.9	12.1	7.1
TWO FUELS USED	14.4	17.1	8.6	13.7	5.7	6.6	7.5	13.4	10.3	7.5
ELEC., NATURAL GAS	21.6	22.3	11.3	17.0	10.7	14.1	10.2	16.8	14.5	7.4
ELEC., FUEL OIL/KEROSENE	21.7	25.4	4.8	24.2	13.0	12.4	31.2	26.6	16.6	7.6
ELEC., LPG	21.7	31.5	16.6	31.6	22.7	22.5	33.5	34.8	20.9	16.2
OTHER	30.3	41.6	27.6	48.8	47.3	Q	Q	47.7	42.9	14.6
THREE FUELS USED	15.4	18.1	23.1	18.0	22.4	12.1	12.1	18.3	25.6	6.8
ELEC., GAS, FUEL OIL/ KEROSENE	30.6	23.0	19.9	27.0	30.3	17.6	15.8	27.3	33.0	10.7
ELEC., FUEL OIL/KEROSENE, LPG	29.3	20.3	27.4	23.8	45.2	34.1	Q	21.5	40.1	12.0
ELEC., GAS, OTHER	32.5	42.6	Q	39.7	Q	34.2	20.3	40.1	Q	10.9
OTHER	59.6	61.7	Q	Q	Q	38.9	Q	Q	Q	8.2
FOUR OR MORE FUELS USED	37.1	23.2	Q	39.7	Q	31.0	30.6	32.5	Q	25.7
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	10.6	12.0	6.2	11.1	9.8	7.9	11.1	10.8	6.6	10.6
NATURAL GAS	20.5	19.3	12.6	18.2	11.1	11.1	10.8	16.3	14.7	7.4
FUEL OIL/KEROSENE	17.4	14.8	6.0	19.2	16.2	13.2	8.0	16.1	14.4	8.6
LIQUID PETROLEUM GAS	16.5	26.3	17.2	20.5	19.9	25.3	30.1	18.3	11.8	15.3
OTHER	16.3	20.6	31.1	32.5	38.2	27.8	23.3	27.4	34.9	14.1

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	9.4	12.4	8.4	16.5	17.3	14.5	19.8	11.8	7.7	20.1
RADIANT	20.8	38.9	45.6	38.8	43.5	23.9	12.2	40.4	43.3	11.8
COMBINATION/OTHER	10.0	17.8	17.2	24.5	27.9	29.1	18.1	17.4	17.0	16.8
CENTRAL SYSTEM										
FORCED-AIR	17.5	9.3	14.9	10.8	18.8	10.6	13.7	12.5	22.4	9.0
RADIANT	23.1	26.9	16.1	20.7	18.1	21.6	26.7	24.2	14.1	13.0
COMBINATION/OTHER	23.0	19.1	17.8	32.3	29.4	21.6	20.5	25.5	27.1	16.4
COMBINATION/OTHER										
FORCED-AIR	25.0	29.7	20.7	34.1	32.5	30.0	26.1	32.0	25.8	19.9
RADIANT	43.7	46.8	Q	43.5	Q	Q	15.7	39.1	48.6	47.3
COMBINATION/OTHER	20.6	16.1	22.6	11.1	15.5	14.3	27.7	12.8	21.4	7.8
NONE	31.4	31.9	30.3	42.0	31.9	48.1	25.9	47.8	21.9	25.6
PERCENT OF BUILDING HEATED										
1 TO 25	13.8	13.4	10.2	26.5	29.5	31.3	37.3	14.1	17.0	26.4
26 TO 50	20.4	27.6	22.4	29.8	22.8	18.1	17.8	24.6	19.0	15.8
51 TO 75	19.0	14.9	26.6	23.7	37.0	13.2	6.9	28.5	43.4	8.5
76 TO 99	26.0	23.8	21.2	31.7	29.5	19.1	16.6	28.0	27.6	12.3
100	9.6	13.9	7.7	11.9	7.1	9.0	11.5	11.8	6.1	10.4
NONE	31.4	31.9	30.3	42.0	31.9	48.1	25.9	47.8	21.9	25.6
PERCENT OF BUILDING COOLED										
1 TO 25	15.9	13.1	13.1	25.3	27.6	20.6	29.1	14.8	18.2	21.0
26 TO 50	22.0	22.4	15.4	30.1	41.2	39.6	31.9	17.8	26.4	27.4
51 TO 75	15.8	14.5	19.4	14.4	26.9	10.3	8.1	23.8	39.4	13.9
76 TO 99	15.3	14.9	17.0	21.2	22.0	11.9	12.8	18.4	19.8	11.4
100	14.8	17.6	10.3	14.6	12.3	9.3	10.2	16.4	6.2	10.6
NONE	12.7	22.1	18.2	12.9	12.7	24.1	17.3	14.7	13.0	5.0
AIR CONDITIONING SYSTEM										
WINDOW UNITS	16.7	24.3	15.6	20.8	14.8	15.5	16.0	20.2	11.5	15.9
PACKAGE UNITS	19.0	17.4	7.2	16.7	18.2	14.0	16.3	16.1	8.0	16.2
CENTRAL SYSTEM	12.3	13.5	12.6	11.9	12.4	6.0	11.9	12.7	11.7	12.5
COMBINATION/OTHER	19.4	13.0	18.3	21.9	18.1	19.1	20.2	14.5	20.1	17.5
NO AIR CONDITIONING	12.7	22.1	18.2	12.9	12.7	24.1	17.3	14.7	13.0	5.0

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	13.8	15.3	9.9	15.2	13.7	13.4	15.0	10.7	12.9	11.9
OWNER OR AGENT IS NOT OCCUPANT	11.5	16.3	9.3	16.8	13.0	17.3	21.3	21.4	13.9	20.8
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	15.0	25.2	13.8	19.7	12.8	18.0	12.5	22.6	9.6	12.3
OWNER OR AGENT IS NOT OCCUPANT	31.4	21.2	25.4	13.0	25.3	21.7	13.0	14.6	19.6	13.1
GOVERNMENT-OWNED AND OCCUPIED	33.7	24.9	26.3	30.1	31.7	13.4	18.7	29.8	26.9	8.8
NOT REPORTED	22.4	16.4	31.8	30.9	Q	31.5	21.2	24.1	Q	20.9
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	10.1	14.8	9.6	9.6	9.7	13.3	10.5	10.9	9.2	13.5
10 TO 19	26.3	22.6	14.6	17.3	18.5	10.7	18.8	21.1	11.6	18.8
20 TO 49	17.0	10.6	9.0	12.7	17.0	11.4	18.9	14.8	12.6	13.4
50 TO 99	14.8	19.4	13.9	16.5	18.9	16.2	18.8	15.0	12.8	8.7
100 OR MORE	18.6	19.1	16.2	21.0	16.8	17.1	13.4	18.2	15.0	10.4
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	24.8	31.0	21.8	Q	46.3	49.6	43.6	39.4	34.8	Q
39 OR FEWER HOURS	16.5	30.4	18.6	28.5	16.6	11.9	31.8	28.6	21.3	18.7
40 TO 48 HOURS	15.3	20.5	12.5	22.4	20.6	20.1	21.4	18.7	14.9	12.8
49 TO 60 HOURS	19.2	16.3	9.0	12.9	18.1	15.3	17.3	15.6	13.9	9.2
61 TO 84 HOURS	12.0	20.5	22.3	18.8	24.7	13.2	14.4	14.8	18.3	8.8
MORE THAN 84 HOURS	13.2	10.1	9.6	13.0	14.9	13.8	13.9	13.1	6.5	16.5
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	11.1	13.7	6.6	18.5	14.1	10.4	11.9	16.1	12.6	8.8
NO	10.3	11.8	8.4	10.0	13.1	9.5	11.8	9.3	7.6	11.6
DON'T KNOW/NOT REPORTED	29.1	21.9	11.2	27.2	38.4	30.2	29.3	38.7	40.1	34.6

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: South

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED										
YES	13.8	18.0	7.7	14.2	18.0	17.1	17.2	14.4	12.2	15.0
NO	9.9	11.1	5.8	13.1	9.1	7.6	12.5	11.7	6.3	10.0
DON'T KNOW/NOT REPORTED	20.6	23.3	28.5	14.4	14.1	25.2	21.7	14.5	21.3	10.2
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	13.0	15.1	9.6	19.0	18.9	18.6	15.6	19.4	17.3	11.2
NO	10.3	12.0	6.7	12.1	10.1	8.0	12.8	11.2	5.9	10.7
DON'T KNOW/NOT REPORTED	21.1	15.2	20.5	14.2	19.1	6.1	14.8	23.3	37.5	19.8
REDUCED HEATING										
YES	10.6	13.0	5.9	13.0	10.4	8.5	12.1	11.4	7.1	11.5
NO	12.7	11.8	18.5	18.4	20.5	13.5	18.1	15.2	23.6	13.5
NOT REPORTED/ NOT APPLICABLE	26.5	30.3	26.7	25.2	21.8	29.2	23.1	25.9	16.2	10.7
REDUCED COOLING										
YES	10.2	13.0	8.3	12.5	13.3	11.3	14.4	11.1	5.9	13.7
NO	12.9	16.0	15.8	15.5	13.0	7.6	13.2	14.7	15.5	8.4
NOT REPORTED/ NOT APPLICABLE	12.6	21.0	12.7	16.5	9.4	15.3	12.6	15.6	7.6	7.6
REDUCED HEATING OR REDUCED COOLING										
YES	10.5	12.7	6.1	12.2	10.2	8.3	12.1	11.1	7.4	11.8
NO	13.7	16.0	19.7	20.3	19.7	11.6	17.7	15.5	21.3	12.2
NOT REPORTED	30.1	45.7	48.7	39.3	35.0	Q	Q	35.8	27.6	17.9
NOT APPLICABLE	27.2	36.6	34.3	42.3	31.8	Q	25.6	42.2	19.2	28.2

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
COMMERCIAL BUILDINGS.....	11.2	13.0	9.3	13.1	12.4	12.0	11.4	16.1	18.6	7.0
END USE BY FUEL TYPE										
HEATING FUEL USED.....	13.0	13.1	8.1	13.5	13.8	13.9	12.2	16.8	20.3	7.4
NATURAL GAS.....	20.8	15.8	14.7	17.8	19.5	13.2	14.2	17.9	23.3	5.6
ELECTRICITY.....	6.2	11.7	12.3	14.0	15.3	19.0	21.6	26.4	26.8	16.0
FUEL OIL/KEROSENE.....	24.1	19.6	18.3	16.2	40.7	32.0	12.1	16.5	40.1	3.7
LIQUID PETROLEUM GAS.....	47.5	34.6	12.7	24.7	21.4	9.4	8.1	39.3	9.6	12.7
WOOD.....	37.5	71.1	33.2	32.5	10.4	40.1	13.2	27.3	14.8	5.2
OTHER.....	72.6	55.0	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	14.7	13.6	27.0	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	14.8	12.1	9.6	20.0	9.0	11.5	13.2	25.9	12.9	6.7
ELECTRICITY.....	15.5	12.7	10.6	16.2	8.9	9.0	11.3	19.2	9.0	5.5
OTHER.....	36.0	35.1	36.0	Q	28.1	39.7	37.5	Q	35.4	17.1
NO AIR CONDITIONING FUEL....	21.7	28.6	13.9	27.8	13.6	12.7	13.6	24.9	8.1	9.7
WATER-HEATING FUEL USED.....	16.7	15.3	8.8	14.0	15.3	12.8	11.8	19.8	25.7	10.5
NATURAL GAS.....	22.8	23.0	17.7	18.5	16.0	13.1	15.9	20.1	19.9	6.5
ELECTRICITY.....	18.5	23.7	8.8	14.4	17.0	24.8	10.9	26.4	46.6	26.2
OTHER.....	41.7	42.6	18.6	43.8	14.6	8.9	25.6	34.5	25.4	34.7
NO WATER-HEATING FUEL.....	14.6	12.5	12.4	15.3	13.6	12.8	24.8	16.4	9.4	14.3
MANUFACTURING FUEL USED.....	9.8	9.3	13.0	32.8	32.0	27.1	16.6	28.4	27.2	7.6
ELECTRICITY.....	10.0	12.9	15.0	34.5	32.7	27.0	17.7	29.7	27.8	9.0
OTHER.....	49.1	55.2	37.3	Q	Q	Q	Q	Q	Q	Q
NO MANUFACTURING DONE.....	13.5	15.3	9.9	13.7	10.3	8.8	11.6	16.5	18.7	9.8
COOKING FUEL USED.....	7.4	11.2	10.3	14.9	12.8	12.9	15.6	25.1	24.3	12.2
ELECTRICITY.....	8.5	12.0	7.6	14.9	18.9	22.2	13.9	29.0	36.8	17.0
NATURAL GAS.....	24.8	23.7	24.4	16.7	23.3	13.4	22.8	21.7	26.5	7.3
OTHER.....	61.4	26.7	Q	33.2	Q	18.8	34.7	21.2	Q	28.8
NO COOKING FUEL.....	14.1	17.3	9.7	14.7	11.8	12.5	10.7	13.0	11.6	5.8
SMSA/NONSMSA										
SMSA.....	9.0	7.1	12.1	14.9	15.6	13.7	13.6	19.7	20.6	6.7
NONSMSA.....	31.7	55.8	37.1	Q	33.7	6.9	19.8	48.8	26.4	13.2

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
BUILDING TYPE										
ASSEMBLY	46.8	40.6	46.2	42.5	Q	Q	37.6	Q	Q	44.5
AUTOMOTIVE SALES & SERVICE	24.8	28.0	23.5	18.6	12.3	14.0	9.6	25.2	17.6	9.3
EDUCATION	16.2	28.4	16.1	24.3	15.5	14.5	15.4	21.4	13.3	8.6
FOOD SALES	16.9	22.8	13.4	25.3	13.7	25.2	20.0	25.6	13.2	10.6
HEALTH CARE	76.7	20.1	Q	18.8	Q	7.5	14.0	23.4	Q	7.7
LODGING	23.4	32.7	48.6	26.0	34.3	16.0	21.9	19.1	37.6	15.1
OFFICE	11.0	18.6	22.9	22.0	25.8	8.9	11.0	24.8	29.0	7.0
RESIDENTIAL	24.2	29.3	24.1	19.3	20.7	18.7	44.9	15.6	23.3	15.2
RETAIL/SERVICES	19.0	16.9	11.3	14.5	26.9	26.2	27.7	21.5	29.2	14.5
WAREHOUSE AND STORAGE	18.5	13.1	17.3	29.1	23.6	25.3	21.0	16.6	21.9	14.5
OTHER	23.7	14.3	21.6	28.2	24.9	18.3	22.6	20.0	13.7	14.0
VACANT	45.9	47.8	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE										
1,000 OR LESS	18.1	19.7	8.1	32.0	22.0	21.3	30.1	24.0	13.3	19.2
1,001 TO 5,000	15.6	14.7	3.3	15.5	12.2	11.7	20.5	14.4	15.1	8.7
5,001 TO 10,000	7.4	6.5	6.3	22.8	20.3	21.5	19.2	15.9	11.9	13.3
10,001 TO 25,000	22.7	20.6	5.2	31.2	31.2	29.1	19.3	44.2	Q	17.0
25,001 TO 50,000	21.2	21.7	5.1	25.4	11.9	10.3	11.2	22.8	12.2	9.6
OVER 50,000	21.0	15.3	21.9	13.6	30.1	9.9	17.7	15.5	35.1	5.5
NUMBER OF FLOORS										
ONE FLOOR	6.2	12.0	10.7	11.3	10.7	17.6	8.0	11.2	11.3	4.1
TWO FLOORS	18.0	15.9	16.9	21.1	26.3	16.4	19.5	33.0	45.0	21.5
THREE FLOORS	40.7	34.4	22.4	30.7	Q	26.1	24.2	31.6	39.6	8.2
MORE THAN THREE	21.8	21.2	34.2	17.2	34.0	9.7	21.0	20.8	41.0	5.7
YEAR CONSTRUCTED										
1900 OR BEFORE	44.0	37.9	23.8	Q	48.0	31.7	37.1	Q	Q	18.4
1901 TO 1920	26.8	26.2	28.0	37.4	39.9	28.4	Q	28.5	29.2	25.4
1921 TO 1945	21.7	21.3	28.5	24.3	36.6	22.2	19.9	19.7	27.6	10.6
1946 TO 1960	10.4	13.8	9.1	12.5	12.1	18.8	13.4	12.0	13.3	7.9
1961 TO 1970	7.7	16.2	20.1	23.9	27.5	13.9	25.2	16.6	20.5	14.9
1971 TO 1973	32.9	38.7	Q	38.7	Q	23.6	43.3	38.6	Q	5.6
1974 TO 1979	13.4	15.7	14.7	32.5	39.3	25.5	25.2	47.1	Q	14.5

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
FUEL COMBINATIONS USED										
ONE FUEL USED	11.1	20.8	16.3	25.8	17.6	17.0	9.3	27.5	19.6	9.6
TWO FUELS USED	15.5	11.9	11.8	16.0	17.5	12.9	11.1	22.0	25.5	8.4
ELEC., NATURAL GAS	17.1	13.9	14.5	20.3	18.7	13.0	11.6	28.0	27.0	9.2
ELEC., FUEL OIL/KEROSENE	35.1	49.2	32.7	33.9	12.6	Q	10.1	35.8	15.8	4.8
OTHER	22.3	32.5	17.4	41.4	35.2	26.7	18.9	41.8	33.5	10.8
THREE FUELS USED	10.9	26.0	24.9	19.5	19.2	10.9	25.3	23.9	23.2	11.3
ELEC., GAS, OTHER	48.7	32.0	Q	24.7	Q	14.3	36.6	28.6	Q	13.4
OTHER	59.8	29.4	36.0	Q	39.6	31.1	35.7	49.6	44.6	6.8
FOUR OR MORE FUELS USED	44.6	35.2	Q	Q	Q	Q	Q	Q	Q	Q
ENERGY SOURCES SUPPLIED TO THE BUILDING										
ELECTRICITY	11.1	12.9	9.4	13.0	12.5	12.1	11.4	16.1	18.6	7.0
NATURAL GAS	18.8	14.0	15.1	18.1	18.7	11.9	13.9	23.5	26.9	8.1
FUEL OIL/KEROSENE	22.1	26.5	25.7	17.3	33.7	22.7	27.4	22.7	40.4	7.6
LIQUID PETROLEUM GAS	33.6	25.3	26.0	21.4	30.5	45.0	11.8	27.4	22.2	8.7
WOOD	27.5	43.2	23.4	13.4	26.6	40.2	23.9	16.7	25.6	3.9
OTHER	48.1	34.4	Q	37.2	40.9	7.2	20.7	36.0	Q	18.0
HEATING SYSTEM										
SELF-CONTAINED UNITS										
FORCED-AIR	17.0	12.3	13.5	25.9	11.7	17.1	8.7	26.5	12.3	4.0
COMBINATION/OTHER	32.1	24.7	21.5	31.8	12.3	20.6	28.6	24.8	23.4	16.6
CENTRAL SYSTEM										
FORCED-AIR	23.8	17.2	16.2	15.5	32.3	24.1	18.5	12.8	28.1	11.7
COMBINATION/OTHER	28.3	28.6	30.6	28.3	32.5	18.2	46.9	37.6	Q	26.2
COMBINATION/OTHER	26.7	16.9	26.1	16.2	Q	21.0	21.8	20.9	Q	7.9
NONE	14.7	13.6	27.0	Q	Q	Q	Q	37.4	Q	47.5
PERCENT OF BUILDING HEATED										
1 TO 25	16.4	18.1	17.7	37.0	39.8	43.7	49.1	24.2	25.4	21.4
26 TO 50	19.2	14.8	16.9	24.2	16.3	19.5	25.4	22.7	21.6	10.8
51 TO 75	19.1	20.4	15.7	21.2	6.6	13.9	30.1	28.7	17.1	19.0
76 TO 99	16.8	28.3	16.9	18.6	3.7	20.6	15.5	11.0	13.7	15.3
100	15.0	15.2	14.6	18.4	19.6	11.7	15.1	23.0	28.5	7.7
NONE	14.7	13.6	27.0	Q	Q	Q	Q	37.4	Q	47.5

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
PERCENT OF BUILDING COOLED										
1 TO 25	18.7	20.2	9.2	37.5	25.9	23.6	31.7	Q	38.7	17.9
26 TO 50	19.0	18.0	8.5	17.7	23.4	18.1	20.4	20.5	16.8	8.6
51 TO 75	37.6	19.1	30.4	24.8	26.6	10.0	17.6	36.0	24.0	18.0
76 TO 99	23.0	10.5	23.1	9.5	25.5	9.1	12.5	12.8	14.9	15.1
100	26.5	28.8	22.9	30.6	15.0	14.1	17.0	31.7	16.1	3.2
NONE	21.7	28.6	13.9	27.8	13.6	12.7	13.6	24.9	8.1	9.7
AIR CONDITIONING SYSTEM										
WINDOW UNITS	13.4	16.9	28.1	13.6	16.3	13.6	19.4	18.8	31.6	16.8
PACKAGE UNITS	16.5	9.0	15.4	15.8	15.0	19.0	15.7	12.8	9.3	7.0
CENTRAL SYSTEM	25.9	20.9	30.6	20.1	25.6	5.6	15.8	22.6	21.4	5.4
COMBINATION/OTHER	42.0	35.9	18.0	Q	20.9	23.6	26.7	Q	35.8	18.3
NO AIR CONDITIONING	21.7	28.6	13.9	27.8	13.6	12.7	13.6	24.9	8.1	9.7
OCCUPANCY CHARACTERISTICS										
SINGLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	13.4	18.5	11.5	30.8	29.6	24.5	18.0	39.0	39.3	10.2
OWNER OR AGENT IS NOT OCCUPANT	11.1	9.3	9.1	12.1	15.6	14.9	13.5	8.0	15.3	7.4
MULTIPLE ESTABLISHMENT BUILDING										
OWNER OR AGENT IS OCCUPANT	19.0	26.3	31.0	23.7	23.6	8.7	21.1	29.4	28.5	9.8
OWNER OR AGENT IS NOT OCCUPANT	13.3	15.6	8.3	18.6	15.2	13.4	17.6	37.6	33.9	21.1
GOVERNMENT-OWNED AND OCCUPIED	20.1	35.0	23.0	30.6	15.5	13.0	16.1	31.5	17.9	16.9
NOT REPORTED	39.4	26.7	Q	Q	Q	Q	Q	Q	Q	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING										
LESS THAN 10	20.0	21.6	7.2	25.6	13.4	15.0	11.7	19.9	7.8	10.5
10 TO 19	19.5	8.5	19.3	9.9	19.1	6.4	18.4	13.1	13.0	8.9
20 TO 49	18.3	20.7	12.2	20.4	19.7	35.7	21.4	34.6	32.6	17.4
50 TO 99	13.6	12.4	10.7	17.6	12.2	11.6	12.5	15.4	9.4	7.2
100 OR MORE	34.7	20.2	44.5	20.7	37.6	10.1	17.6	21.0	38.3	5.2

SEE NOTES AT END OF TABLE

Table C3. (Continued)
Census Region: West

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
HOURS OF OPERATION FOR A TYPICAL WEEK										
NONE	56.5	39.5	Q	31.1	Q	Q	Q	31.6	Q	7.3
39 OR FEWER HOURS	16.8	23.7	29.2	32.6	42.5	45.4	30.1	30.6	42.7	10.7
40 TO 48 HOURS	17.5	14.2	8.1	23.2	15.6	14.9	10.3	22.3	21.2	8.8
49 TO 60 HOURS	14.1	11.7	10.7	14.0	19.9	20.5	22.8	7.6	18.4	10.3
61 TO 84 HOURS	13.9	23.9	26.2	28.5	23.9	20.5	27.0	40.0	31.9	14.8
MORE THAN 84 HOURS	19.5	14.3	8.6	11.4	14.2	10.6	8.3	11.1	15.0	5.5
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974										
YES	19.5	16.2	19.0	24.1	28.9	20.6	22.2	36.3	43.3	13.1
NO	8.2	15.2	11.7	11.5	9.1	11.6	13.2	9.9	7.9	5.5
DON'T KNOW/NOT REPORTED	23.9	17.3	34.0	24.7	13.8	25.5	15.5	23.3	14.1	3.5
INSULATION ADDED										
YES	15.7	27.9	32.5	34.2	38.2	9.2	16.7	37.2	44.3	7.3
NO	11.7	17.9	14.0	11.7	10.7	17.4	14.7	14.9	16.5	8.1
DON'T KNOW/NOT REPORTED	12.5	17.5	11.1	9.4	7.5	14.4	26.9	21.1	15.8	14.9
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED										
YES	25.7	34.7	43.9	43.5	Q	10.9	17.8	46.5	Q	4.3
NO	10.8	15.2	11.4	12.3	10.4	14.4	12.8	14.9	16.4	7.6
DON'T KNOW/NOT REPORTED	9.1	15.0	13.0	15.4	12.5	16.6	22.1	25.1	19.6	15.0
REDUCED HEATING										
YES	12.0	12.4	8.6	15.0	14.7	12.9	12.0	20.1	22.4	8.4
NO	22.1	19.0	15.5	17.5	25.4	28.2	18.6	12.7	25.9	10.8
NOT REPORTED/ NOT APPLICABLE	13.5	12.1	24.9	47.2	Q	41.6	48.9	33.7	42.4	32.3
REDUCED COOLING										
YES	19.6	15.1	14.7	22.7	11.5	14.3	16.6	29.9	14.1	8.2
NO	26.4	17.1	20.1	22.4	15.6	13.5	9.9	22.4	14.0	5.3
NOT REPORTED/ NOT APPLICABLE	20.3	25.1	11.8	25.0	12.3	10.5	13.2	20.8	7.1	9.6
REDUCED HEATING OR REDUCED COOLING										
YES	11.6	12.2	8.1	13.7	13.8	13.4	12.9	18.5	20.5	8.2
NO	23.1	20.8	18.7	19.6	29.1	18.2	11.4	19.9	32.7	6.9
NOT REPORTED/ NOT APPLICABLE	14.6	21.9	32.4	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C4. Average Prices per Million Btu for Major Fuels for Commercial Buildings, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
COMMERCIAL BUILDINGS.....	2.0	4.3	3.6	1.1	2.2	4.5
END USE BY FUEL TYPE						
HEATING FUEL USED.....	2.0	4.2	3.7	1.1	2.2	4.5
NATURAL GAS.....	2.0	2.9	3.9	2.7	9.8	11.9
ELECTRICITY.....	8.5	4.2	11.2	4.4	3.1	7.5
FUEL OIL/KEROSENE.....	5.1	9.3	5.5	1.1	6.0	7.6
LIQUID PETROLEUM GAS.....	6.5	16.6	6.0	15.9	2.4	Q
WOOD.....	6.8	21.0	27.1	3.4	14.0	Q
STEAM.....	4.6	13.2	6.5	3.2	Q	4.5
COAL.....	6.0	16.7	7.6	19.0	13.7	Q
OTHER.....	12.3	9.0	19.6	Q	Q	Q
NO HEATING FUEL USED.....	7.7	19.8	11.0	38.9	Q	Q
AIR CONDITIONING FUEL USED..	2.0	4.3	4.5	1.2	2.8	4.2
ELECTRICITY.....	2.2	4.3	-	1.2	2.6	4.6
NATURAL GAS.....	7.7	6.3	6.0	3.4	26.0	Q
OTHER.....	5.5	4.2	7.5	2.7	22.4	4.2
NO AIR CONDITIONING FUEL....	4.0	-	4.7	2.3	2.6	8.6
WATER-HEATING FUEL USED.....	2.1	4.4	3.8	1.1	2.6	4.7
NATURAL GAS.....	1.7	3.3	4.2	2.0	12.6	10.1
ELECTRICITY.....	6.6	4.0	8.8	2.5	3.4	11.0
FUEL OIL/KEROSENE.....	9.7	13.3	7.3	1.6	9.4	6.2
OTHER.....	4.9	17.5	11.0	8.1	3.9	4.2
NO WATER-HEATING FUEL.....	3.5	5.6	4.9	3.1	2.3	7.5
MANUFACTURING FUEL USED.....	3.6	3.9	8.5	3.2	5.5	10.3
ELECTRICITY.....	4.1	4.2	10.7	4.0	4.0	16.3
NATURAL GAS.....	4.5	5.6	6.7	1.9	6.3	3.5
OTHER.....	8.4	10.7	22.6	5.5	5.3	Q
NO MANUFACTURING DONE.....	2.1	4.6	3.4	.9	2.4	4.6
COOKING FUEL USED.....	2.8	3.7	4.3	1.4	3.5	4.8
ELECTRICITY.....	5.3	4.2	7.5	1.7	5.1	5.5
NATURAL GAS.....	1.7	5.0	4.9	1.9	14.6	5.8
LIQUID PETROLEUM GAS.....	20.8	4.0	9.4	5.9	3.2	Q
OTHER.....	10.5	15.4	14.5	6.0	31.1	8.6
NO COOKING FUEL.....	3.0	6.6	5.0	1.6	2.6	6.1

SEE NOTES AT END OF TABLE

Table C4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
CENSUS REGION						
NORTHEAST	4.6	11.4	6.0	1.6	5.9	6.6
NORTH CENTRAL	2.9	2.4	3.8	4.2	4.9	9.2
SOUTH	4.6	7.1	10.2	1.2	4.3	7.9
WEST	5.0	10.1	13.4	10.7	4.2	8.1
SMSA/NONSMSA						
SMSA	1.8	5.1	3.9	1.3	5.4	4.8
NONSMSA	4.6	5.4	8.6	2.4	2.6	17.1
HEATING AND COOLING DEGREE-DAYS						
<2,000 CDD AND >7,000 HDD	9.2	6.3	9.8	3.3	12.0	10.1
<2,000 CDD AND 5,500 TO 7,000 HDD	3.6	5.1	5.1	2.0	7.0	7.2
<2,000 CDD AND 4,000 TO 5,499 HDD	4.0	6.8	7.0	1.7	5.0	3.1
<2,000 CDD AND <4,000 HDD	4.6	6.0	11.0	2.4	4.0	40.8
>2,000 CDD AND <4,000 HDD	7.6	7.6	7.0	3.5	4.2	9.2
BUILDING TYPE						
ASSEMBLY	3.4	7.9	15.2	2.1	7.2	8.0
AUTOMOTIVE SALES & SERVICE	4.6	7.3	9.5	3.0	6.4	Q
EDUCATION	3.0	3.2	5.6	4.8	15.6	17.9
FOOD SALES	4.6	8.5	8.0	1.8	5.2	29.8
HEALTH CARE	2.4	9.2	11.2	3.2	40.2	13.8
LODGING	4.5	6.5	5.7	6.3	8.3	7.2
OFFICE	2.4	8.6	9.5	2.1	9.5	3.6
RESIDENTIAL	3.7	5.3	15.4	1.0	23.5	22.2
RETAIL/SERVICES	4.3	5.1	5.3	1.8	2.8	4.3
WAREHOUSE AND STORAGE	10.0	6.4	9.2	5.0	6.6	23.0
OTHER	3.4	14.7	9.3	5.1	4.7	8.5
VACANT	11.1	5.1	4.6	5.4	31.6	Q
TOTAL SQUARE FOOTAGE						
1,000 OR LESS	7.3	5.3	12.3	3.7	4.8	Q
1,001 TO 5,000	3.4	7.1	7.0	1.8	5.2	Q
5,001 TO 10,000	3.2	2.8	5.8	3.5	3.4	8.3
10,001 TO 25,000	6.1	3.2	10.4	3.4	4.6	15.7
25,001 TO 50,000	2.7	12.0	4.1	4.1	5.3	8.7
OVER 50,000	2.5	4.2	5.3	1.6	6.2	4.4

SEE NOTES AT END OF TABLE

Table C4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
NUMBER OF FLOORS						
ONE FLOOR	2.5	5.2	3.9	2.9	2.3	21.3
TWO FLOORS	3.2	3.4	6.4	2.6	3.0	13.2
THREE FLOORS	1.5	3.4	9.9	3.7	6.3	8.0
MORE THAN THREE	4.7	9.4	5.9	2.2	22.9	4.1
YEAR CONSTRUCTED						
1900 OR BEFORE	6.2	22.9	9.6	2.8	11.6	Q
1901 TO 1920	4.0	8.4	15.2	4.2	8.8	10.3
1921 TO 1945	6.2	11.4	6.9	2.4	5.4	7.5
1946 TO 1960	2.3	5.7	5.2	1.6	3.8	8.0
1961 TO 1970	2.0	3.5	4.1	2.3	4.5	6.3
1971 TO 1973	3.6	4.1	7.6	4.9	5.5	15.7
1974 TO 1979	4.8	6.3	6.3	7.3	4.7	15.0
FUEL COMBINATIONS USED						
ONE FUEL USED	31.6	6.0	8.1	29.8	Q	Q
TWO FUELS USED	1.8	4.1	3.9	1.8	2.4	4.4
ELEC., NATURAL GAS	1.9	2.9	4.5	-	-	-
ELEC., FUEL OIL/KEROSENE	-	9.0	6.7	1.9	-	-
ELEC., LPG	-	19.3	12.8	-	2.5	-
OTHER	Q	19.0	7.9	Q	Q	4.4
THREE FUELS USED	3.8	7.6	5.2	1.8	3.8	6.0
ELEC., GAS, FUEL OIL/ KEROSENE	4.3	12.4	5.5	1.8	-	-
ELEC., FUEL OIL/KEROSENE, LPG	-	8.7	11.4	7.0	6.7	-
ELEC., GAS, OTHER	4.9	8.6	10.2	-	9.3	7.5
ELEC., FUEL OIL/KEROSENE, OTHER	-	11.6	26.2	3.8	-	10.7
OTHER	Q	8.2	6.9	Q	3.5	8.1
FOUR OR MORE FUELS USED	9.3	8.2	14.5	3.4	6.4	7.5
ENERGY SOURCES SUPPLIED TO THE BUILDING						
ELECTRICITY	2.0	4.3	3.6	1.1	2.1	4.5
NATURAL GAS	2.0	4.4	3.9	1.5	9.4	6.6
FUEL OIL/KEROSENE	3.9	8.9	7.6	1.1	4.4	11.3
LIQUID PETROLEUM GAS	11.3	8.6	11.2	4.4	2.2	47.4
WOOD	11.2	19.8	23.1	6.1	8.8	Q
COAL	7.0	15.5	7.0	14.6	10.9	Q
STEAM	4.8	12.9	5.8	4.3	48.5	4.5
OTHER	4.0	11.1	7.1	5.8	5.9	4.5

Table C4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
HEATING SYSTEM						
SELF-CONTAINED UNITS						
FORCED-AIR	3.1	6.1	4.2	5.8	3.9	36.2
RADIANT	3.8	10.3	14.4	3.4	14.6	Q
COMBINATION/OTHER	7.8	7.4	7.9	2.2	7.2	49.3
CENTRAL SYSTEM						
FORCED-AIR	1.8	6.0	8.4	2.9	3.5	6.1
RADIANT	2.6	7.6	7.9	2.3	4.6	6.5
COMBINATION/OTHER	3.8	3.8	6.2	3.0	6.4	5.9
COMBINATION/OTHER						
FORCED-AIR	15.6	11.3	8.1	4.4	19.6	Q
RADIANT	10.6	26.7	26.2	6.7	Q	41.3
COMBINATION/OTHER	2.0	3.8	8.9	3.4	5.9	Q
NONE	7.9	20.0	11.0	38.9	Q	Q
PERCENT OF BUILDING HEATED						
1 TO 25	8.9	7.2	8.2	11.3	7.3	19.0
26 TO 50	14.7	10.2	9.8	6.5	4.2	27.5
51 TO 75	3.2	4.1	10.1	3.3	5.9	12.6
76 TO 99	6.5	8.1	11.4	3.1	10.2	9.7
100	1.7	5.2	4.2	1.2	2.4	4.3
NONE	7.9	20.0	11.0	38.9	Q	Q
PERCENT OF BUILDING COOLED						
1 TO 25	5.3	4.9	14.5	2.9	4.1	6.5
26 TO 50	2.6	4.7	11.0	4.0	5.4	10.4
51 TO 75	2.4	12.5	10.4	2.6	9.0	8.9
76 TO 99	3.7	6.6	11.2	3.2	8.6	5.2
100	3.1	4.8	4.3	3.1	3.9	5.4
NONE	4.0	-	4.7	2.3	2.6	8.6
AIR CONDITIONING SYSTEM						
WINDOW UNITS	2.4	3.9	17.4	3.4	6.9	12.0
PACKAGE UNITS	3.3	3.4	6.5	3.3	4.4	13.6
CENTRAL SYSTEM	2.7	5.2	3.8	2.4	4.3	4.5
COMBINATION/OTHER	6.1	10.1	7.7	2.3	7.1	6.1
NO AIR CONDITIONING	4.0	-	4.7	2.3	2.6	8.6

SEE NOTES AT END OF TABLE

Table C4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
OCCUPANCY CHARACTERISTICS						
SINGLE ESTABLISHMENT BUILDING						
OWNER OR AGENT IS OCCUPANT	2.5	5.0	6.1	1.9	3.1	11.0
OWNER OR AGENT IS NOT OCCUPANT	2.8	4.5	3.8	1.3	2.5	7.5
MULTIPLE ESTABLISHMENT BUILDING						
OWNER OR AGENT IS OCCUPANT	2.1	12.8	7.2	1.3	4.2	7.2
OWNER OR AGENT IS NOT OCCUPANT	2.6	6.3	7.2	2.6	20.8	7.1
GOVERNMENT-OWNED AND OCCUPIED	2.9	4.8	5.4	2.0	13.6	5.4
NOT REPORTED	28.5	13.5	14.3	4.8	3.7	16.6
NUMBER OF PEOPLE WORKING IN THE BUILDING						
LESS THAN 10	3.5	3.5	4.9	1.4	3.1	9.1
10 TO 19	2.9	5.6	4.2	2.8	2.7	19.1
20 TO 49	4.9	3.5	11.2	3.7	5.0	9.2
50 TO 99	3.2	9.6	3.6	4.9	10.7	6.4
100 OR MORE	2.7	7.2	4.6	2.3	7.7	4.4
HOURS OF OPERATION FOR A TYPICAL WEEK						
NONE	12.3	7.6	6.0	4.9	Q	Q
39 OR FEWER HOURS	2.8	13.4	11.4	4.9	2.5	42.9
40 TO 48 HOURS	2.6	10.1	6.7	2.5	3.5	6.8
49 TO 60 HOURS	2.4	3.3	7.5	2.8	4.5	7.0
61 TO 84 HOURS	3.5	7.8	8.5	1.8	5.5	10.9
MORE THAN 84 HOURS	3.8	4.0	3.8	2.0	4.7	5.4
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974						
YES	2.0	6.3	4.8	1.4	3.3	4.3
NO	2.8	4.2	4.3	1.6	3.9	7.2
DON'T KNOW/NOT REPORTED	5.1	13.9	8.0	3.1	14.3	16.5

SEE NOTES AT END OF TABLE

Table C4. (Continued)

BUILDING CHARACTERISTICS	AVERAGE PRICE PER MILLION BTU (DOLLARS)					
	NATURAL GAS	ELECTRICITY		FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS	STEAM
		USED FOR AIR CONDITIONING	NOT USED FOR AIR CONDITIONING			
INSULATION ADDED						
YES	4.4	4.8	7.4	1.8	3.4	8.5
NO	1.7	5.0	4.1	1.6	3.3	4.8
DON'T KNOW/NOT REPORTED	3.3	10.3	7.9	3.0	6.8	13.7
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED						
YES	1.7	4.7	7.7	2.7	4.2	11.7
NO	2.4	4.7	3.9	1.3	3.1	4.5
DON'T KNOW/NOT REPORTED	3.4	13.9	10.6	3.1	5.5	16.6
REDUCED HEATING						
YES	2.3	4.8	4.5	1.3	2.2	5.3
NO	2.1	4.6	5.3	1.8	4.3	6.7
NOT REPORTED/ NOT APPLICABLE	6.1	8.4	9.5	10.5	16.5	33.0
REDUCED COOLING						
YES	2.7	4.0	5.6	1.7	3.6	4.9
NO	2.0	12.8	8.1	1.6	6.4	10.3
NOT REPORTED/ NOT APPLICABLE	2.8	4.7	4.6	1.4	3.1	8.3
REDUCED HEATING OR REDUCED COOLING						
YES	2.2	4.7	4.3	1.2	2.2	5.1
NO	2.4	4.5	6.4	2.0	4.6	7.4
NOT REPORTED	11.4	10.2	17.0	6.8	27.8	30.7
NOT APPLICABLE	7.2	10.5	11.0	38.5	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C5. Energy Consumption and Expenditures for Commercial Buildings by Fuel Type, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
COMMERCIAL BUILDINGS.....	5.5	6.4	9.2	7.4	8.9	15.3	14.0	6.3	8.9	7.7	9.1	16.0	15.2
END USE BY FUEL TYPE													
HEATING FUEL USED.....	5.3	6.5	9.4	7.3	9.0	15.5	13.8	6.2	9.1	7.5	9.2	16.2	15.1
NATURAL GAS.....	8.7	8.9	9.9	9.1	16.9	33.4	36.8	7.9	9.7	8.2	16.3	41.3	32.8
ELECTRICITY.....	13.0	14.8	28.4	14.0	24.2	35.4	13.6	15.2	19.6	16.8	25.0	36.1	18.8
FUEL OIL/KEROSENE.....	10.3	11.2	34.6	11.0	8.7	39.5	46.9	10.2	34.0	14.9	8.7	35.5	45.5
LIQUID PETROLEUM GAS.....	15.7	19.9	40.5	20.4	Q	18.8	Q	18.3	38.0	16.9	Q	20.0	Q
WOOD.....	24.0	31.4	41.6	Q	35.0	Q	Q	47.5	41.8	Q	37.2	Q	Q
STEAM.....	22.0	15.0	27.5	22.8	Q	Q	14.1	15.7	29.4	18.5	Q	Q	15.5
COAL.....	23.2	Q	24.7	34.0	Q	Q	Q	41.2	24.0	25.3	Q	49.9	Q
OTHER.....	43.2	44.8	Q	41.9	Q	Q	Q	42.6	Q	39.9	Q	Q	Q
NO HEATING FUEL USED.....	16.6	27.2	42.9	27.5	Q	Q	Q	27.7	42.7	28.6	Q	Q	Q
AIR CONDITIONING FUEL USED..	7.1	7.6	10.6	8.2	12.4	21.4	13.2	7.3	10.3	8.6	12.5	22.3	13.8
ELECTRICITY.....	7.4	7.6	11.1	8.1	13.5	23.3	16.4	7.1	10.7	8.4	13.5	23.8	17.5
NATURAL GAS.....	9.3	26.9	35.9	19.0	36.5	Q	Q	19.4	27.4	22.3	36.9	48.5	Q
OTHER.....	17.7	13.1	24.4	17.9	32.2	47.1	9.8	14.2	23.7	18.0	32.1	39.7	10.4
NO AIR CONDITIONING FUEL....	9.1	9.1	13.6	12.2	13.1	16.1	37.6	8.6	12.5	11.2	12.9	17.7	41.8
WATER-HEATING FUEL USED.....	5.8	7.5	10.0	8.5	11.2	18.4	15.2	7.1	9.8	8.4	11.2	19.4	14.6
NATURAL GAS.....	8.0	10.0	11.2	9.9	21.0	45.0	40.0	9.1	11.2	9.1	20.4	Q	35.0
ELECTRICITY.....	7.9	10.2	17.0	9.4	18.2	20.8	45.6	10.0	12.9	11.7	18.0	19.3	41.9
FUEL OIL/KEROSENE.....	13.1	11.7	21.1	17.2	12.7	Q	44.7	17.6	23.0	24.0	12.4	Q	41.7
OTHER.....	16.5	18.3	26.8	30.4	37.9	23.8	15.4	18.2	27.7	22.0	39.0	24.6	16.1
NO WATER-HEATING FUEL.....	6.8	12.1	19.4	16.3	18.4	26.4	36.9	13.5	18.2	16.6	17.0	26.6	40.4
MANUFACTURING FUEL USED.....	11.2	19.5	29.8	9.3	24.8	36.3	49.2	13.0	30.1	8.7	25.2	36.8	46.5
ELECTRICITY.....	13.3	23.5	36.3	10.9	22.7	49.4	Q	15.6	37.5	10.2	23.9	Q	Q
NATURAL GAS.....	11.1	32.4	41.1	22.5	45.5	Q	Q	24.7	42.4	20.0	45.9	Q	Q
OTHER.....	24.1	40.3	Q	15.6	32.0	40.9	Q	30.5	Q	16.7	32.6	40.3	Q
NO MANUFACTURING DONE.....	5.7	5.8	7.6	8.3	8.6	16.1	14.6	6.9	7.4	8.7	8.8	17.1	15.4
COOKING FUEL USED.....	7.5	11.1	15.8	11.3	8.9	28.1	14.2	10.2	14.7	11.0	8.8	27.6	15.5
ELECTRICITY.....	9.8	12.0	17.9	13.1	14.9	43.1	14.2	11.6	13.9	13.2	14.8	41.5	16.7
NATURAL GAS.....	8.3	13.1	17.7	13.8	9.2	44.1	22.4	11.5	17.2	12.5	8.6	41.2	23.3
LIQUID PETROLEUM GAS.....	19.8	20.9	Q	30.8	21.7	22.2	Q	23.9	Q	30.4	24.4	22.3	Q
OTHER.....	28.6	Q	Q	34.2	49.2	Q	31.9	41.7	Q	44.4	47.9	Q	35.7
NO COOKING FUEL.....	5.3	6.4	11.6	7.9	14.2	19.8	18.8	7.3	10.3	9.8	14.3	21.1	21.7

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
CENSUS REGION													
NORTHEAST	12.7	12.9	28.2	17.5	8.1	Q	23.0	10.3	25.2	13.9	8.2	Q	19.3
NORTH CENTRAL	10.0	9.3	12.0	10.3	19.0	20.0	25.2	8.6	11.9	10.1	21.6	22.4	31.0
SOUTH	10.6	11.3	18.0	12.5	20.5	22.7	23.9	10.9	17.3	13.4	20.5	21.2	21.9
WEST	11.2	13.1	20.2	12.5	21.4	17.6	46.6	16.1	16.1	20.4	23.4	18.0	Q
SMSA/NONSMSA													
SMSA	7.7	8.0	11.9	8.8	9.3	27.9	15.8	7.3	11.6	8.3	9.2	30.4	17.0
NONSMSA	8.1	9.3	20.3	12.0	14.8	17.4	39.9	9.2	17.9	15.6	15.8	17.3	47.6
HEATING AND COOLING DEGREE-DAYS													
<2,000 CDD AND >7,000 HDD	37.9	37.9	43.9	41.7	34.8	Q	33.1	40.4	45.5	44.7	34.1	Q	32.9
<2,000 CDD AND 5,500 TO 7,000 HDD	13.1	13.2	15.4	15.2	16.5	38.4	33.7	12.2	12.8	13.2	17.2	40.3	36.1
<2,000 CDD AND 4,000 TO 5,499 HDD	25.7	19.3	32.0	22.3	12.4	37.7	17.0	17.1	30.5	20.4	12.3	36.4	16.1
<2,000 CDD AND <4,000 HDD	30.9	31.4	29.2	32.7	47.4	Q	45.6	30.8	29.4	30.6	47.2	Q	33.2
>2,000 CDD AND <4,000 HDD	44.4	29.5	32.2	35.7	47.1	43.9	Q	37.1	31.1	40.1	45.2	45.7	Q
BUILDING TYPE													
ASSEMBLY	12.5	12.6	18.9	15.3	20.7	41.2	34.2	12.2	17.4	18.0	20.4	40.0	30.8
AUTOMOTIVE SALES & SERVICE	9.4	13.8	20.8	20.8	18.1	Q	Q	12.5	18.2	16.9	18.1	Q	Q
EDUCATION	14.2	10.5	18.0	12.7	12.6	39.5	42.2	10.3	16.6	11.7	15.1	37.9	41.0
FOOD SALES	7.4	8.7	13.4	11.3	32.7	23.7	48.3	11.1	12.8	13.5	32.5	25.3	45.4
HEALTH CARE	16.5	15.0	19.4	16.6	23.1	Q	23.0	13.3	19.9	14.1	23.1	48.7	24.5
LODGING	13.4	13.5	14.3	21.7	25.0	Q	34.0	16.7	13.2	20.2	23.9	Q	34.2
OFFICE	6.1	8.0	10.0	10.3	20.5	47.0	21.9	12.0	10.1	14.3	19.5	46.3	20.3
RESIDENTIAL	9.4	14.5	15.7	16.3	29.0	Q	Q	13.4	15.4	13.8	28.6	Q	Q
RETAIL/SERVICES	8.8	11.7	11.7	17.4	18.3	27.8	Q	14.9	11.1	17.7	17.6	29.4	Q
WAREHOUSE AND STORAGE	8.2	16.8	30.1	10.8	17.6	Q	Q	8.8	23.1	9.4	20.5	Q	Q
OTHER	11.9	29.7	Q	29.9	33.0	34.0	42.8	17.9	Q	21.2	31.0	33.5	45.0
VACANT	15.3	29.4	49.4	22.1	45.4	Q	Q	16.4	46.3	21.5	46.1	Q	Q
TOTAL SQUARE FOOTAGE													
1,000 OR LESS	9.9	25.2	45.4	15.0	27.5	30.2	Q	12.5	42.3	14.6	26.2	28.8	Q
1,001 TO 5,000	6.0	6.8	10.1	12.5	15.9	27.0	Q	9.4	9.4	13.4	15.4	24.0	Q
5,001 TO 10,000	7.2	9.3	15.5	14.0	16.5	23.3	Q	8.5	13.8	12.6	14.9	26.2	Q
10,001 TO 25,000	8.5	21.0	33.8	11.8	21.3	47.9	34.1	13.6	31.5	14.0	19.9	48.6	37.7
25,001 TO 50,000	8.8	12.3	13.1	16.1	22.5	34.6	29.1	18.1	12.6	21.4	22.3	34.3	29.2
OVER 50,000	8.4	7.3	8.5	10.5	11.2	25.0	14.6	7.8	8.4	9.1	11.8	22.9	16.1

SEE NOTES AT END OF TABLE

Table C5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
NUMBER OF FLOORS													
ONE FLOOR	6.7	6.5	10.0	9.3	15.4	22.4	46.7	8.3	9.1	10.5	14.0	22.8	39.0
TWO FLOORS	8.6	7.2	10.8	10.2	14.2	36.7	Q	8.7	10.4	11.1	13.4	37.0	Q
THREE FLOORS	12.4	6.9	9.5	11.8	13.3	27.6	24.7	7.6	9.2	10.7	13.3	29.8	26.2
MORE THAN THREE	9.0	12.4	25.1	11.7	12.0	45.0	15.8	8.3	23.6	10.6	12.5	43.8	15.4
YEAR CONSTRUCTED													
1900 OR BEFORE	14.6	17.4	20.3	30.8	29.3	39.5	48.4	33.6	18.7	44.2	28.3	38.9	49.3
1901 TO 1920	10.1	13.1	16.9	20.0	19.0	40.6	42.1	13.1	15.6	17.0	17.8	33.5	48.8
1921 TO 1945	7.6	18.0	28.7	19.3	10.4	31.5	31.2	11.8	26.7	13.2	11.1	32.2	34.0
1946 TO 1960	8.3	7.4	14.2	10.8	12.6	49.6	14.9	8.9	14.1	12.6	12.1	47.4	16.8
1961 TO 1970	7.1	10.4	13.0	10.7	21.6	31.6	18.6	9.5	13.2	9.8	20.6	29.3	20.0
1971 TO 1973	8.0	15.3	21.4	13.0	31.6	19.3	32.2	12.0	20.4	11.5	29.5	20.2	42.7
1974 TO 1979	9.1	10.9	15.9	13.5	25.5	31.8	24.7	13.8	14.4	16.1	26.3	35.4	18.9
FUEL COMBINATIONS USED													
ONE FUEL USED	18.1	21.1	Q	20.9	Q	Q	Q	24.5	Q	24.5	Q	Q	Q
TWO FUELS USED	6.9	7.2	8.1	10.5	13.2	15.8	21.8	7.2	7.9	8.8	13.6	16.4	21.5
ELEC., NATURAL GAS	8.7	7.9	8.1	10.5	-	-	-	8.4	7.9	9.7	-	-	-
ELEC., FUEL OIL/KEROSENE	12.4	14.0	-	18.2	13.2	-	-	13.6	-	14.9	13.6	-	-
ELEC., LPG	14.7	20.3	-	28.6	-	16.5	-	23.5	-	26.8	-	16.9	-
OTHER	17.2	29.3	Q	39.1	Q	Q	21.8	27.1	Q	31.9	Q	Q	21.5
THREE FUELS USED	8.3	11.3	24.7	8.1	7.1	34.5	18.7	7.8	24.1	10.0	7.4	34.3	20.5
ELEC., GAS, FUEL OIL/ KEROSENE	11.1	13.7	27.4	10.5	7.5	-	-	11.2	26.8	16.0	7.8	-	-
ELEC., FUEL OIL/KEROSENE, OTHER	26.5	24.3	-	31.3	25.1	48.9	27.7	30.0	-	36.3	24.7	43.3	25.5
ELEC., GAS, OTHER	15.4	17.6	18.9	18.5	-	48.5	24.2	21.1	17.4	22.4	-	Q	26.3
OTHER	26.7	33.4	Q	30.9	Q	35.6	40.3	33.1	Q	31.2	Q	36.5	41.0
FOUR OR MORE FUELS USED	24.2	25.5	31.6	32.2	39.6	37.1	28.4	27.0	28.4	36.4	38.7	38.5	31.9
ENERGY SOURCES SUPPLIED TO THE BUILDING													
ELECTRICITY	5.5	6.3	9.2	7.4	9.0	16.0	14.0	6.3	8.9	7.7	9.2	16.5	15.2
NATURAL GAS	7.7	7.7	9.2	8.0	11.7	32.3	19.8	6.8	8.9	7.6	11.5	39.4	21.8
FUEL OIL/KEROSENE	10.3	9.9	24.4	8.4	8.9	33.9	19.6	8.3	24.1	11.2	9.1	31.6	23.5
LIQUID PETROLEUM GAS	13.9	12.7	36.3	13.3	11.5	15.3	Q	12.0	31.3	14.0	14.5	16.0	Q
WOOD	20.5	24.5	35.8	43.7	31.8	39.9	Q	37.1	36.2	47.7	33.9	42.8	Q
COAL	22.3	49.4	28.7	31.6	Q	44.9	Q	38.5	26.1	24.2	Q	42.0	Q
STEAM	20.8	14.6	25.2	22.2	Q	Q	14.0	15.4	27.2	18.2	Q	Q	15.2
OTHER	25.2	34.8	43.3	43.8	Q	Q	25.1	38.7	42.0	46.0	Q	Q	24.3

SEE NOTES AT END OF TABLE

Table C5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
HEATING SYSTEM													
SELF-CONTAINED UNITS													
FORCED-AIR	7.1	9.7	12.2	11.1	28.5	28.2	49.1	9.6	11.0	11.7	27.7	29.1	Q
RADIANT	13.5	19.8	19.2	25.4	36.6	Q	Q	19.2	17.0	21.5	35.3	Q	Q
COMBINATION/OTHER	8.7	13.6	21.0	13.2	21.3	30.0	Q	13.8	16.7	15.7	22.0	28.6	Q
CENTRAL SYSTEM													
FORCED-AIR	7.1	6.8	9.6	13.5	8.6	22.3	18.3	7.7	9.0	10.6	8.5	22.4	21.3
RADIANT	9.8	13.7	25.2	15.5	10.4	39.9	23.7	9.7	25.0	14.8	10.8	39.5	25.1
COMBINATION/OTHER	10.1	9.8	13.5	9.1	22.7	33.2	17.1	8.8	13.6	8.7	21.5	31.1	20.1
COMBINATION/OTHER													
FORCED-AIR	14.3	40.8	Q	30.5	38.7	Q	Q	30.7	Q	32.2	39.3	Q	Q
RADIANT	19.1	Q	26.1	Q	Q	Q	Q	Q	26.1	Q	Q	Q	Q
COMBINATION/OTHER	13.4	12.0	16.3	11.6	21.6	35.2	48.8	10.7	15.1	10.8	21.5	37.9	49.0
NONE	16.9	27.7	43.5	28.1	Q	Q	Q	28.2	43.2	29.2	Q	Q	Q
PERCENT OF BUILDING HEATED													
1 TO 25	8.6	17.3	28.4	12.1	28.5	41.1	Q	11.5	25.6	11.4	34.2	39.3	Q
26 TO 50	11.1	34.0	Q	16.7	28.6	35.8	Q	15.9	35.7	15.9	25.0	34.8	Q
51 TO 75	10.6	12.1	21.8	14.7	21.0	43.8	44.5	11.5	21.2	15.3	20.7	44.9	Q
76 TO 99	12.9	14.8	17.8	16.5	29.8	33.6	31.2	15.8	18.0	16.7	28.9	30.0	32.9
100	6.1	7.3	11.1	9.2	10.0	21.2	10.8	7.8	10.9	9.9	9.8	22.2	10.5
NONE	16.9	27.7	43.5	28.1	Q	Q	Q	28.2	43.2	29.2	Q	Q	Q
PERCENT OF BUILDING COOLED													
1 TO 25	7.0	14.9	23.3	11.4	16.3	43.0	17.0	10.6	22.5	11.0	16.0	46.6	19.3
26 TO 50	9.4	13.6	16.7	12.4	23.6	28.0	29.2	9.4	15.7	10.1	22.4	28.0	35.6
51 TO 75	9.7	9.0	10.6	15.4	23.3	Q	27.6	20.4	11.3	26.1	23.1	Q	30.7
76 TO 99	13.4	11.9	13.2	12.7	21.3	35.8	20.7	11.5	14.1	12.0	20.8	36.3	19.0
100	12.7	10.5	10.9	13.4	27.9	27.1	19.9	12.1	11.0	13.7	26.4	26.9	18.8
NONE	9.1	9.1	13.6	12.2	13.1	16.1	37.6	8.6	12.6	11.2	12.9	17.7	41.8
AIR CONDITIONING SYSTEM													
WINDOW UNITS	8.2	21.6	35.3	13.8	16.9	28.4	31.1	14.5	34.4	14.2	15.9	27.4	33.2
PACKAGE UNITS	12.9	9.2	12.1	10.2	24.2	23.3	36.6	9.7	10.7	11.5	23.8	22.7	35.5
CENTRAL SYSTEM	7.2	8.7	11.4	10.0	20.7	Q	16.1	7.9	10.5	8.8	20.5	Q	15.3
COMBINATION/OTHER	10.3	11.2	18.0	14.6	11.5	44.6	16.6	11.3	14.1	14.8	12.1	45.9	19.1
NO AIR CONDITIONING	9.1	9.1	13.6	12.2	13.1	16.1	37.6	8.6	12.6	11.2	12.9	17.7	41.8

SEE NOTES AT END OF TABLE

Table C5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
OCCUPANCY CHARACTERISTICS													
SINGLE ESTABLISHMENT BUILDING													
OWNER OR AGENT IS OCCUPANT	7.1	8.1	11.5	9.6	16.1	25.2	24.6	6.7	10.4	8.3	16.0	25.8	19.7
OWNER OR AGENT IS NOT OCCUPANT	7.8	10.0	13.2	11.8	19.1	35.7	29.5	10.3	12.8	12.2	18.9	35.6	22.7
MULTIPLE ESTABLISHMENT BUILDING													
OWNER OR AGENT IS OCCUPANT	8.3	10.2	8.4	14.0	13.1	35.8	Q	16.4	8.2	19.3	13.1	35.6	Q
OWNER OR AGENT IS NOT OCCUPANT	13.5	11.8	15.1	16.3	29.5	48.6	37.5	12.9	14.4	15.4	28.9	46.6	39.2
GOVERNMENT-OWNED AND OCCUPIED	12.9	18.9	32.6	16.1	20.8	Q	23.6	14.2	33.5	14.9	20.1	Q	26.1
NOT REPORTED	17.2	Q	Q	38.7	38.7	Q	48.2	31.8	Q	35.8	37.0	20.8	Q
NUMBER OF PEOPLE WORKING IN THE BUILDING													
LESS THAN 10	5.9	7.3	13.1	10.2	15.1	15.2	37.5	7.3	11.5	10.4	14.5	15.1	35.6
10 TO 19	12.0	11.7	17.1	10.5	19.9	Q	46.4	10.6	15.7	12.6	20.4	Q	44.0
20 TO 49	9.0	18.2	28.7	10.4	17.3	40.4	26.6	12.3	26.7	12.0	17.0	42.7	27.5
50 TO 99	11.6	14.0	13.9	21.7	21.8	41.1	23.2	15.3	14.6	17.7	20.1	38.9	24.1
100 OR MORE	11.5	10.0	10.6	11.3	17.0	29.6	17.8	10.1	10.7	11.5	17.9	31.9	20.1
HOURS OF OPERATION FOR A TYPICAL WEEK													
NONE	18.3	35.2	Q	24.3	38.0	Q	Q	24.5	49.2	22.9	37.3	Q	Q
39 OR FEWER HOURS	9.5	18.7	25.9	24.1	19.3	30.0	Q	17.2	24.0	21.9	17.4	29.4	Q
40 TO 48 HOURS	6.8	10.9	10.7	13.9	20.6	21.9	32.7	15.5	10.2	18.7	19.4	19.9	32.5
49 TO 60 HOURS	8.2	15.0	26.1	10.1	14.9	Q	23.6	10.6	25.1	10.7	13.3	Q	20.1
61 TO 84 HOURS	6.6	12.8	13.6	17.1	15.7	38.3	20.8	12.6	12.9	14.3	16.8	38.4	21.3
MORE THAN 84 HOURS	7.4	6.7	11.5	7.5	12.4	23.7	15.2	6.3	9.2	8.4	13.4	24.5	19.3
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974													
YES	5.8	7.5	10.2	8.7	10.3	19.5	18.8	8.3	10.3	10.4	10.1	20.3	20.0
NO	6.3	7.6	12.9	9.4	10.4	18.9	16.0	7.3	12.6	9.2	10.7	20.5	20.0
DON'T KNOW/NOT REPORTED	9.9	18.6	24.2	22.1	19.6	44.9	Q	18.1	24.1	20.5	18.3	43.0	46.8

SEE NOTES AT END OF TABLE

Table C5. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL CONSUMPTION (QUADRILLION BTU)						TOTAL EXPENDITURES (MILLION DOLLARS)					
		ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM	ALL FUELS	NATURAL GAS	ELEC-TRICITY	FUEL OIL/ KERO-SENE	LIQUID PETRO-LEUM GAS	STEAM
INSULATION ADDED													
YES	6.5	7.5	11.8	9.1	11.1	18.3	21.6	7.7	9.3	9.9	11.1	17.6	22.9
NO	6.0	7.1	11.3	8.8	11.4	26.8	15.4	7.1	10.9	9.2	11.7	28.8	17.6
DON'T KNOW/NOT REPORTED	10.7	12.8	20.8	19.7	25.3	Q	Q	10.2	16.9	13.0	24.5	Q	Q
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED													
YES	6.4	8.0	10.4	11.1	12.9	21.0	29.8	9.1	10.9	10.8	12.5	20.8	30.9
NO	5.9	6.8	10.4	8.4	10.7	18.8	13.8	6.8	9.8	8.9	10.8	20.3	16.2
DON'T KNOW/NOT REPORTED	9.4	15.1	21.7	20.4	22.9	Q	Q	11.4	16.9	13.3	22.5	Q	Q
REDUCED HEATING													
YES	5.7	7.0	10.5	7.9	9.9	13.3	15.6	6.5	10.2	7.9	10.0	13.9	17.1
NO	7.6	10.2	13.1	10.4	17.1	Q	26.1	9.7	12.9	10.2	15.7	Q	30.7
NOT REPORTED/ NOT APPLICABLE	15.2	17.5	32.2	19.4	36.2	47.7	Q	17.8	32.7	18.8	39.3	Q	Q
REDUCED COOLING													
YES	7.8	6.8	8.6	8.9	15.3	19.8	15.8	7.2	8.6	8.6	15.6	20.0	14.2
NO	13.1	16.2	22.4	15.7	24.9	Q	43.2	20.3	21.9	24.0	24.3	Q	Q
NOT REPORTED/ NOT APPLICABLE	6.9	10.7	19.3	9.7	9.9	15.5	27.8	8.1	18.6	9.1	10.1	16.5	32.2
REDUCED HEATING OR REDUCED COOLING													
YES	5.7	6.6	9.9	7.5	9.3	13.0	15.7	6.2	9.7	7.7	9.5	13.6	16.9
NO	8.6	13.0	16.6	13.6	20.3	Q	32.0	12.7	15.3	13.4	19.1	Q	37.0
NOT REPORTED	22.5	22.8	30.0	28.4	38.8	Q	49.4	23.7	28.0	26.2	41.3	Q	47.8
NOT APPLICABLE	15.5	26.2	40.6	29.7	Q	Q	Q	24.5	42.3	25.7	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE.Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C6. Fuel Oil and Kerosene Consumption and Expenditures for Commercial Buildings That Use Fuel Oil or Kerosene or Both, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	10.3	8.8	5.7	8.9	9.0	8.4	7.2	8.9	9.1	8.0	1.1
END USE BY FUEL TYPE											
HEATING FUEL USED.....	10.1	8.8	5.4	9.0	9.1	8.1	7.3	8.9	9.2	7.7	1.1
NATURAL GAS.....	15.9	13.5	11.5	16.9	16.7	17.2	16.5	19.0	16.3	16.1	2.7
ELECTRICITY.....	29.6	20.2	19.5	24.2	24.2	20.4	17.7	24.2	25.0	20.9	4.4
FUEL OIL/KEROSENE.....	10.3	9.4	6.2	8.7	8.8	9.1	7.4	8.9	8.7	8.7	1.1
OTHER.....	37.6	21.4	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	77.6	43.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	11.3	9.1	6.1	12.4	12.5	9.7	10.0	11.1	12.5	9.0	1.2
ELECTRICITY.....	11.7	9.3	6.3	13.5	13.6	9.9	11.0	13.3	13.5	9.3	1.2
OTHER.....	20.7	17.4	19.3	28.3	27.6	32.7	29.8	23.8	28.2	32.5	2.3
NO AIR CONDITIONING FUEL....	16.3	13.7	8.1	13.1	13.1	11.9	10.8	12.4	12.9	11.9	2.3
WATER-HEATING FUEL USED.....	11.3	9.1	6.7	11.2	11.3	10.6	9.2	10.9	11.2	10.1	1.1
NATURAL GAS.....	11.8	12.2	10.6	21.0	21.0	21.3	19.8	22.3	20.4	20.5	2.0
ELECTRICITY.....	17.2	15.2	7.4	18.2	18.3	16.6	13.5	12.2	18.0	15.9	2.5
FUEL OIL/KEROSENE.....	13.1	11.3	12.0	12.7	12.7	14.0	12.7	15.8	12.4	13.4	1.6
OTHER.....	35.0	13.4	38.6	37.9	37.9	35.0	28.8	35.6	39.0	31.4	8.1
NO WATER-HEATING FUEL.....	11.3	10.3	6.2	18.4	18.5	22.6	21.1	29.2	17.0	20.7	3.1
MANUFACTURING FUEL USED.....	25.4	16.1	22.1	24.8	24.9	30.8	23.8	23.8	25.2	30.8	3.2
ELECTRICITY.....	32.1	19.2	28.5	22.7	22.7	39.0	21.6	26.6	23.9	39.1	4.0
OTHER.....	18.1	17.3	18.0	30.9	31.2	26.8	29.9	25.3	31.5	26.9	5.1
NO MANUFACTURING DONE.....	9.6	8.9	5.1	8.6	8.7	7.4	7.6	10.6	8.8	7.0	.9
COOKING FUEL USED.....	11.6	9.5	9.2	8.9	8.9	10.1	7.5	11.3	8.8	9.4	1.4
ELECTRICITY.....	17.1	11.9	11.4	14.9	15.0	13.6	8.7	10.2	14.8	13.4	1.7
NATURAL GAS.....	13.0	9.7	14.9	9.2	9.0	17.7	10.6	15.2	8.6	16.1	1.9
LIQUID PETROLEUM GAS.....	34.8	22.0	27.1	21.7	22.0	23.9	14.6	39.1	24.4	19.9	5.9
OTHER.....	36.6	33.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO COOKING FUEL.....	10.6	10.3	5.8	14.2	14.2	12.9	11.2	9.7	14.3	12.6	1.6
CENSUS REGION											
NORTHEAST.....	14.4	10.9	12.7	8.1	8.2	13.1	9.1	14.0	8.2	12.2	1.6
NORTH CENTRAL.....	23.8	18.3	14.9	19.0	19.1	13.8	15.9	18.2	21.6	11.5	4.2
SOUTH.....	17.4	14.8	6.0	20.5	20.5	15.2	14.2	9.7	20.5	14.9	1.2
WEST.....	22.1	26.5	25.7	21.4	21.3	19.5	20.8	43.4	23.4	28.7	10.7

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
SMSA/NONSMSA											
SMSA	11.2	9.4	7.7	9.3	9.4	9.5	8.7	12.5	9.2	9.0	1.3
NONSMSA	17.3	14.5	10.7	14.8	14.8	12.1	8.0	6.6	15.8	11.8	2.4
HEATING AND COOLING DEGREE-DAYS											
<2,000 CDD AND >7,000 HDD	44.4	28.1	25.7	34.8	34.8	18.0	12.2	12.9	34.1	16.9	3.3
<2,000 CDD AND 5,500 TO 7,000 HDD	22.4	19.3	14.6	16.5	16.5	13.8	15.1	12.9	17.2	12.7	2.0
<2,000 CDD AND 4,000 TO 5,499 HDD	16.5	12.1	10.2	12.4	12.6	9.2	7.3	14.9	12.3	8.6	1.7
<2,000 CDD AND <4,000 HDD	57.0	35.0	Q	47.4	47.3	Q	42.1	Q	47.2	Q	2.4
>2,000 CDD AND <4,000 HDD	67.4	52.6	Q	47.1	46.7	Q	15.4	13.1	45.2	Q	3.5
BUILDING TYPE											
ASSEMBLY	19.9	17.4	15.3	20.7	20.4	15.7	14.8	35.7	20.4	14.7	2.1
AUTOMOTIVE SALES & SERVICE	15.3	24.8	13.0	18.1	18.1	17.9	24.1	28.3	18.1	18.7	3.0
EDUCATION	22.5	14.9	18.2	12.6	13.0	12.5	13.7	10.2	15.1	12.0	4.8
FOOD SALES	26.2	28.9	20.6	32.7	32.6	16.8	27.9	27.3	32.5	16.3	1.8
HEALTH CARE	22.9	10.8	33.9	23.1	22.9	49.3	24.4	20.1	23.1	46.1	3.2
LODGING	25.5	33.0	35.8	25.0	24.8	31.0	24.2	27.9	23.9	27.8	6.3
OFFICE	15.0	15.9	18.6	20.5	20.5	18.1	23.3	28.4	19.5	17.3	2.1
RESIDENTIAL	16.2	19.9	13.7	29.0	29.2	20.3	15.1	26.7	28.6	19.9	1.0
RETAIL/SERVICES	10.7	17.0	16.4	18.3	17.9	17.3	17.7	33.0	17.6	16.5	1.8
WAREHOUSE AND STORAGE	24.8	19.9	16.3	17.6	18.0	21.7	22.7	32.9	20.5	20.9	5.0
OTHER	19.4	13.8	19.2	33.0	32.8	34.4	33.5	34.6	31.0	32.0	5.1
VACANT	57.1	35.9	Q	45.4	45.5	Q	27.2	Q	46.1	Q	5.4
TOTAL SQUARE FOOTAGE											
1,000 OR LESS	16.4	16.4	4.6	27.5	27.5	27.0	27.6	25.0	26.2	24.8	3.7
1,001 TO 5,000	11.7	11.5	2.6	15.9	15.9	14.6	14.6	12.6	15.4	13.8	1.8
5,001 TO 10,000	13.3	12.1	3.8	16.5	16.4	12.4	13.4	35.0	14.9	10.8	3.5
10,001 TO 25,000	12.5	12.8	2.4	21.3	21.1	19.9	20.1	17.0	19.9	18.0	3.4
25,001 TO 50,000	17.4	16.9	2.7	22.5	22.3	13.1	12.2	13.5	22.3	12.5	4.1
OVER 50,000	10.4	9.2	7.8	11.2	11.3	12.1	10.8	13.4	11.8	12.7	1.6

SEE NOTES AT END OF TABLE

Table C6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF FLOORS											
ONE FLOOR	11.7	14.0	5.7	15.4	15.3	12.3	12.7	12.1	14.0	11.1	2.9
TWO FLOORS	14.2	13.4	10.8	14.2	14.1	15.9	16.6	20.1	13.4	14.3	2.6
THREE FLOORS	17.9	13.2	12.9	13.3	13.3	16.0	14.3	17.3	13.3	13.0	3.7
MORE THAN THREE	19.0	10.7	18.1	12.0	12.1	19.3	12.3	15.9	12.5	18.1	2.2
YEAR CONSTRUCTED											
1900 OR BEFORE	24.1	21.5	19.8	29.3	29.3	23.3	15.9	17.4	28.3	21.0	2.8
1901 TO 1920	15.0	10.9	13.6	19.0	18.8	17.0	14.4	20.9	17.8	15.4	4.2
1921 TO 1945	14.5	16.5	14.8	10.4	10.5	11.9	14.3	13.0	11.1	11.4	2.4
1946 TO 1960	12.7	11.8	13.6	12.6	12.6	15.3	14.5	17.6	12.1	14.4	1.6
1961 TO 1970	11.5	13.5	13.2	21.6	21.6	24.1	20.8	22.0	20.6	22.8	2.3
1971 TO 1973	16.4	30.8	35.4	31.6	31.5	30.0	33.3	49.4	29.5	27.4	4.9
1974 TO 1979	22.1	15.7	29.5	25.5	25.1	33.4	23.8	23.9	26.3	28.3	7.3
FUEL COMBINATIONS USED											
ONE FUEL USED	84.5	67.6	48.3	Q	Q	Q	Q	Q	Q	Q	Q
TWO FUELS USED	12.4	13.3	5.1	13.2	13.2	11.1	10.1	13.5	13.6	11.1	1.8
THREE FUELS USED	10.2	9.2	7.8	7.1	7.2	8.5	6.9	11.7	7.4	7.9	1.8
ELEC., GAS, FUEL OIL/ KEROSENE	11.1	9.7	8.6	7.5	7.6	9.1	8.0	12.6	7.8	8.3	1.8
ELEC., FUEL OIL/KEROSENE, OTHER	26.5	14.4	16.7	25.1	25.1	24.2	16.9	21.9	24.7	19.6	6.5
FOUR OR MORE FUELS USED	26.8	16.8	20.4	39.6	39.6	40.9	35.1	32.8	38.7	39.8	3.4
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	10.4	8.8	5.7	9.0	9.0	8.4	7.3	9.0	9.2	8.0	1.1
NATURAL GAS	11.0	9.1	8.2	11.7	11.8	12.3	10.5	13.7	11.5	11.6	1.5
FUEL OIL/KEROSENE	10.3	8.8	5.7	8.9	9.0	8.4	7.2	8.9	9.1	8.0	1.1
LIQUID PETROLEUM GAS	29.7	16.2	19.3	11.5	11.9	26.2	13.7	23.2	14.5	25.6	4.4
WOOD	36.3	36.8	Q	31.8	32.4	28.4	41.4	Q	33.9	29.4	6.1
OTHER	23.2	17.8	24.0	Q	Q	Q	Q	Q	Q	Q	8.3

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING SYSTEM											
SELF-CONTAINED UNITS											
FORCED-AIR	13.1	17.0	13.6	28.5	28.4	26.8	21.3	22.4	27.7	25.6	5.8
RADIANT	16.6	28.4	24.7	36.6	36.4	33.8	29.9	37.9	35.3	32.6	3.4
COMBINATION/OTHER	29.1	26.0	22.9	21.3	21.5	27.1	25.5	45.1	22.0	25.7	2.2
CENTRAL SYSTEM											
FORCED-AIR	15.0	11.2	16.0	8.6	8.7	17.6	11.0	11.1	8.5	16.1	2.9
RADIANT	13.0	14.5	10.0	10.4	10.5	8.6	12.7	24.1	10.8	7.8	2.3
COMBINATION/OTHER	16.0	10.8	11.5	22.7	22.8	25.6	19.7	17.2	21.5	24.2	3.0
COMBINATION/OTHER	16.9	17.7	14.4	21.8	21.8	20.5	25.8	28.0	21.9	19.5	2.8
NONE	77.6	44.9	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING HEATED											
1 TO 25	26.6	24.2	21.2	28.5	29.3	18.7	22.3	27.1	34.2	22.5	11.3
26 TO 50	17.6	17.5	14.1	28.6	27.7	26.6	28.3	31.6	25.0	22.5	6.5
51 TO 75	15.4	20.8	18.2	21.0	20.7	22.5	20.4	27.9	20.7	21.6	3.3
76 TO 99	39.0	20.2	41.4	29.8	29.2	45.7	20.6	32.2	28.9	43.9	3.1
100	9.3	8.8	5.3	10.0	10.0	9.5	9.7	12.3	9.8	9.0	1.2
NONE	77.6	44.9	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 25	13.2	12.8	6.3	16.3	16.3	14.9	12.3	15.3	16.0	13.3	2.9
26 TO 50	17.7	14.1	11.5	23.6	23.0	26.6	22.4	24.1	22.4	24.1	4.0
51 TO 75	19.1	14.5	20.4	23.3	23.5	35.3	20.5	21.1	23.1	33.1	2.6
76 TO 99	23.0	20.2	24.1	21.3	21.2	26.1	15.8	18.6	20.8	25.1	3.2
100	13.7	13.7	12.3	27.9	27.9	24.2	25.2	27.3	26.4	22.3	3.1
NONE	16.3	13.7	8.1	13.1	13.1	11.9	10.8	12.4	12.9	11.9	2.3
AIR CONDITIONING SYSTEM											
WINDOW UNITS	14.9	16.6	6.7	16.9	16.8	9.0	9.9	12.2	15.9	7.1	3.4
PACKAGE UNITS	14.0	12.4	10.3	24.2	24.4	24.4	21.5	19.8	23.8	23.5	3.3
CENTRAL SYSTEM	16.4	14.1	18.0	20.7	20.5	16.3	20.5	23.4	20.5	15.1	2.4
COMBINATION/OTHER	16.6	14.2	15.6	11.5	11.6	17.3	12.3	13.8	12.1	16.7	2.3
NO AIR CONDITIONING	16.3	13.7	8.1	13.1	13.1	11.9	10.8	12.4	12.9	11.9	2.3

SEE NOTES AT END OF TABLE

Table C6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	13.4	10.4	7.5	16.1	16.1	13.4	14.5	14.3	16.0	12.6	1.9
OWNER OR AGENT IS NOT OCCUPANT	17.1	15.0	11.3	19.1	19.2	12.6	11.4	16.1	18.9	12.9	1.3
MULTIPLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	17.9	16.7	25.5	13.1	13.2	22.4	17.4	38.2	13.1	21.6	1.3
OWNER OR AGENT IS NOT OCCUPANT	21.2	20.8	13.2	29.5	29.7	22.4	31.9	40.9	28.9	20.6	2.6
GOVERNMENT-OWNED AND OCCUPIED	19.7	14.2	16.8	20.8	20.5	19.3	18.4	18.9	20.1	17.6	2.0
NOT REPORTED	23.7	36.7	35.3	38.7	38.6	46.2	Q	Q	37.0	43.1	4.8
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 10	10.9	11.3	6.0	15.1	15.0	13.2	11.3	12.2	14.5	11.9	1.4
10 TO 19	24.0	19.0	13.8	19.9	20.0	28.9	24.9	29.1	20.4	29.8	2.8
20 TO 49	15.9	14.6	7.7	17.3	16.9	18.6	16.7	17.8	17.0	16.8	3.7
50 TO 99	14.4	15.7	16.5	21.8	21.4	19.8	19.8	19.1	20.1	19.3	4.9
100 OR MORE	15.5	9.0	22.0	17.0	17.3	16.9	16.8	17.7	17.9	16.8	2.3
HOURS OF OPERATION FOR A TYPICAL WEEK											
NONE	40.1	32.0	30.0	38.0	38.0	42.3	26.2	Q	37.3	40.7	4.9
39 OR FEWER HOURS	18.4	17.6	13.7	19.3	19.0	17.0	15.4	43.7	17.4	17.0	4.9
40 TO 48 HOURS	12.5	13.1	10.1	20.6	20.6	23.0	19.2	21.7	19.4	21.4	2.5
49 TO 60 HOURS	14.4	13.3	5.9	14.9	14.7	17.7	14.6	14.8	13.3	15.4	2.8
61 TO 84 HOURS	14.4	16.8	19.3	15.7	15.8	13.4	19.7	43.0	16.8	13.7	1.8
MORE THAN 84 HOURS	13.8	10.0	11.7	12.4	12.5	11.6	13.2	12.5	13.4	12.1	2.0
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	13.1	9.7	9.4	10.3	10.3	12.2	8.6	14.3	10.1	11.5	1.4
NO	9.1	9.9	5.4	10.4	10.4	9.3	9.2	8.5	10.7	9.0	1.6
DON'T KNOW/NOT REPORTED	17.7	21.3	14.8	19.6	19.6	20.2	21.8	22.4	18.3	19.3	3.1

SEE NOTES AT END OF TABLE

Table C6. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (MILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
INSULATION ADDED											
YES	12.1	10.3	10.3	11.1	11.2	15.0	12.9	14.4	11.1	14.7	1.8
NO	10.1	10.0	6.3	11.4	11.5	9.4	10.1	12.5	11.7	8.9	1.6
DON'T KNOW/NOT REPORTED	22.8	17.0	15.4	25.3	25.3	29.5	28.6	32.9	24.5	28.3	3.0
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES	13.9	10.9	13.2	12.9	13.0	19.5	15.1	21.5	12.5	18.8	2.7
NO	9.7	9.7	5.7	10.7	10.7	9.2	9.4	10.7	10.8	8.7	1.3
DON'T KNOW/NOT REPORTED	31.2	22.3	18.7	22.9	22.9	35.4	23.8	33.3	22.5	34.3	3.1
REDUCED HEATING											
YES	10.3	8.9	5.8	9.9	10.0	9.5	7.7	10.6	10.0	8.9	1.3
NO	14.1	10.3	9.3	17.1	17.1	18.4	18.1	15.2	15.7	16.9	1.8
NOT REPORTED/ NOT APPLICABLE	43.2	30.6	45.8	36.2	36.3	Q	35.6	22.5	39.3	Q	10.5
REDUCED COOLING											
YES	10.9	10.0	9.8	15.3	15.4	14.2	12.2	14.5	15.6	13.6	1.7
NO	20.0	13.2	16.2	24.9	24.8	24.0	21.4	17.8	24.3	22.7	1.6
NOT REPORTED/ NOT APPLICABLE	12.7	11.5	6.6	9.9	10.0	8.7	6.8	8.8	10.1	8.5	1.4
REDUCED HEATING OR REDUCED COOLING											
YES	10.0	8.7	5.7	9.3	9.4	9.0	7.2	10.4	9.5	8.6	1.2
NO	16.5	14.8	8.0	20.3	20.4	19.7	18.7	16.5	19.1	17.7	2.0
NOT REPORTED/ NOT APPLICABLE	46.8	40.2	Q	33.3	33.6	Q	Q	33.2	35.9	Q	9.3

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C7. Liquid Petroleum Gas Consumption and Expenditures for Commercial Buildings That Use Liquid Petroleum Gas, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
COMMERCIAL BUILDINGS.....	13.9	15.0	11.5	15.3	15.3	15.6	14.2	14.6	16.0	15.4	2.2
END USE BY FUEL TYPE											
HEATING FUEL USED.....	14.0	14.9	12.0	15.5	15.5	15.8	14.2	14.7	16.2	15.6	2.2
NATURAL GAS.....	30.0	18.5	33.2	33.4	33.4	37.1	22.7	23.1	41.3	45.2	9.8
ELECTRICITY.....	26.4	37.6	20.9	35.4	35.4	19.8	25.8	22.1	36.1	19.8	3.1
FUEL OIL/KEROSENE.....	29.8	16.8	20.8	39.5	39.5	30.8	38.0	30.7	35.5	26.7	6.0
LIQUID PETROLEUM GAS.....	15.7	13.6	17.5	18.8	18.8	21.6	11.4	13.8	20.0	22.1	2.4
OTHER.....	43.6	51.2	48.7	Q	Q	Q	Q	Q	Q	Q	Q
NO HEATING FUEL USED.....	59.9	52.8	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	13.3	19.2	13.3	21.4	21.4	16.8	16.7	20.0	22.3	17.3	2.8
ELECTRICITY.....	13.0	19.9	13.2	23.3	23.3	18.3	17.6	20.7	23.8	18.4	2.6
OTHER.....	38.4	30.8	Q	Q	Q	Q	Q	Q	Q	Q	Q
NO AIR CONDITIONING FUEL....	25.6	22.0	14.0	16.1	16.1	19.9	24.8	13.2	17.7	18.8	2.6
WATER-HEATING FUEL USED.....	16.5	17.0	10.9	18.4	18.4	16.2	15.7	18.5	19.4	15.8	2.6
NATURAL GAS.....	36.4	32.8	35.3	45.0	45.0	35.1	18.6	18.2	Q	44.4	12.6
ELECTRICITY.....	17.0	21.1	17.3	20.8	20.8	19.1	22.3	24.0	19.3	16.8	3.4
FUEL OIL/KEROSENE.....	42.8	30.5	22.9	Q	Q	Q	Q	Q	Q	Q	Q
OTHER.....	21.5	21.1	24.2	23.8	23.8	16.0	19.9	26.4	24.6	14.9	3.9
NO WATER-HEATING FUEL.....	23.4	17.7	27.8	26.4	26.4	27.2	26.8	20.0	26.6	26.3	2.3
MANUFACTURING FUEL USED.....	30.8	20.0	41.1	36.3	36.3	27.3	37.3	29.5	36.8	27.0	5.5
NO MANUFACTURING DONE.....	13.7	18.9	13.2	16.1	16.1	15.8	16.3	17.6	17.1	15.7	2.4
COOKING FUEL USED.....	22.8	21.0	15.4	28.1	28.1	16.8	24.7	25.6	27.6	14.7	3.5
ELECTRICITY.....	29.6	31.5	28.9	43.1	43.1	28.6	38.9	36.3	41.5	25.8	5.1
LIQUID PETROLEUM GAS.....	19.8	15.8	12.4	22.2	22.2	20.0	20.8	19.8	22.3	18.6	3.2
OTHER.....	42.2	66.7	Q	43.4	43.4	Q	Q	48.9	40.4	Q	14.3
NO COOKING FUEL.....	19.7	11.6	23.3	19.8	19.8	28.0	13.1	15.6	21.1	28.7	2.6
CENSUS REGION											
NORTHEAST.....	83.6	29.2	Q	Q	Q	44.7	44.0	Q	Q	39.3	5.9
NORTH CENTRAL.....	27.0	20.7	27.4	20.0	20.0	46.3	26.9	19.1	22.4	49.4	4.9
SOUTH.....	16.5	26.3	17.2	22.7	22.7	22.5	23.9	27.7	21.2	18.1	4.3
WEST.....	33.6	25.3	26.0	17.6	17.6	17.0	23.1	11.7	18.0	15.8	4.2

SEE NOTES AT END OF TABLE

Table C7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
SMSA/NONSMSA											
SMSA	25.4	22.2	12.6	27.9	27.9	22.4	23.0	23.8	30.4	24.5	5.4
NONSMSA	17.8	22.2	18.4	17.4	17.4	19.7	19.8	20.3	17.3	18.1	2.6
BUILDING TYPE											
ASSEMBLY	30.3	27.5	31.8	41.2	41.2	42.1	33.9	41.1	40.0	37.9	7.2
AUTOMOTIVE SALES & SERVICE	36.9	62.8	Q	Q	Q	Q	Q	Q	Q	Q	Q
EDUCATION	42.9	27.6	38.2	39.5	39.5	40.8	34.1	31.7	37.9	36.4	15.6
FOOD SALES	27.4	27.9	18.1	23.7	23.7	22.4	23.1	16.2	25.3	21.3	5.2
HEALTH CARE	103.9	39.9	Q	Q	Q	Q	Q	Q	Q	Q	Q
LODGING	41.6	47.9	Q	Q	Q	Q	Q	Q	Q	Q	Q
OFFICE	25.1	29.7	30.3	47.0	47.0	Q	44.1	44.5	46.3	46.0	9.5
RESIDENTIAL	31.5	30.5	12.8	Q	Q	Q	Q	Q	Q	Q	Q
RETAIL/SERVICES	27.0	65.2	Q	27.8	27.8	19.5	Q	18.6	29.4	18.8	2.8
WAREHOUSE AND STORAGE	34.3	26.5	35.6	Q	Q	39.0	43.0	36.4	Q	40.1	6.6
OTHER	31.9	36.9	27.3	34.0	34.0	45.7	Q	Q	33.5	41.4	4.7
VACANT	85.3	76.1	Q	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE											
1,000 OR LESS	25.3	25.4	9.3	30.2	30.2	27.5	28.6	20.0	28.8	25.0	4.8
1,001 TO 5,000	15.3	15.3	4.5	27.0	27.0	25.0	26.8	40.8	24.0	21.2	5.2
5,001 TO 10,000	26.4	23.8	4.8	23.3	23.3	11.6	9.4	23.3	26.2	11.4	3.4
10,001 TO 25,000	24.8	22.7	5.1	47.9	47.9	43.8	40.8	36.4	48.6	44.1	4.6
25,001 TO 50,000	22.8	23.2	4.6	34.6	34.6	23.7	26.3	38.5	34.3	21.9	5.3
OVER 50,000	18.2	19.4	24.8	25.0	25.0	27.5	32.6	36.3	22.9	26.7	6.2
NUMBER OF FLOORS											
ONE FLOOR	12.9	26.9	24.5	22.4	22.4	23.8	21.2	15.8	22.8	24.2	2.3
TWO FLOORS	20.6	13.2	13.7	36.7	36.7	29.0	31.9	31.2	37.0	28.0	3.0
THREE FLOORS	43.3	29.0	27.8	27.6	27.6	38.8	31.3	19.7	29.8	35.8	6.3
MORE THAN THREE	46.5	25.1	Q	Q	Q	Q	Q	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
YEAR CONSTRUCTED											
1900 OR BEFORE	48.6	33.3	41.4	39.5	39.5	39.0	31.6	Q	33.9	30.9	11.6
1901 TO 1920	33.8	27.7	23.8	40.6	40.6	Q	Q	45.0	33.5	Q	8.8
1921 TO 1945	17.8	32.4	37.1	31.5	31.5	24.2	36.1	27.0	32.2	25.9	5.4
1946 TO 1960	26.8	21.9	18.0	49.6	49.6	26.7	39.2	15.6	47.4	24.5	3.8
1961 TO 1970	18.4	44.6	48.9	31.6	31.6	27.8	Q	44.1	29.3	25.8	4.5
1971 TO 1973	18.5	29.7	38.3	19.3	19.3	19.0	21.3	33.7	20.2	19.5	5.5
1974 TO 1979	13.2	25.0	21.9	31.8	31.8	35.2	34.5	30.9	35.4	38.9	4.7
FUEL COMBINATIONS USED											
TWO FUELS USED	14.7	20.7	19.0	15.8	15.8	19.2	16.7	18.4	16.4	19.1	2.4
THREE FUELS USED	21.0	18.8	17.6	34.5	34.5	25.8	29.8	23.0	34.3	25.4	3.8
ELEC., FUEL OIL/KEROSENE, LPG	29.8	16.8	20.3	48.9	48.9	36.4	Q	34.7	43.3	30.2	6.7
OTHER	27.8	35.4	Q	39.5	39.5	49.4	37.9	21.6	45.6	Q	7.3
FOUR OR MORE FUELS USED	28.8	26.7	23.0	37.1	37.1	40.3	36.4	36.2	38.5	41.4	6.4
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	13.9	15.0	11.5	16.0	16.0	16.2	14.6	15.0	16.5	15.8	2.1
NATURAL GAS	27.0	27.6	35.3	32.3	32.3	35.7	30.7	25.7	39.4	43.0	9.4
FUEL OIL/KEROSENE	29.7	16.2	19.3	33.9	33.9	28.2	34.7	27.4	31.6	25.4	4.4
LIQUID PETROLEUM GAS	13.9	15.0	11.5	15.3	15.3	15.6	14.2	14.6	16.0	15.4	2.2
OTHER	18.8	36.0	41.2	33.9	33.9	36.0	47.3	39.9	36.1	37.3	5.9
HEATING SYSTEM											
SELF-CONTAINED UNITS											
FORCED-AIR	21.8	33.2	48.5	28.2	28.2	37.2	31.7	16.7	29.1	39.6	3.9
RADIANT	38.3	36.4	Q	Q	Q	Q	Q	Q	Q	Q	Q
COMBINATION/OTHER	17.3	28.6	22.7	30.0	30.0	25.1	34.8	34.5	28.6	22.3	7.2
CENTRAL SYSTEM											
FORCED-AIR	13.7	22.5	22.9	22.3	22.3	18.6	26.5	20.5	22.4	19.0	3.5
RADIANT	54.8	37.4	35.1	39.9	39.9	34.4	40.4	49.8	39.5	31.9	4.6
COMBINATION/OTHER	25.9	29.3	32.0	33.2	33.2	21.4	39.2	32.9	31.1	19.2	6.4
COMBINATION/OTHER	27.3	22.1	24.9	33.1	33.1	23.8	28.4	31.1	35.0	26.0	4.8
NONE	59.9	52.8	Q	Q	Q	Q	Q	Q	Q	Q	Q

SEE NOTES AT END OF TABLE

Table C7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
PERCENT OF BUILDING HEATED											
1 TO 50	30.3	26.5	29.6	28.3	28.3	33.0	29.6	29.4	26.7	29.6	5.5
51 TO 99	24.1	29.9	26.1	33.9	33.9	33.0	22.0	21.2	35.1	33.8	5.0
100	14.6	19.8	15.4	21.2	21.2	19.2	19.3	18.4	22.2	19.0	2.4
NONE	59.9	52.8	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 25	17.9	17.5	16.2	43.0	43.0	47.0	35.9	29.3	46.6	Q	4.1
26 TO 50	13.7	24.7	26.9	28.0	28.0	24.6	24.4	34.6	28.0	26.1	5.4
51 TO 99	30.0	26.1	30.1	38.7	38.7	28.7	24.9	27.2	38.9	30.3	5.3
100	19.3	50.2	37.0	27.1	27.1	22.6	43.4	43.7	26.9	20.2	3.9
NONE	25.6	22.0	14.0	16.1	16.1	19.9	24.8	13.2	17.7	18.8	2.6
AIR CONDITIONING SYSTEM											
WINDOW UNITS	21.8	26.9	19.2	28.4	28.4	22.4	25.9	35.3	27.4	17.8	6.9
PACKAGE UNITS	19.5	31.0	32.0	23.3	23.3	29.1	28.2	26.6	22.7	25.9	4.4
CENTRAL SYSTEM	22.1	26.2	17.9	Q	Q	39.5	Q	41.6	Q	40.6	4.3
COMBINATION/OTHER	45.3	30.8	27.0	44.6	44.6	37.4	40.4	30.0	45.9	34.8	7.1
NO AIR CONDITIONING	25.6	22.0	14.0	16.1	16.1	19.9	24.8	13.2	17.7	18.8	2.6
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	19.4	15.9	18.9	25.2	25.2	25.6	24.7	21.4	25.8	25.1	3.1
OWNER OR AGENT IS NOT OCCUPANT	18.5	20.7	18.7	35.7	35.7	22.6	29.8	26.0	35.6	22.2	2.5
MULTIPLE ESTABLISHMENT BUILDING											
OWNER OR AGENT IS OCCUPANT	28.2	61.5	Q	35.8	35.8	31.7	Q	27.2	35.6	29.7	4.2
OWNER OR AGENT IS NOT OCCUPANT	33.8	39.1	41.5	48.6	48.6	37.7	44.9	48.2	46.6	32.1	20.8
GOVERNMENT-OWNED AND OCCUPIED	48.9	25.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
NOT REPORTED	26.4	17.7	36.4	Q	22.5	25.3	14.6	Q	20.8	27.3	3.7

SEE NOTES AT END OF TABLE

Table C7. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 10	16.3	14.6	7.2	15.2	15.2	15.4	15.1	14.5	15.1	13.2	3.1
10 TO 19	39.5	32.2	20.1	Q	Q	21.1	34.2	15.3	Q	20.4	2.7
20 TO 49	21.5	21.1	14.6	40.4	40.4	36.2	40.8	32.2	42.7	38.0	5.0
50 TO 99	40.6	25.3	Q	41.1	41.1	47.1	42.1	38.4	38.9	40.4	10.7
100 OR MORE	40.4	38.5	24.8	29.6	29.6	31.9	44.2	33.8	31.9	31.9	7.7
HOURS OF OPERATION FOR A TYPICAL WEEK											
NONE	58.4	68.7	Q	Q	Q	Q	Q	Q	Q	Q	Q
39 OR FEWER HOURS	23.7	23.4	24.5	30.0	30.0	22.0	30.3	38.5	29.4	21.3	2.5
40 TO 48 HOURS	17.0	22.4	17.7	21.9	21.9	37.8	47.9	21.3	19.9	34.0	3.5
49 TO 60 HOURS	23.3	31.6	25.2	Q	Q	42.5	38.9	30.7	Q	41.6	4.5
61 TO 84 HOURS	29.7	46.2	Q	38.3	38.3	30.8	Q	32.4	38.4	28.2	5.5
MORE THAN 84 HOURS	24.7	17.5	24.1	23.7	23.7	14.6	21.8	30.1	24.5	14.1	4.7
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	19.9	15.2	13.1	19.5	19.5	16.2	16.0	19.5	20.3	13.7	3.3
NO	14.4	21.6	19.4	18.9	18.9	21.6	18.0	16.3	20.5	23.3	3.9
DON'T KNOW/NOT REPORTED	37.6	44.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
INSULATION ADDED											
YES	22.1	26.1	30.3	18.3	18.3	18.2	24.3	16.7	17.6	17.8	3.4
NO	15.2	13.0	7.9	26.8	26.8	23.2	21.9	24.4	28.8	24.0	3.3
DON'T KNOW/NOT REPORTED	53.1	40.3	Q	Q	Q	Q	Q	Q	Q	Q	Q
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES	24.5	15.9	20.8	21.0	21.0	25.4	15.2	14.8	20.8	23.6	4.2
NO	14.4	17.8	14.5	18.8	18.8	20.9	16.6	18.3	20.3	21.5	3.1
DON'T KNOW/NOT REPORTED	60.5	35.5	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED HEATING											
YES	14.9	16.2	12.8	13.3	13.3	12.4	14.5	14.2	13.9	11.5	2.2
NO	23.5	24.4	19.0	Q	Q	48.8	35.7	47.7	Q	Q	4.3
NOT REPORTED/ NOT APPLICABLE	36.1	42.2	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED COOLING											
YES	13.7	22.4	14.2	19.8	19.8	12.9	18.6	20.6	20.0	11.2	3.6
NO	48.8	35.2	21.3	Q	Q	44.1	Q	Q	Q	47.6	6.4
NOT REPORTED/ NOT APPLICABLE	19.7	20.0	9.4	15.5	15.5	15.1	18.2	14.4	16.5	13.4	3.1
REDUCED HEATING OR REDUCED COOLING											
YES	14.8	15.4	11.7	13.0	13.0	12.2	13.7	13.4	13.6	11.1	2.2
NO	25.7	30.4	22.5	Q	Q	48.1	34.1	49.9	Q	Q	4.6
NOT REPORTED/ NOT APPLICABLE	41.5	38.9	Q	Q	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C8. Steam Consumption and Expenditures for Commercial Buildings That Use Steam, 1979—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (TRILLION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
COMMERCIAL BUILDINGS.....	20.8	19.4	15.3	14.0	14.0	15.1	8.3	7.0	15.2	17.1	4.5
END USE BY FUEL TYPE											
HEATING FUEL USED.....	21.2	19.4	15.1	13.8	13.8	15.1	8.6	7.0	15.1	17.1	4.5
STEAM.....	22.0	19.4	14.2	14.1	14.1	14.8	8.6	6.5	15.5	16.8	4.5
OTHER.....	31.2	17.8	37.1	19.4	19.4	32.3	8.8	26.6	18.1	33.1	5.9
NO HEATING FUEL USED.....	29.6	27.1	Q	Q	Q	Q	Q	Q	Q	Q	Q
AIR CONDITIONING FUEL USED..	22.7	20.5	11.1	13.2	13.2	11.7	7.3	7.9	13.8	13.1	4.2
ELECTRICITY.....	23.4	23.7	12.9	16.4	16.4	12.7	8.0	8.6	17.5	14.3	4.6
OTHER.....	31.3	10.6	32.7	10.1	10.1	35.7	9.1	9.9	10.6	38.1	4.4
NO AIR CONDITIONING FUEL....	32.8	27.6	45.7	37.6	37.6	Q	40.0	Q	41.8	Q	8.6
WATER-HEATING FUEL USED.....	22.6	20.6	17.1	15.2	15.2	17.2	6.6	7.9	14.6	18.9	4.7
NATURAL GAS.....	36.9	36.0	19.0	40.0	40.0	26.1	11.1	33.3	35.0	23.0	10.1
ELECTRICITY.....	44.8	42.5	37.0	45.6	45.6	Q	17.1	26.8	41.9	48.2	11.0
OTHER.....	21.1	20.6	17.3	14.2	14.2	16.6	10.7	9.0	14.9	16.3	4.1
NO WATER-HEATING FUEL.....	38.8	36.8	17.4	36.9	36.9	31.5	28.5	32.3	40.4	37.4	7.5
MANUFACTURING FUEL USED.....	48.4	50.1	43.0	49.2	49.2	45.6	16.4	26.3	46.5	41.2	10.3
NO MANUFACTURING DONE.....	21.4	19.9	15.8	14.6	14.6	15.5	8.3	7.6	15.4	17.6	4.6
COOKING FUEL USED.....	30.0	22.9	37.0	14.2	14.2	35.0	10.4	10.4	15.5	39.2	4.8
ELECTRICITY.....	35.9	24.3	Q	14.2	14.2	Q	13.7	13.1	16.7	Q	5.5
OTHER.....	39.7	30.4	27.5	19.6	19.6	31.8	12.3	14.1	21.1	36.2	5.9
NO COOKING FUEL.....	21.4	18.6	12.8	18.8	18.8	17.1	11.1	15.7	21.7	19.6	6.1
CENSUS REGION											
NORTHEAST.....	44.0	32.2	22.0	23.0	23.0	25.9	14.4	9.3	19.3	32.0	6.6
NORTH CENTRAL.....	40.7	39.6	17.4	25.2	25.2	25.4	16.9	13.9	31.0	30.4	9.2
SOUTH.....	57.3	31.7	Q	23.9	23.9	Q	14.3	15.2	21.9	Q	7.9
WEST.....	57.6	37.2	Q	46.6	46.6	Q	18.5	18.7	Q	Q	8.1
SMSA/NONSMSA											
SMSA.....	23.5	21.9	12.8	15.8	15.8	16.1	8.9	7.0	17.0	18.8	4.8
NONSMSA.....	57.3	33.0	Q	39.9	39.9	Q	28.5	8.8	47.6	Q	17.1

SEE NOTES AT END OF TABLE

Appendix C (Continued)

Table C8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (TRILLION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
HEATING AND COOLING DEGREE-DAYS											
<2,000 CDD AND >7,000 HDD...	41.1	33.2	29.6	33.1	33.1	25.7	6.2	20.3	32.9	20.3	10.1
<2,000 CDD AND 5,500 TO 7,000 HDD.....	39.6	48.4	15.7	33.7	33.7	23.3	22.8	14.0	36.1	29.1	7.2
<2,000 CDD AND <5,500 HDD...	32.6	17.6	33.4	16.6	16.6	33.9	11.2	11.5	15.6	37.6	4.4
>2,000 CDD AND <4,000 HDD...	92.0	83.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
TOTAL SQUARE FOOTAGE											
10,000 OR FEWER.....	34.4	37.3	15.3	43.6	43.6	40.5	46.5	Q	43.5	41.1	7.0
10,001 TO 25,000.....	27.4	27.0	6.4	34.1	34.1	18.3	19.4	24.6	37.7	24.9	15.7
25,001 TO 50,000.....	32.7	29.9	4.5	29.1	29.1	19.3	17.6	26.9	29.2	15.8	8.7
OVER 50,000.....	22.7	20.5	9.0	14.6	14.6	14.3	9.7	7.7	16.1	17.4	4.4
NUMBER OF FLOORS											
ONE OR TWO FLOORS.....	28.4	19.6	37.0	41.6	41.6	48.7	35.4	38.1	47.9	Q	11.9
THREE FLOORS.....	35.4	27.9	19.3	24.7	24.7	36.0	17.0	37.6	26.2	30.8	8.0
MORE THAN THREE.....	30.3	22.5	14.3	15.8	15.8	16.4	7.5	8.9	15.4	18.9	4.1
YEAR CONSTRUCTED											
1920 OR EARLIER.....	33.1	25.4	17.5	33.3	33.3	29.1	24.9	38.0	37.4	34.5	8.1
1921 TO 1945.....	30.9	38.3	19.3	31.2	31.2	18.9	11.0	20.6	34.0	24.0	7.5
1946 TO 1960.....	28.0	19.9	34.2	14.9	14.9	32.8	14.3	13.5	16.8	27.8	8.0
1961 TO 1970.....	27.5	19.3	45.7	18.6	18.6	36.6	10.3	15.6	20.0	34.4	6.3
1971 TO 1979.....	56.3	22.1	Q	26.0	26.0	Q	10.4	20.3	27.6	Q	10.5
FUEL COMBINATIONS USED											
TWO FUELS USED.....	28.6	24.2	20.9	21.8	21.8	25.1	6.7	13.7	21.5	23.4	4.4
THREE FUELS USED.....	22.2	23.9	19.0	18.7	18.7	16.8	13.1	12.8	20.5	21.6	6.0
STEAM, ELEC., GAS.....	26.4	29.6	17.4	24.2	24.2	19.4	14.9	15.5	26.3	25.4	7.5
OTHER.....	49.5	31.3	Q	35.4	35.4	Q	17.3	43.7	36.3	Q	7.8
FOUR OR MORE FUELS USED.....	56.6	29.4	46.1	28.4	28.4	49.0	8.8	23.8	31.9	48.0	7.5

SEE NOTES AT END OF TABLE

Table C8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MIL-LIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUAD-RILLION BTU)	TOTAL AMOUNT CONSUMED (TRIL-LION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MIL-LION DOL-LARS)	AVERAGE EXPEND. PER BUILDING (THOU-SAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOL-LARS)
ENERGY SOURCES SUPPLIED TO THE BUILDING											
ELECTRICITY	20.8	19.4	15.3	14.0	14.0	15.1	8.3	7.0	15.2	17.1	4.5
NATURAL GAS	25.6	25.3	16.3	19.8	19.8	20.5	13.2	12.2	21.8	25.7	6.6
STEAM	20.8	19.4	15.3	14.0	14.0	15.1	8.3	7.0	15.2	17.1	4.5
OTHER	36.4	20.4	35.6	21.1	21.1	28.5	6.8	17.0	22.8	30.6	5.8
HEATING SYSTEM											
SELF-CONTAINED UNITS	Q	91.0	Q	Q	Q	Q	Q	Q	Q	Q	Q
CENTRAL SYSTEM											
FORCED-AIR	33.7	30.4	20.0	18.3	18.3	25.9	14.8	20.3	21.3	28.3	6.1
RADIANT	26.4	28.7	25.9	23.7	23.7	27.1	8.3	16.9	25.1	27.5	6.5
COMBINATION/OTHER	28.6	18.2	23.5	17.1	17.1	28.6	14.6	13.2	20.1	32.0	5.9
COMBINATION/OTHER	57.9	55.7	Q	46.5	46.5	Q	47.1	35.8	47.7	Q	35.4
NONE	29.6	27.1	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING HEATED											
1 TO 99	52.0	41.5	22.0	35.6	35.6	48.0	24.9	22.3	39.1	Q	6.7
100	21.2	15.1	18.3	10.8	10.8	18.4	6.5	10.8	10.5	19.6	4.3
NONE	29.6	27.1	Q	Q	Q	Q	Q	Q	Q	Q	Q
PERCENT OF BUILDING COOLED											
1 TO 99	24.7	24.9	14.1	16.8	16.8	15.0	9.4	8.7	18.5	16.8	5.1
100	27.5	26.3	17.5	19.9	19.9	15.3	10.1	15.0	18.8	17.4	5.4
NONE	32.8	27.6	45.7	37.6	37.6	Q	40.0	Q	41.8	Q	8.6
AIR CONDITIONING SYSTEM											
WINDOW UNITS	35.2	40.8	Q	31.1	31.1	Q	23.0	Q	33.2	Q	12.0
PACKAGE UNITS	44.7	30.7	35.1	36.6	36.6	33.0	9.0	36.8	35.5	38.3	13.6
CENTRAL SYSTEM	24.2	21.2	15.4	16.1	16.1	13.7	8.4	14.0	15.3	15.9	4.5
COMBINATION/OTHER	26.0	26.7	20.3	16.6	16.6	19.0	16.9	15.3	19.1	21.3	6.1
NO AIR CONDITIONING	32.8	27.6	45.7	37.6	37.6	Q	40.0	Q	41.8	Q	8.6
OCCUPANCY CHARACTERISTICS											
SINGLE ESTABLISHMENT BUILDING	28.8	26.3	16.7	20.9	20.9	20.5	11.0	14.5	15.8	18.0	8.3
MULTIPLE ESTABLISHMENT BUILDING	41.0	42.5	18.2	40.4	40.4	17.4	3.7	18.7	35.0	19.5	5.7
GOVERNMENT-OWNED AND OCCUPIED	32.9	20.2	Q	23.6	23.6	Q	9.7	15.7	26.1	Q	5.4
NOT REPORTED	44.4	59.3	27.5	48.2	48.2	15.8	38.7	27.6	Q	22.5	16.6

SEE NOTES AT END OF TABLE

Table C8. (Continued)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL SQUARE FEET (MILLIONS)	AVERAGE SQUARE FEET PER BUILDING (THOUSANDS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL AMOUNT CONSUMED (TRILLION POUNDS)	AVERAGE AMOUNT CONSUMED PER BUILDING (MILLION BTU)	AVERAGE AMOUNT CONSUMED PER SQUARE FOOT (THOUSAND BTU)	AVERAGE AMOUNT CONSUMED PER EMPLOYEE (MILLION BTU)	TOTAL EXPEND. (MILLION DOLLARS)	AVERAGE EXPEND. PER BUILDING (THOUSAND DOLLARS)	AVERAGE EXPEND. PER MILLION BTU (DOLLARS)
NUMBER OF PEOPLE WORKING IN THE BUILDING											
LESS THAN 20	34.4	50.2	41.2	37.5	37.5	39.1	21.5	Q	35.6	30.8	9.1
20 TO 99	24.5	27.8	21.0	21.4	21.4	16.1	17.8	19.7	22.3	18.5	6.7
100 OR MORE	18.6	17.2	9.7	17.8	17.8	13.1	7.5	9.2	20.1	16.2	4.4
HOURS OF OPERATION FOR A TYPICAL WEEK											
LESS THAN 40	55.4	63.5	Q	Q	Q	Q	Q	Q	Q	Q	Q
40 TO 48 HOURS	32.7	37.2	25.6	32.7	32.7	22.5	11.3	18.1	32.5	24.3	6.8
49 TO 84 HOURS	30.6	18.1	19.1	15.2	15.2	21.8	5.0	16.0	12.5	22.6	6.7
MORE THAN 84 HOURS	24.6	18.2	35.7	15.2	15.2	32.3	16.0	14.1	19.3	34.3	5.4
WEATHERSTRIPPING OR CAULKING ADDED SINCE 1974											
YES	27.9	24.0	26.0	18.8	18.8	26.5	7.6	11.1	20.0	28.6	4.3
NO	22.6	19.5	15.1	16.0	16.0	17.9	11.7	14.6	20.0	22.4	7.2
DON'T KNOW/NOT REPORTED	83.1	66.6	Q	Q	Q	Q	Q	Q	Q	Q	Q
INSULATION ADDED											
YES	34.1	22.7	39.8	21.6	21.6	40.6	8.1	16.9	22.9	44.1	8.5
NO	20.7	20.8	14.3	15.4	15.4	14.5	9.7	9.0	17.6	16.8	4.8
DON'T KNOW/NOT REPORTED	64.7	75.5	Q	Q	Q	46.1	33.0	20.8	Q	43.6	13.7
WEATHERSTRIPPING OR CAULKING, AND INSULATION ADDED											
YES	42.0	28.7	Q	29.8	29.8	Q	9.0	21.3	30.9	Q	11.7
NO	19.7	19.5	13.9	13.8	13.8	14.2	9.7	8.3	16.2	16.4	4.5
DON'T KNOW/NOT REPORTED	94.8	71.1	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED HEATING											
YES	23.4	19.4	17.1	15.6	15.6	18.7	9.7	8.1	17.1	21.8	5.3
NO	27.4	33.3	18.8	26.1	26.1	9.6	18.0	20.8	30.7	9.8	6.7
NOT REPORTED/ NOT APPLICABLE	79.5	68.5	Q	Q	Q	Q	Q	Q	Q	Q	Q
REDUCED COOLING											
YES	28.8	21.0	12.1	15.8	15.8	14.3	7.3	10.5	14.2	17.1	4.9
NO	64.0	47.2	29.3	43.2	43.2	37.5	13.7	29.3	Q	27.8	10.3
NOT REPORTED/ NOT APPLICABLE	25.9	21.3	35.3	27.8	27.8	41.8	22.1	34.0	32.2	43.1	8.3
REDUCED HEATING OR REDUCED COOLING											
YES	22.7	19.7	15.5	15.7	15.7	17.4	9.0	7.6	16.9	20.5	5.1
NO	32.7	37.9	23.6	32.0	32.0	13.6	18.4	27.0	37.0	11.9	7.4
NOT REPORTED/ NOT APPLICABLE	66.5	49.9	Q	Q	Q	Q	Q	Q	Q	Q	Q

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C9. Distribution of Commercial Buildings Supplied with Fuel Oil, by Number of Tanks, Tank Capacity, and Inventory, as of January 1, 1980—Relative Standard Errors (Percent)

BUILDING CHARACTERISTICS	TOTAL BUILDINGS (THOUSANDS)	TOTAL TANK CAPACITY IN GALLONS					
		NO TANK	LESS THAN 500	500 TO 1,999	2,000 TO 4,999	5,000 TO 9,999	10,000 AND OVER
COMMERCIAL BUILDINGS.....	10.3	35.6	13.3	11.0	21.1	16.0	11.7
NUMBER OF FUEL OIL TANKS							
NONE.....	35.6	35.6	-	-	-	-	-
ONE.....	11.0	-	13.6	11.9	23.6	17.7	17.4
TWO OR MORE.....	9.9	-	21.7	11.7	28.2	Q	20.1
INVENTORY							
NONE.....	19.0	35.6	29.1	42.6	Q	Q	Q
LESS THAN 500.....	11.7	-	13.5	12.0	Q	Q	Q
500 TO 1,999.....	12.9	-	-	12.9	21.4	Q	Q
2,000 TO 4,999.....	18.6	-	-	-	29.9	21.7	41.0
5,000 TO 9,999.....	11.4	-	-	-	-	16.6	19.2
10,000 AND OVER.....	14.5	-	-	-	-	-	14.5

NOTE: A "-" REPRESENTS OR ROUNDS TO ZERO. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Table C10. Total Fuel Oil Tank Capacity and Inventory by Number of Tanks, as of January 1, 1980—Relative Standard Errors (Percent)

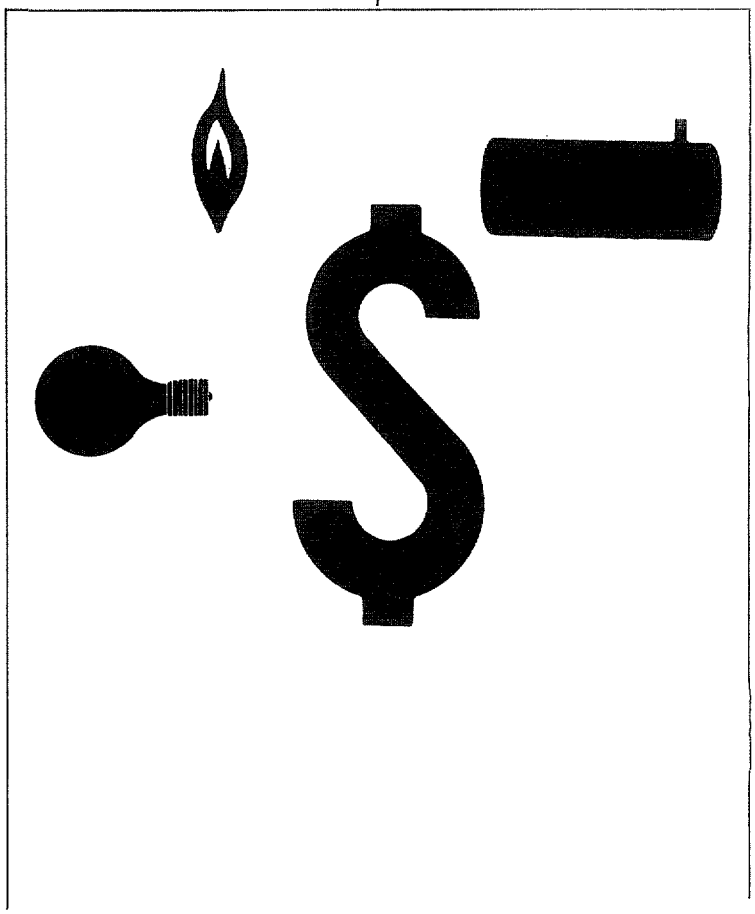
BUILDING CHARACTERISTICS	ALL BUILDINGS WITH FUEL OIL TANKS	TOTAL			NUMBER OF FUEL OIL TANKS			
					ONE		TWO OR MORE	
		NUMBER OF TANKS (THOUSANDS)	TOTAL TANK CAPACITY	TOTAL INVENTORY	TOTAL TANK CAPACITY	TOTAL INVENTORY	TOTAL TANK CAPACITY	TOTAL INVENTORY
COMMERCIAL BUILDINGS.....	10.3	9.9	20.0	15.0	13.2	14.6	32.8	23.4
TOTAL TANK CAPACITY IN GALLONS								
LESS THAN 500.....	13.3	13.4	14.5	13.8	14.9	13.9	32.5	37.0
500 TO 1,999.....	11.0	10.9	10.4	11.0	10.7	10.9	13.2	15.0
2,000 TO 4,999.....	21.1	20.5	22.6	24.1	24.5	24.8	32.7	40.0
5,000 TO 9,999.....	16.0	16.3	16.0	14.8	17.9	16.4	Q	47.2
10,000 AND OVER.....	11.7	14.4	25.9	19.2	21.1	25.2	35.3	25.3
INVENTORY								
NONE.....	19.0	26.5	21.9	-	27.5	-	40.2	-
LESS THAN 500.....	11.7	11.3	11.2	11.9	13.4	14.1	17.5	18.1
500 TO 1,999.....	12.9	14.3	19.5	13.8	22.8	14.1	18.2	22.4
2,000 TO 4,999.....	18.6	19.7	22.6	18.2	23.9	18.0	40.9	Q
5,000 TO 9,999.....	11.4	13.7	13.7	12.1	17.0	14.7	38.2	37.5
10,000 AND OVER.....	14.5	17.9	29.7	21.4	31.9	33.8	35.7	25.5

NOTE: A "-" = NOT APPLICABLE. Q = DATA WITHHELD BECAUSE OF A LARGE VARIANCE. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING OR MULTIPLE ENERGY SOURCES. SEE GLOSSARY FOR DEFINITIONS OF TERMS USED IN THIS TABLE. SEE APPENDIX B FOR DISCUSSION OF LIMITATIONS OF DATA.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, THE 1979 NONRESIDENTIAL BUILDINGS ENERGY CONSUMPTION SURVEY.

Appendix D

Building Questionnaire



Appendix D

OMB NO. 038-S78042
Expires: June 31, 1980
Collected for the
Department of Energy
by Westat, Inc.
0255

NONRESIDENTIAL BUILDING

ENERGY CONSUMPTION STUDY

Hello, I'm _____ from Westat, Inc., a private research firm. We are conducting a study for the Department of Energy about energy consumption in non-residential buildings. May I speak with the building manager or a person knowledgeable about the types of energy coming into the building. May I have his or her name, title and where I might locate that person.

NAME: _____

TITLE: _____

LOCATION: _____ Phone ( ) _____

Hello, I'm _____ from Westat, Inc. a social science research organization. We are conducting a study for the Department of Energy about energy consumption in non-residential buildings. [HAND LETTER.] Although your participation in this survey is voluntary, we do hope you will cooperate and participate in this important study of energy use.

IF ASKED ABOUT CONFIDENTIALITY, READ:

Any information we collect which will permit identification of respondents or their buildings will be confidential and used only for statistical purposes. Data that can be identified with individual respondents will not be disclosed or released to anyone (including the Department of Energy) for any other purpose, except as required by law.

Interviewer Name _____ ID No. _____

0	1	0	0		+					
12	13	14	15		16	17	18	19	20	21

Appendix D (Continued)

Time Began_____

BOX 1

BASED UPON YOUR OBSERVATION, CHECK ONE BOX AND FOLLOW INSTRUCTION:

☐ IF BUILDING IS FREE-STANDING, IS A SHOPPING CENTER/MALL, OR IS SAMPLED FROM SPECIAL BUILDING LIST, SKIP TO THE TOP OF PAGE 2.

☐ IF BUILDING IS ATTACHED ON ANY SIDE TO ANOTHER BUILDING, CONTINUE.

First of all I need to be able to distinguish, or separate, one building from another.

1. Is the building at [MENTION ADDRESS(ES)], and the building at [MENTION ADDRESS(ES)] owned by the same person or persons?

YES.....1

or

DON'T KNOW.....8

NO.....2

- DEFINITION: CONSIDER EACH SEPARATELY OWNED BUILDING AS A SEPARATE BUILDING.
- IF THE BUILDING IDENTIFIED ON THE LABEL TURNS OUT TO BE TWO OR MORE SEPARATE BUILDINGS AS DEFINED ABOVE, OBTAIN AN INTERVIEW FOR EACH BUILDING.

GO TO BOX 2

2. Are there permanent walls that extend from the ground level to the top story of the building, at [MENTION ADDRESS(ES)] which totally separate it from the building at [MENTION ADDRESS(ES)]?

YES.....1

- DEFINITION: CONSIDER EACH BUILDING SEPARATED BY A PERMANENT WALL AS A SEPARATE BUILDING.
- IF THE BUILDING IDENTIFIED ON THE LABEL TURNS OUT TO BE TWO OR MORE SEPARATE BUILDINGS AS DEFINED ABOVE, OBTAIN AN INTERVIEW FOR EACH BUILDING.

GO TO BOX 2

NO.....2

- CONSIDER CONNECTED BUILDINGS AS ONE BUILDING.
- OBTAIN INTERVIEW AND INCLUDE ALL PARTS THAT ARE TO BE CONSIDERED AS "ONE" BUILDING.

GO TO BOX 2

BOX 2

ORIGINAL LISTING IS:

☐ CORRECT ☐ INCORRECT

Appendix D (Continued)

The questions I will be asking you will all be about this building. By this building, I am referring to (the structure(s) at [USE NUMBER(S) OR NAME]/the entire shopping center or mall at [USE NUMBER(S) OR NAME]).

3. (IF NAME OF BUILDING IS NOT KNOWN, ASK): What is the correct name and address of this building? (IF KNOWN, SAY): Is the correct name and address of the building: [MENTION NAME AND ADDRESS]? (IF BUILDING HAS NO NAME, ASK, OR VERIFY, NAME OF MAJOR ESTABLISHMENT THAT OCCUPIES BUILDING)

(CHECK ONE)

NAME: _____ ☐ Name of Building

ADDRESS: _____ ☐ Name of Major Establishment in Building

4. What is the phone number of the building (establishment)?

( )
Area Code

5. What is the building's Zip Code? ☐☐☐☐☐ (25 27 28 29 30 31 32 33 34 35)

Zip Code

BOX 3 • IF AREA LISTING: CHECK TO SEE IF YOUR ASSIGNED ZIP CODE AGREES WITH THE BUILDING'S ZIP (CHECK ONE BOX) ☐ AGREES - CONTINUE WITH INTERVIEW ☐ DOES NOT AGREE - CHECK THAT YOU ARE AT THE CORRECT ADDRESS AND WITHIN THE SEGMENT BOUNDARIES. IF SO, CONTINUE WITH INTERVIEW. • IF SPECIAL BUILDING LIST, CHECK THAT YOU ARE AT CORRECT ADDRESS AND CONTINUE WITH INTERVIEW.

☐ 36

6. Is the building occupied by one, or more than one, organization, company or agency?

One.....1 (Q11)
More than one.....2 (Q7)

7. Is there any establishment in this building that receives its mail through any other ZIP code?

Yes.....1 (Q8)
No.....2 (Q11)
Don't know.....8 (Q11)

Appendix D (Continued)

8. Does the establishment that has a different ZIP code occupy 75% or more of the space in this building?

Yes.....1 (Q9)
No.....2 (Q11)
Don't Know.....8 (Q11)

9. What is the name of that establishment?

_____
(Name)

10. What is the ZIP Code for (MENTION NAME OF ESTABLISHMENT)?

_____
(Zip Code)

11. Is (any part of) the building occupied by: (READ CATEGORIES)

	YES	NO	DK
A Federal Government Agency.....	1	2	8
A State Government Agency.....	1	2	8
A Local Government Agency.....	1	2	8

- IF YES IS ANSWERED TO ANY PART OF Q11, ASK Q12.
- OTHERWISE, SKIP TO Q13.

12. Is the building owned by an agency of the Federal, State or local government?

Yes.....1 (BOX 4)
No.....2 (Q13)
Don't know.....8 (Q13)

13. Is the building owner, or his agent, an occupant of this building?

Yes.....1
No.....2

BOX 4

IF YOU KNOW THE NAME, ADDRESS, TELEPHONE NUMBER, AND ZIP CODE OF THE MANAGEMENT OFFICE RECORD THE INFORMATION IN Q14 AND 15, AND THEN SKIP TO Q16, OTHERWISE CONTINUE.

14. Is there a management office that supervises the building?

Yes.....1 (Q15)
No.....2 (Q16)
Don't know.....8 (Q16)

15. (What is/let me verify) the name, address, ZIP code, and phone number of the management office?

Name: _____

Address: _____

ZIP Code: _____ Telephone: ( )

16. I would now like to ask you some questions about the physical characteristics of the building. When was the major or largest portion of the building constructed?

_____ (Q18)
Year
Don't know..... 998 (Q17)

17. Here is a card which has several categories of years. Which category in your estimation best applies to the year the largest portion of the building was constructed?

HAND CARD 1

Before 1900..... 01
1901-1920..... 02
1921-1945..... 03
1946-1960..... 04
1961-1970..... 05
1971-1973..... 06
1974 to present..... 07
Don't know..... 98

18. (IF BUILDING BUILT BEFORE 1974, ASK): In the last five years has any weather stripping or caulking been added to the building shell?
(IF BUILDING BUILT 1974 TO PRESENT, ASK): Since the building was constructed, has any weather stripping or caulking been added to the building shell?

Yes.....1 (Q19)
No.....2 (Q20)
Don't know.....8 (Q20)

19. In what year was it last added?

_____
Year
Don't know.....998

20. Has any additional insulation been installed in the roof or walls since the building was constructed?

Yes.....1 (Q21)
No.....2 (Q22)
Don't know.....8 (Q22)

21. In what year was the insulation last added?

_____
Year
Don't know.....998

blank

Appendix D (Continued)

Begin card 02

22. Thinking of the amount of glass on the exterior surface of the building, would you estimate that glass covers 50% or more of the exterior surface of this building?

Yes.....1 → Is it 75% or more?
Yes.....1
No.....2

No.....2 → Is it 25% or more?
Yes.....3
No.....4

17

23. Is any of the exterior glass considered to be tinted, reflective, insulated, or the thermal pane type of glass?

Yes.....1 (Q24)
No.....2 (Q26)
Don't know.....8 (Q26)

24. Was the tinted, reflective, insulated or thermal pane type of glass installed at the time of construction or added since the building was constructed?

Time of construction..... 1 (Q26)
Since construction.....2 (Q25)
Both.....3 (Q25)
Don't know.....8 (Q26)

25. In approximately what year was the tinted, reflective, insulated, or the thermal pane glass most recently installed?

_____ Year
Don't know.....998

26. Are there any window awnings or other window-shadings on the outside of the building?

Yes.....1 (Q27a)
No.....2 (Q28)
Don't know.....8 (Q28)

27a. Were these window awnings or other shadings installed at the time of construction or added since that time?

Time of construction.....1 (Q28)
Since construction.....2 (Q27b)
Both.....3 (Q27b)
Don't know.....8 (Q28)

27b. In approximately what year were these window awnings or shadings most recently installed?

_____ Year
Don't know.....998

28. Are there any window shadings on the inside of the building such as shades, drapes, or venetian blinds?

Yes.....1
No.....2
Don't know.....8

Appendix D (Continued)

29. How many floors are in the tallest section of the building? Please include any floors that may be used as a parking garage, basements, or any other floors below ground level.

_____ # of floors

30. What is the total square footage of all the space enclosed within the exterior walls of this building? Again, please include indoor parking facilities and basements, and all space such as hallways, lobbies, stairways and elevator shafts.

_____ # of Sq. Feet (INTRODUCTION ABOVE Q32)

Don't know.....99999998 (Q31)

31. Here is a card that has several broad categories of total square feet. Which category in your estimation best applies to the total square feet in this building?

HAND CARD 2

1,000 or less.....01
1,001 to 5,000 sq. ft.....02
5,001 to 10,000 sq. ft.....03
10,001 to 25,000 sq. ft.....04
25,001 to 50,000 sq. ft..... 05
50,001 to 100,000 sq. ft..... 06
100,001 to 200,000 sq. ft..... 07
200,001 to 500,000 sq. ft..... 08
500,001 to 1 million sq. ft..... 09
Over 1 million sq. ft..... 10
Don't know..... 98

The purpose of the next few questions is to find out about the kinds of activities that occur within this building.

By "activities" we mean the building's purpose. What is it used for? For example, space in a building may be used for office work, retail sales, as residential living quarters, for manufacturing, warehousing, laundering, classroom activities, or any number of other purposes.

32. First of all, is any part of the building used for residential purposes? By residential we mean individual housekeeping units with kitchen facilities.

Yes..... 1 (Q33)
No.....2 (BOX 6)

33. Approximately what percentage of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in the building is used for residential purposes?

_____ % (BOX 5)

Don't Know.....998 (Q34)

BOX 5

CIRCLE CODE AND FOLLOW SKIP INSTRUCTION:

25% OR OVER.....1 (Q39)
NONE OR LESS THAN 25% RESIDENTIAL.....2 (BOX 6)

Appendix D (Continued)

34. Would you estimate that 50% or more of the (MENTION SQUARE FEET FROM Q30 or 31) square feet is used for residential purposes?

Yes.....1 → Is it 75% or more?
- Yes.....1 (Q39)
- No.....2 (Q39)

No.....2 → Is it 25% or more?
- Yes.....3 (Q39)
- No.....4 (BOX 6)

BOX 6

IF BUILDING APPEARS TO BE: (CIRCLE CODE AND FOLLOW SKIP INSTRUCTION.)

OFFICE OR PROFESSIONAL BUILDING..... 1 (Q35)
SHOPPING CENTER/MALL..... 2 (Q36)
ANYTHING ELSE..... 3 (Q37)

35. Considering all of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in this building, would you estimate that over 75% of this space is used as offices for establishments or professionals?

Yes.....1(Q41)
No.....2(Q37)

36. Would you classify this (building/complex of stores) as being a shopping center or mall?

Yes.....1(Q41)
No.....2(Q37)

37. Considering all of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in this building is there one main activity that occupies over 75% of the space?

Yes.....1(Q38)
No.....2(Q39)

38. Could you describe that activity? A general description such as office work, laundry, restaurant, manufacturing, etc., is what I need.

_____

_____

_____

blank

SKIP TO Q41

Appendix D (Continued)

Begin Card 03

39. Could you describe all the activities that occur within this building (other than residential)? A general description such as office work, laundry, restaurant, manufacturing, etc., is what I need.

ACTIVITIES

40. You have named the following activities (READ ACTIVITIES MENTIONED IN Q39.)

A. Which of these activities occupies most space in this building?

ACTIVITY: _____

B. About what percentage of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in this building is used for (ACTIVITY MENTIONED IN "A")?

_____ %

C. Which activity occupies the next most space in this building?

ACTIVITY: _____

D. About what percentage of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in this building is used for (ACTIVITY MENTIONED IN "C")?

_____ %

41. My next few questions are about the establishments in this building. Approximately, how many people work in (all of the establishments that occupy/the establishment that occupies) this building? (IF NUMBER VARIES THROUGHOUT THE YEAR, ASK FOR WHAT OCCURS MOST OF THE YEAR.)

_____ (Q43)
Number or range

Don't know or won't estimate.... 99999 (Q42)

42. Here is a card which shows categories. Which category in your estimation best applies to the number of people who work in the building?

HAND CARD 3

Less than 10..... 01
10-19..... 02
20-49..... 03
50-99..... 04
100-249..... 05
250-499..... 06
500-999..... 07
1,000-2,499..... 08
2,500-4,999..... 09
5,000 or more..... 10
Don't know..... 98

Appendix D (Continued)

43. I would now like to ask you about the hours the building is "in operation". By "in operation" we mean the total hours people normally work in the building. For this building, what are the total number of hours each day that (the establishment is/most of the establishments are) "in operation"? Lets start with: (READ EACH DAY)

SCHEDULE

DAY	HOURS FOR MOST ESTABLISHMENT(s) In operation	24 Hrs.	Not open
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

44. Are the hours you just mentioned the same throughout the year?

Yes..... 1 [Q46a]
No..... 2 [Q45]
Don't know..... 8 [Q46a]

41-46 blank

Appendix D (Continued)

45. During what months are the hours of operation changed, and what are the hours at those times?

Months _____

DAY	HOURS FOR MOST ESTABLISHMENT(s) In operation	24 Hrs. (✓)	Not open (✓)
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Months _____

DAY	HOURS FOR MOST ESTABLISHMENT(s) In operation	24 hrs. (✓)	Not open (✓)
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

46a. My next few questions are about the heating and cooling system or systems that serve the building. Approximately, what percentage of the (MENTION SQUARE FEET FROM Q30 OR Q31) square feet in this building is heated?

_____ %

% heated

IF ZERO PERCENT IS HEATED,
SKIP TO Q53; OTHERWISE CONTINUE.

Begin card 05

(46a) [| |]
17 18 19

46b. The process of heating a building may be thought of in two parts: one, the system used to convert energy into heat, and two, the system that is used to distribute the heat throughout the building. First of all, just think of the system, or systems, that convert energy into heat; then look at this card, and pick the ONE choice that most nearly describes the energy conversion system for this building.

HAND CARD 4

a. Self-contained unit(s) that may be installed either in the building or on the roof. These units both generate and deliver the heat to the area each unit serves..... 1

b. A central system [furnace or boiler(s)] which is located within the building. This system generates the heat, *but depends on an additional system* for distribution of the heat..... 2

c. A central system located outside of the building. This system converts energy to a heated substance (water or steam) which is then delivered to the building. The heated substance (water or steam) is then distributed through another system to specific areas within the building..... 3

d. Something else or a combination of the above. (PLEASE SPECIFY)

_____

_____.... 4

46c. Here is a second card. This card shows various heat distribution systems. Which distribution system on this card most nearly describes the heat distribution system in use in this building?

HAND CARD 5

I. Forced hot air (with fans) using:

a. Air handling unit(s) with self-contained fan(s) which distribute heat to only part of the building.....01

b. Single central air handling unit separate from the energy conversion system, which distributes air throughout the building through ducts.... 02

II. Radiant or naturally circulated air using:

c. Electric baseboards..... 11

d. Baseboard heating using hot water..... 12

e. Baseboard heating using steam..... 13

f. Radiators or convectors..... 14

g. Heating panels in the walls or floor..... 15

h. Something else (PLEASE SPECIFY)

_____

_____.... 16

Appendix D (Continued)

IF BUILDING: (CIRCLE CODE AND FOLLOW INSTRUCTION)

- HAS ANY RESIDENTIAL UNITS..... 1 (Q47)
- IS TOTALLY NON-RESIDENTIAL..... 2 (Q50)

47. Do the residential occupants have control over the heating system; that is, are they able to turn the heat on or off or to set the temperature in their area?

Yes.....1 (Q50)
No.....2 (Q48a)

48a. During normal daytime hours, what interior temperature will you try to maintain in the residential part of this building when the heating system is operating this (coming) winter?

_____ °F
(Interior Temperature)
Don't know.....998

48b. As far as you know, what interior temperature was maintained in the residential part of the building last winter?

_____ °F
(Interior Temperature)
Don't know.....998

49. As part of the building's standard operating procedure for the residential portion of this building, is there a manual or an automatic reduction in the heat produced by the heating system at night?

Yes.....1
No.....2

50. Do employees of (the establishment/the establishments) in the building have control over the heating system; that is, are they able to turn the heat on or off or to set the temperature in their area?

Yes.....1 (Q52)
No..... 2 (Q51a)

51a. During normal working hours for this building, what interior temperature will you try to maintain when the heating system is operating this (coming) winter?

_____ °F
(Interior Temperature)
Don't know.....998

51b. As far as you know, what interior temperature was maintained last winter?

_____ °F
(Interior Temperature)
Don't know.....998

Appendix D (Continued)

52. As part of the building's standard operating procedure, is there a manual or an automatic reduction in the heat produced by the heating system during the hours when the building is not in full use?

Yes.....1
No.....2

53. Now thinking of the cooling system or systems that serve the building. Approximately, what percentage of the (MENTION SQUARE FEET FROM Q30 or 31) square feet in this building is air conditioned for cooling purposes?

_____ %
% Air Conditioned

IF "ZERO" PERCENT IS AIR CONDITIONED SKIP TO Q61, OTHERWISE CONTINUE.

54. What kind of cooling system or systems supply the air conditioning for this building? Please look at this card and pick the ONE choice that most nearly describes the air conditioning system here.

HAND CARD 6

a. Window units only.....1 (Q61)

b. One or more packaged units (i.e. built and assembled at a factory and installed as a unit at the building) which cool all, or portions, of this building.....2 (BOX 7)

c. A single central system which serves all areas of the building that are air-conditioned and which was specially constructed for this building.....3 (BOX 7)

d. Something else or any combination of the above (SPECIFY)

_____
_____ 4 (BOX 7)

BOX 7

IF BUILDING: (CIRCLE CODE AND FOLLOW INSTRUCTION)

- HAS ANY RESIDENTIAL UNITS.....1 (Q55)
- IS TOTALLY NON-RESIDENTIAL.....2 (Q56)

55. Do the residential occupants have control over the central or packaged unit air conditioning system; that is, are they able to turn the air conditioning on or off or to set the temperature in their area?

Yes.....1 (Q58)
No.....2 (Q56a)

Appendix D (Continued)

56a. During normal daytime hours, what interior temperature did you try to maintain in the residential part of this building this past summer?

_____ °F
(Interior Temperature)
Don't know.....998

56b. As far as you know, what interior temperature did you try to maintain in the residential part of the building the summer before; that is, the summer of 1978?

_____ °F
(Interior Temperature)
Don't know.....998

57. As part of the building's standard operating procedure for the residential portion of this building, is there a manual or an automatic reduction in the cooling produced by the air conditioning system at night?

Yes.....1
No.....2

58. Do employees of (the establishment/the establishments) in the building have control over the central or package unit air conditioning system; that is, are they able to turn the air conditioning on or off or to set the temperature in their area?

Yes.....1 (Q60)
No.....2 (Q59a)

59a. During normal working hours for this building, what interior temperature did you try to maintain this past summer?

_____ °F
(Interior Temperature)
Don't know.....998

59b. As far as you know, what interior temperature did you try to maintain the summer before; that is, the summer of 1978?

_____ °F
(Interior Temperature)
Don't know.....998

60. As part of the building's standard operating procedure, is there a manual or an automatic reduction in the cooling produced by the air conditioning system during the hours when the building is not in full use?

Yes.....1
No.....2

61. Has any of the space in the building which is normally in use been vacant or unoccupied for at least 3 months in the past 12 months?

Yes.....1 (Q62)
No.....2 (Q64)

62. Approximately, what percentage of the (MENTION SQUARE FEET FROM Q30 and Q31) square feet in the building would you estimate has been vacant or unoccupied for at least 3 months during the past 12 months?

_____ %
% Unoccupied
Don't know.....998

Appendix D (Continued)

63. During that time, was there a reduction in the amount of heat and/or cooling supplied to the vacant or unoccupied area?

Yes.....1
No.....2

64. The next few questions concern the actual equipment that supplies heating (and air conditioning) to the building. Is there a regular maintenance program for the heating (and air conditioning) system; that is, is the equipment checked at least once a year even if there are no apparent problems?

Yes.....1
No.....2
Don't know.....8

65. Are there any features that are part of the building's heating or cooling system which are specifically designed to help conserve energy?

Yes.....1 (Q66)
No.....2 (Q67)
Don't know.....8 (Q67)

66. Could you describe those features?

COLUMN A	COLUMN B	COLUMN C
SPECIFY FEATURE(S) BELOW	READ: In what year was it installed?	IF "1977" READ: What month in 1977 was it installed?

67. Are there any features that are part of the building's lighting system which are specifically designed to help conserve energy?

Yes.....1 (Q68)
No.....2 (Q69)
Don't know.....3 (Q69)

68. Could you describe those features?

COLUMN A	COLUMN B	COLUMN C
SPECIFY FEATURE(S) BELOW	READ: In what year was it installed?	IF "1977" READ: What month in 1977 was it installed?

Appendix D (Continued)

69. Here is a card which lists various types of fuels or energy sources. Which of these fuels or energy sources are brought into this building?

HAND CARD 7

RECORD ENERGY SOURCES IN COLUMN HEADINGS ON TOP OF FACING PAGE. IF ADDITIONAL COLUMNS ARE NEEDED TO RECORD ENERGY SOURCES, USE CONTINUATION BOOKLET.

IF FUEL OIL MENTIONED, ASK Q69a; OTHERWISE SKIP TO Q70.

69a. In how many tanks is the fuel oil stored?

_____ (Q69b)

Don't know.....98 (Q70)

ASK QUESTIONS 69b-69c IN SEQUENCE FOR EACH TANK. IF MORE THAN 4 TANKS, USE CONTINUATION BOOKLET.

	69b. How many gallons of fuel oil does (the/each) tank hold?	69c. At the present time, approximately how many gallons of fuel oil are in (the/each) tank?	69d. Would you estimate the tank is: (READ CATEGORIES)
Tank #1	_____ gal. Don't know..999998	_____ gal. (Tank 2 or Q70) Don't know...999998 (Q69d) FROM YOUR OBSERVATION Actual..... 1 Estimated.. 2	Completely full..... 1 3/4 full..... 2 1/2 full..... 3 1/4 full..... 4 Empty..... 5 Don't know..... 8
Tank #2	_____ gal. Don't know..999998	_____ gal. (Tank 3 or Q70) Don't know..999998 (Q69d) FROM YOUR OBSERVATION Actual..... 1 Estimated.. 2	Completely full..... 1 3/4 full..... 2 1/2 full..... 3 1/4 full..... 4 Empty..... 5 Don't know..... 8
Tank #3	_____ gal. Don't know..999998	_____ gal. (Tank 4 or Q70) Don't know..999998 (Q69d) FROM YOUR OBSERVATION Actual..... 1 Estimated.. 2	Completely full..... 1 3/4 full..... 2 1/2 full..... 3 1/4 full..... 4 Empty..... 5 Don't know..... 8
Tank #4	_____ gal. Don't know...999998	_____ gal. (Tank 5 or Q70) Don't know..999998 (Q69d) FROM YOUR OBSERVATION Actual..... 1 Estimated.. 2	Completely full..... 1 3/4 full..... 2 1/2 full..... 3 1/4 full..... 4 Empty..... 5 Don't know..... 8

Appendix D (Continued)

ENERGY SOURCES

Type of Energy	Type of Energy	Type of Energy	Type of Energy

70. Which fuels or energy sources are used to supply the building's need for: (RECORD RESPONSES BY CHECKING APPROPRIATE COLUMN(S) ON FACING PAGE.)

	NOT PERFORMED IN BUILDING
a. Heating	☐
b. Air conditioning for cooling purposes	☐
c. Water heating other tnan for heating the building	☐
d. Electricity generation	☐
e. Manufacturing or any other type of industrial activity	☐
f. Cooking	☐

70a. Have you converted from fuel oil to some other energy source since January 1, 1979 for: (READ CATEGORIES)

	YES	NO
a. Heating	1	2
b. Air conditioning for cooling purposes	1	2
c. Water heating other than for heating the building	1	2
d. Electricity generation	1	2
e. Manufacturing or any other type of industrial activity	1	2
f. Cooking	1	2

71. Are there any boilers in the building?

Yes.....1 (Q72)
No.....2 (Q74)
Don't know.....8 (Q74)

72. How many boilers are there?

_____
(NUMBER OF BOILERS)
Don't know.....8

73. Which fuels or energy sources are used to fire the boiler(s)?

Appendix D (Continued)

ENERGY SOURCES

Type of Energy	Type of Energy	Type of Energy	Type of Energy
70.			
73.			

Appendix D (Continued)

ASK Q74-84 CONSECUTIVELY FOR EACH ENERGY SOURCE.

The following questions deal with specific companies that supply fuel to this building. The Department of Energy would like specific information on energy consumption that can only be collected by going directly to energy companies and suppliers. For this reason, I would like to find out who supplies the building's fuels or other types of energy.

74. In the past year, who has supplied the building's (MENTION ENERGY SOURCE)? IF MORE THAN ONE SUPPLIER IS MENTIONED, RECORD ADDITIONAL SUPPLIERS IN CONTINUATION BOOKLET.

Name.....

Address.....

Zip Code.....

FOR ELECTRICITY AND NATURAL GAS ENERGY SOURCES, SKIP TO BOX 8. FOR OTHER SOURCES CONTINUE.

75. Has the same supplier been used for the past year?

Yes.....
No.....
DK.....

76. How many suppliers have been used in the past year?

77. What (is/are) the name(s) and address(es) of the other company(ies) that supplied (MENTION ENERGY SOURCE) in the past year? RECORD INFORMATION IN CONTINUATION BOOKLET.

BOX 8
IF MULTI-TENANT BUILDING, CONTINUE WITH Q78; OTHERWISE SKIP TO Q81.

78. How is the (MENTION ENERGY SOURCE) from (NAME OF SUPPLIER FROM Q74) billed; that is, are any of the tenants billed separately by the (NAME OF SUPPLIER) or is there just one bill for the entire building?

One bill.....
More than one bill.....

Appendix D (Continued)

ENERGY SOURCES

	Type of Energy	Type of Energy	Type of Energy	Type of Energy
74.				
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
75.	..... 1 (BOX 8) ..... 2 (Q76) ..... 8 (BOX 8)	..... 1 (BOX 8) ..... 2 (Q76) ..... 8 (BOX 8)	..... 1 (BOX 8) ..... 2 (Q76) ..... 8 (BOX 8)	..... 1 (BOX 8) ..... 2 (Q76) ..... 8 (BOX 8)
76.	# of suppliers	# of suppliers	# of suppliers	# of suppliers
78.	..... 1 (Q81) 2 (Q79)	..... 1 (Q81) 2 (Q79)	..... 1 (Q81) 2 (Q79)	..... 1 (Q81) 2 (Q79)

Appendix D (Continued)

79. How many separate bills are there?

80. We would like to contact each tenant who receives a bill from (NAME OF SUPPLIER) to obtain information about their energy consumption. Could you tell me the name of each tenant who is billed separately?

IF LIST IS NOT PROVIDED, RECORD NAME AND ADDRESS OF EACH TENANT WHO RECEIVES A SEPARATE BILL ON PAGES 28-31.

81. What is the name and address of the person or company who receives the bill for this building's use of (MENTION ENERGY SOURCE) from the (NAME OF SUPPLIER)?

Name:.....

Address:.....

Zip Code:.....

82. Does the bill you receive from (NAME OF SUPPIER) cover just the square footage in this building or does it cover more than this building?

Just this building.....
More than building.....
Don't know.....

83. What is the name and address of the other building or facility that the bill covers?

Name:.....

Address:.....

Zip Code:.....

IF BILLING ARRANGEMENT INCLUDES OTHER BUILDING, OBTAIN AS MUCH INFORMATION AS POSSIBLE. RECORD THIS INFORMATION ON THE PAGES 28-31 AND CONTACT SUPERVISOR

84. Could you tell me how many meters you have for the (ENERGY SOURCE) coming into the building?

RETURN TO QUESTION 74 FOR OTHER ENERGY SOURCES; IF NO OTHER ENERGY SOURCES, CONTINUE.

Appendix D (Continued)

ENERGY SOURCES

	Type of Energy	Type of Energy	Type of Energy	Type of Energy
79.	# of Bills	# of Bills	# of Bills	# of Bills
81.				
82.	..... 1 (Q84) ..... 2 (Q83) 6 (Q84)	..... 1 (Q84) ..... 2 (Q83) 6 (Q84)	..... 1 (Q84) ..... 2 (Q83) 6 (Q84)	..... 1 (Q84) ..... 2 (Q83) 6 (Q84)
83.				
84.	# of meters	# of meters	# of meters	# of meters

IF NEEDED, GO TO CONTINUATION BOOKLET

The President has issued a set of new Federal regulations which are designed to reduce the temperature in buildings. I have a few questions to find out if information about this program has been received by buildings across the country.

85. Informational booklets which look like this and contain information about the President's program are being sent to building managers nationwide. Have you, or has anyone else in this building received such a packet?

SHOW INFORMATIONAL BOOKLET

Yes..... 1 (Q86)
No..... 2 (BOX 9)
Don't know..... 8 (BOX 9)

86. The informational booklet contains a certificate which is to be displayed in the building. Has a certificate, which looks like this, been posted in this building?

SHOW CERTIFICATE

Yes..... 1 (Q87)
No..... 2 (BOX 9)
Don't know..... 8 (BOX 9)

87. Which of these three boxes on this certificate has been checked?

POINT OUT BOXES ON CERTIFICATE

READ CATEGORIES

Full compliance..... 1 (BOX 9)
Exempted compliance..... 2 (BOX 9)
Excepted from compliance..... 3 (BOX 9)
Don't know..... 8 (BOX 9)

IF ASKED ABOUT COMPLIANCE WITH THE TEMPERATURE SETBACK PROGRAM, READ CONFIDENTIALITY STATEMENT ON COVER PLUS STATEMENT BELOW:

The purpose of this survey is to collect information which is necessary to evaluate the effectiveness of energy conservation programs. Information on participation in any of these programs by individuals will not be released to anyone for any purpose.

_____ TIME ENDED

Appendix D (Continued)

ENERGY SOURCES

Type of Energy	Type of Energy	Type of Energy	Type of Energy

Appendix D (Continued)

BOX 9

WAIVER INSTRUCTIONS FOR EACH SUPPLIER --

- One bill for entire building, obtain one waiver.

  Obtained.....

  Not obtained.....

- Three bills or less, obtain waiver for each.

  Obtained.....

  Not obtained.....

- Four bills or more, obtain waiver from building owner/manager only.

  Obtained.....

  Not obtained.....

Appendix D (Continued)

ENERGY SOURCES

Type of Energy	Type of Energy	Type of Energy	Type of Energy
RECORD BELOW WAIVER RESULTS			
..... 01	 01	 01	 01
(Reason)	(Reason)	(Reason)	(Reason)
..... 11	 11	 11	 11
(Explain)	(Explain)	(Explain)	(Explain)
(# not obtained)	(# not obtained)	(# not obtained)	(# not obtained)
..... 21	 21	 21	 21
(Reason)	(Reason)	(Reason)	(Reason)

Appendix D (Continued)

ENERGY SOURCE: _____

SUPPLIER'S NAME: _____

Q. 80 LIST OF TENANTS RECEIVING SEPARATE BILLS	WAIVERS OBTAINED YES	NO	NOT NECESSARY	ADDITIONAL INFORMATION TO EXPLAIN BILLING
1) Name _____ Address _____				
2) Name _____ Address _____				
3) Name _____ Address _____				
4) Name _____ Address _____				
5) Name _____ Address _____				
6) Name _____ Address _____				
7) Name _____ Address _____				
8) Name _____ Address _____				

Use additional pages as needed to list separately billed tenants.

Appendix D (Continued)

ENERGY SOURCE: _____

SUPPLIER'S NAME: _____

Q. 80 LIST OF TENANTS RECEIVING SEPARATE BILLS	WAIVERS OBTAINED YES	NO	NOT NECESSARY	ADDITIONAL INFORMATION TO EXPLAIN BILLING
1) Name _____ Address _____				
2) Name _____ Address _____				
3) Name _____ Address _____				
4) Name _____ Address _____				
5) Name _____ Address _____				
6) Name _____ Address _____				
7) Name _____ Address _____				
8) Name _____ Address _____				

Use additional pages as needed to list separately billed tenants.

Appendix D (Continued)

ENERGY SOURCE: _____

SUPPLIER'S NAME: _____

Q. 80 LIST OF TENANTS RECEIVING SEPARATE BILLS	WAIVERS OBTAINED YES	NO	NOT NECESSARY	ADDITIONAL INFORMATION TO EXPLAIN BILLING
1) Name _____ Address _____				
2) Name _____ Address _____				
3) Name _____ Address _____				
4) Name _____ Address _____				
5) Name _____ Address _____				
6) Name _____ Address _____				
7) Name _____ Address _____				
8) Name _____ Address _____				

Use additional pages as needed to list separately billed tenants.

Appendix D (Continued)

ENERGY SOURCE: _____

SUPPLIER'S NAME: _____

Q. 80 LIST OF TENANTS RECEIVING SEPARATE BILLS	WAIVERS OBTAINED YES	NO	NOT NECESSARY	ADDITIONAL INFORMATION TO EXPLAIN ANSWER
1) Name _____ Address _____				
2) Name _____ Address _____				
3) Name _____ Address _____				
4) Name _____ Address _____				
5) Name _____ Address _____				
6) Name _____ Address _____				
7) Name _____ Address _____				
8) Name _____ Address _____				

Use additional pages as needed to list separately billed tenants.

Begin card 08

INTERVIEWER OBSERVATIONS

IF LISTING DISAGREES WITH INTERVIEW DEFINITION OF BUILDING (I.E.,IF BOX 2 IS CHECKED "INCORRECT" ON PAGE 1 OF QUESTIONNAIRE), COMPLETE QUESTION 1; OTHERWISE, SKIP TO QUESTION 2.

1. A. Please indicate the name and address(es) of the building from the listing sheet.

Name _____

Address _____

_____

B. Please indicate the name and address of the building as defined for the interview.

Name _____

Address _____

_____

C. Please explain the circumstances of the disagreement between listing and interview definition of the building.

_____

_____

_____

2. Did you contact any other respondent than the person recorded on the front cover of the questionnaire?

YES..... 1 (Q3)

NO..... 2 (Q4)

3. Please list all respondents.

Name: _____

Title: _____ [ ] 18 19

Location: _____ Phone No. ( )

Name: _____

Title: _____ [ ] 20 21

Location: _____ Phone No. ( )

4. What is your observation of the type of building or kind of business that occurs within the building? Please be thorough in your description.

_____

_____

_____

Appendix D (Continued)

5. Is this building free standing or attached to another building?

Free standing..... 1 22
Attached..... 2

6. Please describe any unusual circumstances you may have encountered in obtaining the waiver.

_____ 23 24
_____
_____

7. IF SHOPPING CENTER/MALL:

A. Is this a strip shopping center or enclosed mall?

Strip shopping center..... 1 25
Enclosed mall..... 2

B. Approximately how many establishments are in this shopping center/mall?

Less than 10..... 1
10-24..... 2 26
25-49..... 3
50-74..... 4
75-100..... 5
Over 100..... 6

Appendix D (Continued)

NON-INTERVIEW REPORT

1. Please explain in detail the reason you were unable to complete the interview.

_____

_____

_____

_____

_____

_____

2. What is your observation of the type of building or kind of business that occurs within the building?

_____

_____

_____ [ ][ ][ ][ ] 27 28 29 30

_____

_____

_____

3. Approximately how many square feet would you estimate to be in this building?

1,000 or less.....	01
1001 to 5,000.....	02
5,001 to 10,000.....	03
10,001 to 25,000.....	04
25,001 to 50,000.....	05
50,001 to 100,000.....	06
100,001 to 200,000.....	07
200,001 to 500,000.....	08
500,001 to 1 million.....	09
Over 1 million.....	10
Don't know.....	98

31-32

Date	# Contacts Int.	# Contacts Waiver	Time	Disp.	Batch#
[ ][ ][ ][ ]	[ ][ ][ ]	[ ][ ][ ]	[ ][ ][ ]	[ ][ ]	[ ][ ][ ][ ]
33 34 35 36	37 38 39	40 41 42	43 44 45	46 47	48 49 50 51

52-80 blank

Appendix D (Continued)

RECORD OF CONTACTS

Date	Time		Type of Contact		Contact Relates to		Results of Contact	Comments
	Began	Ended	Field	Phone	Inter-view	Waiver		

FINAL STATUS ON INTERVIEW AND WAIVER
(Circle one code)

Interview Complete with all waivers 1

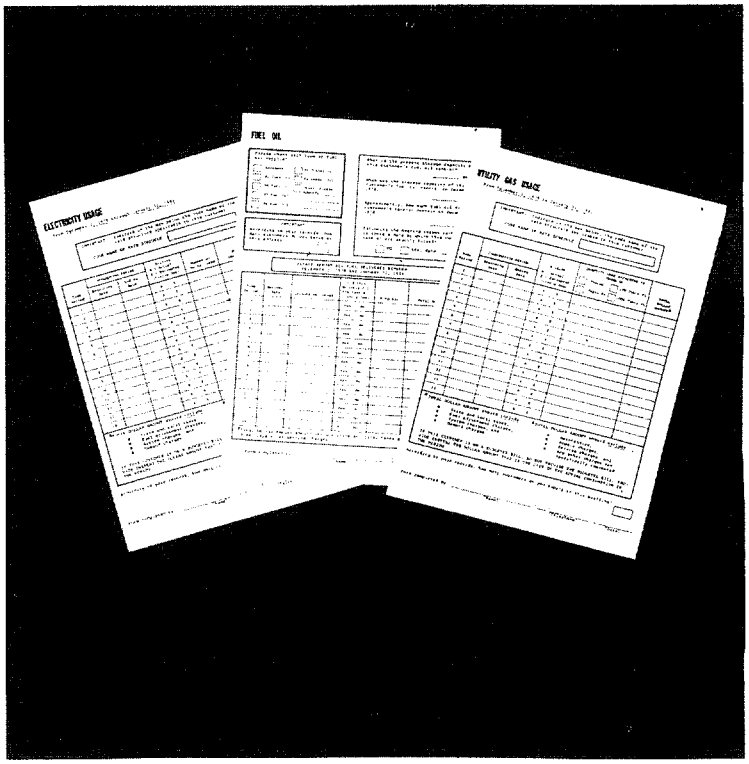
Interview Complete without all waivers . . . 2

Non-Response (e.g., unable to enter [illegible] unable to contact [illegible]) 3

Ineligible Bldg. (out of segment; not a bldg. according to study definition; listing and interview definition of the bldg. has changed scope of bldg.) 4

Appendix E

Utility Forms



Appendix E

This appendix contains samples of the survey forms used to obtain consumption and expenditures data from the buildings' energy suppliers. The actual forms used were color-coded by fuel type. The color is indicated by a letter in the form number, i.e., "Y" stands for yellow (electricity), "B" for blue (natural gas), "P" for pink (fuel oil), and "G" for green (all other fuels).

For each fuel type, there were five forms, each covering a different situation. Form 1 (included here) was for an individual building with a single occupant. Form 2 was for an individual building with multiple occupants where a single waiver was obtained for the entire building. Form 3 covered individual buildings with multiple occupants where a waiver was obtained for each occupant. Form 4 covered individual buildings with multiple occupants where waivers were obtained for some, but not all occupants. Form 5 was for a group of buildings in the supplier's service area for which no waivers were obtained.

Appendix E (Continued)

EIA NO.: 143
OMB NO.: 038-S78042
FORM: 01 G

U.S. DEPARTMENT OF ENERGY
NON-RESIDENTIAL BUILDING ENERGY CONSUMPTION STUDY

Conducted by:

WESTAT
An Employee-Owned Research Corporation
11600 Nebel Street • Rockville, Maryland 20852 • 301 881-5310

Consumption data is to be provided for the building described above.

Data may be submitted directly on the reporting form inside this folder, or in any other format, such as a computer print-out, which provides the same information and is convenient for your company.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL
COLLECT TO: DONNA MORRIS (301) 881-5310

Participation is mandatory as authorized by Section 13B of the Federal Energy Administrative Act of 1974 (PL 93-275, as amended), Emergency Petroleum Allocation Act (PL 93-159), and the Energy Emergency Conservation Act (PL 96-202).

Any information we collect which will permit identification of respondents or their buildings will be confidential and used only for statistical purposes. Data that can be identified with individual respondents will not be disclosed or released to anyone (including the Department of Energy) for any other purpose except as required by law.

Appendix E (Continued)

ELECTRICITY USAGE

From December 1, 1978 through January 31, 1980

IMPORTANT: Indicate in the box below the code name of the rate structure applicable to this customer.

CODE NAME OF RATE SCHEDULE: _____

Time Period	Consumption Period		Billing A - Actual E - Estimated (Circle One)	Number of kw hr. used	KW Demand	TOTAL DOLLAR AMOUNT*
	Beginning Date	Ending Date				
1			A E			
2			A E			
3			A E			
4			A E			
5			A E			
6			A E			
7			A E			
8			A E			
9			A E			
10			A E			
11			A E			
12			A E			
13			A E			
14			A E			

*TOTAL DOLLAR AMOUNT should include:

- State and Local taxes,
- Fuel adjustment charges,
- System charges, and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges, and
- Any other charges not specifically requested.

IF THIS CUSTOMER IS ON A BUDGETED BILL, DO NOT PROVIDE THE BUDGETED BILL, PROVIDE INSTEAD THE DOLLAR AMOUNT THAT IS THE COST OF THE ACTUAL CONSUMPTION IN THE PERIOD.

According to your records, how many customers do you supply in this building? _____

Appendix E (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY
Authorization Form For
Non-Residential Building Energy Consumption Survey

I hereby give permission to Westat, Inc. to obtain energy consumption information for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers the total amount of fuels and the total price charged for fuels consumed during the 14 month period of December 1, 1978 to January 30, 1980 by the building in the box below.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

BUILDING NAME

ADDRESS

CITY STATE ZIP CODE

SIGNATURE OF PERSON AUTHORIZING

EMPLOYED BY

TITLE

( )
TELEPHONE #

ADDRESS OF PERSON AUTHORIZING IF DIFFERENT FROM ABOVE:

ADDRESS

CITY STATE ZIP CODE

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH COMPANY THAT SUPPLIES FUEL USED BY YOUR NON-RESIDENTIAL BUILDING SINCE DECEMBER, 1978.

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

Appendix E (Continued)

EIA NO.: 142
OMB NO.: 038-578042
FORM: 21 B

U.S. DEPARTMENT OF ENERGY
NON-RESIDENTIAL BUILDING ENERGY CONSUMPTION STUDY

Conducted by:

WESTAT
An Employee-Owned Research Corporation
11800 [illegible] • [illegible] (20852) • 301 881 [illegible]

Consumption data is to be provided for the building described above.

Data may be submitted directly on the reporting form inside this folder, or in any other format, such as a computer print-out, which provides the same information and is convenient for your company.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL
COLLECT TO: DONNA MORRIS (301) 881-5310

Participation is mandatory as authorized by Section 13B of the Federal Energy Administrative Act of 1974 (PL 93-275, as amended), Emergency Petroleum Allocation Act (PL 93-159), and the Energy Emergency Conservation Act (PL 96-202).

Any information we collect which will permit identification of respondents or their buildings will be confidential and used only for statistical purposes. Data that can be identified with individual respondents will not be disclosed or released to anyone (including the Department of Energy) for any other purpose except as required by law.

Appendix E (Continued)

UTILITY GAS USAGE

From December 1, 1978 to January 31, 1980

IMPORTANT: Indicate in the box below, the code name of the rate structure applicable to this customer.

CODE NAME OF RATE SCHEDULE: [ ]

Time Period	CONSUMPTION PERIOD		BILLING	QUANTITY USED EXPRESSED IN TERMS OF:	TOTAL DOLLAR AMOUNT*
	Beginning Date	Ending Date	A - Actual E - Estimated (Circle One)	☐ Therms ☐ 100 Cubic Ft ☐ Cubic Ft ☐ 1000 Cubic Ft	
1			A E		
2			A E		
3			A E		
4			A E		
5			A E		
6			A E		
7			A E		
8			A E		
9			A E		
10			A E		
11			A E		
12			A E		
13			A E		
14			A E		

*TOTAL DOLLAR AMOUNT should include:

- State and Local taxes,
- Fuel adjustment charges,
- System charges, and
- Demand charges.

*TOTAL DOLLAR AMOUNT should exclude:

- Merchandise,
- Repair charges,
- Service charges, and
- Any other charges not specifically requested.

IF THIS CUSTOMER IS ON A BUDGETED BILL, DO NOT PROVIDE THE BUDGETED BILL, PROVIDE INSTEAD THE DOLLAR AMOUNT THAT IS THE COST OF THE ACTUAL CONSUMPTION IN THE PERIOD.

According to your records, how many customers do you supply in this building? [ ]

Form completed by: _____ (Name) (____) _____ (Telephone) _____ (Date)

Appendix E (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY
Authorization Form For
Non-Residential Building Energy Consumption Survey

I hereby give permission to Westat, Inc. to obtain energy consumption information for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers the total amount of fuels and the total price charged for fuels consumed during the 14 month period of December 1, 1978 to January 30, 1980 by the building in the box below.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

BUILDING NAME

ADDRESS

CITY STATE ZIP CODE

SIGNATURE OF PERSON AUTHORIZING

EMPLOYED BY

TITLE

( )
TELEPHONE #

ADDRESS OF PERSON AUTHORIZING IF DIFFERENT FROM ABOVE:

ADDRESS

CITY STATE ZIP CODE

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH COMPANY THAT SUPPLIES FUEL USED BY YOUR NON-RESIDENTIAL BUILDING SINCE DECEMBER, 1978.

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

Appendix E (Continued)

EIA NO.: 143
OMB NO.: 019-570042
FORM: 21 Y

U.S. DEPARTMENT OF ENERGY
NON-RESIDENTIAL BUILDING ENERGY CONSUMPTION STUDY

Conducted by:

WESTAT
An Employee-Owned Research Corporation

Consumption data is to be provided for the building described above.

Data may be submitted directly on the reporting form inside this folder, or in any other format, such as a computer print-out, which provides the same information and is convenient for your company.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL
COLLECT TO: DONNA MORRIS (301) 881-5310

Participation is mandatory as authorized by Section 13B of the Federal Energy Administrative Act of 1974 (PL 93-275, as amended), Emergency Petroleum Allocation Act (PL 93-159), and the Energy Emergency Conservation Act (PL 96-202).

Any information we collect which will permit identification of respondents or their buildings will be confidential and used only for statistical purposes. Data that can be identified with individual respondents will not be disclosed or released to anyone including the Department of Energy for any other purpose except as required by law.

Appendix E (Continued)

FUEL OIL

Please check each type of fuel oil supplied.

- ☐ Kerosene
- ☐ #1 Diesel Oil
- ☐ #2 Fuel Oil
- ☐ #2 Diesel Oil
- ☐ #4 Fuel Oil
- ☐ Other (Please Specify) _____
- ☐ #5 Fuel Oil
- ☐ #6 Fuel Oil

What is the present storage capacity of this customer's fuel oil tank(s)?

_____ gallons

What was the storage capacity of this customer's fuel oil tank(s) on December 1, 1978?

_____ gallons

Approximately, how much fuel oil did the customer's tank(s) contain on December 1, 1978?

_____ gallons

Following the heating season each year, is there a date by which this customer's tank(s) are usually filled?

☐ NO ☐ YES, date: _____

IMPORTANT

According to your records, how many customers do you serve at this address? ☐

PLEASE REPORT ALL FUEL DELIVERED BETWEEN DECEMBER 1, 1978 AND JANUARY 31, 1980.

Time Period	Delivery Date	Gallons Delivered	Did this delivery fill the tank(s)? (Circle One)	K Factor	Total Dollar Amount*
1			Yes No		
2			Yes No		
3			Yes No		
4			Yes No		
5			Yes No		
6			Yes No		
7			Yes No		
8			Yes No		
9			Yes No		
10			Yes No		
11			Yes No		
12			Yes No		
13			Yes No		
14			Yes No		

*Total Dollar Amount should include state and local taxes and exclude all merchandise, repair, or service charges.

Form completed by: _____ Name ( ) _____ Telephone _____ Date

Appendix E (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY
Authorization Form For
Non-Residential Building Energy Consumption Survey

I hereby give permission to Westat, Inc. to obtain energy consumption information for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers the total amount of fuels and the total price charged for fuels consumed during the 14 month period of December 1, 1978 to January 30, 1980 by the building in the box below.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

BUILDING NAME

ADDRESS

CITY STATE ZIP CODE

SIGNATURE OF PERSON AUTHORIZING

EMPLOYED BY

TITLE

( )
TELEPHONE #

ADDRESS OF PERSON AUTHORIZING IF DIFFERENT FROM ABOVE:

ADDRESS

CITY STATE ZIP CODE

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH COMPANY THAT SUPPLIES FUEL USED BY YOUR NON-RESIDENTIAL BUILDING SINCE DECEMBER, 1978.

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

Appendix E (Continued)

EIA NO.: 143
OMB NO.: 038-S78042
FORM: 01 P

U.S. DEPARTMENT OF ENERGY
NON-RESIDENTIAL BUILDING ENERGY CONSUMPTION STUDY

Conducted by:

WESTAT
An Employee-Owned Research Corporation
11600 Nebel Street • Rockville, Maryland 20852 • 301 881 5310

Consumption data is to be provided for the building described above.

Data may be submitted directly on the reporting form inside this folder, or in any other format, such as a computer print-out, which provides the same information and is convenient for your company.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL
COLLECT TO: DONNA MORRIS (301) 881-5310

Participation is mandatory as authorized by Section 13B of the Federal Energy Administrative Act of 1974 (PL 93-275, as amended), Emergency Petroleum Allocation Act (PL 93-159), and the Energy Emergency Conservation Act (PL 96-202).

Any information we collect which will permit identification of respondents or their buildings will be confidential and used only for statistical purposes. Data that can be identified with individual respondents will not be disclosed or released to anyone (including the Department of Energy) for any other purpose except as required by law.

Appendix E (Continued)

INDIVIDUAL

Please check each type of fuel supplied:

- [ ] Anthracite Coal
- [ ] Bituminous Coal
- [ ] Propane
- [ ] Other (Please Specify) _____

PLEASE REPORT ALL FUEL PURCHASED AND DELIVERED BETWEEN DECEMBER 1, 1978 AND JANUARY 31, 1980.

Time Period	Delivery Date	QUANTITY Expressed in: _____ (Please specify unit, e.g., gallons, tons, etc.)	Total Dollar Amount*
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

*Total Dollar Amount should include state and local taxes and exclude all merchandise, repair or service charges.

Form completed by: _____ Name ( ) _____ Telephone _____ Date

Appendix E (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY
Authorization Form For
Non-Residential Building Energy Consumption Survey

I hereby give permission to Westat, Inc. to obtain energy consumption information for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers the total amount of fuels and the total price charged for fuels consumed during the 14 month period of December 1, 1978 to January 30, 1980 by the building in the box below.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

BUILDING NAME

ADDRESS

CITY STATE ZIP CODE

SIGNATURE OF PERSON AUTHORIZING

EMPLOYED BY

TITLE

( )
TELEPHONE #

ADDRESS OF PERSON AUTHORIZING IF DIFFERENT FROM ABOVE:

ADDRESS

CITY STATE ZIP CODE

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH COMPANY THAT SUPPLIES FUEL USED BY YOUR NON-RESIDENTIAL BUILDING SINCE DECEMBER, 1978.

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

ENERGY SOURCE

PRINT FULL NAME OF COMPANY

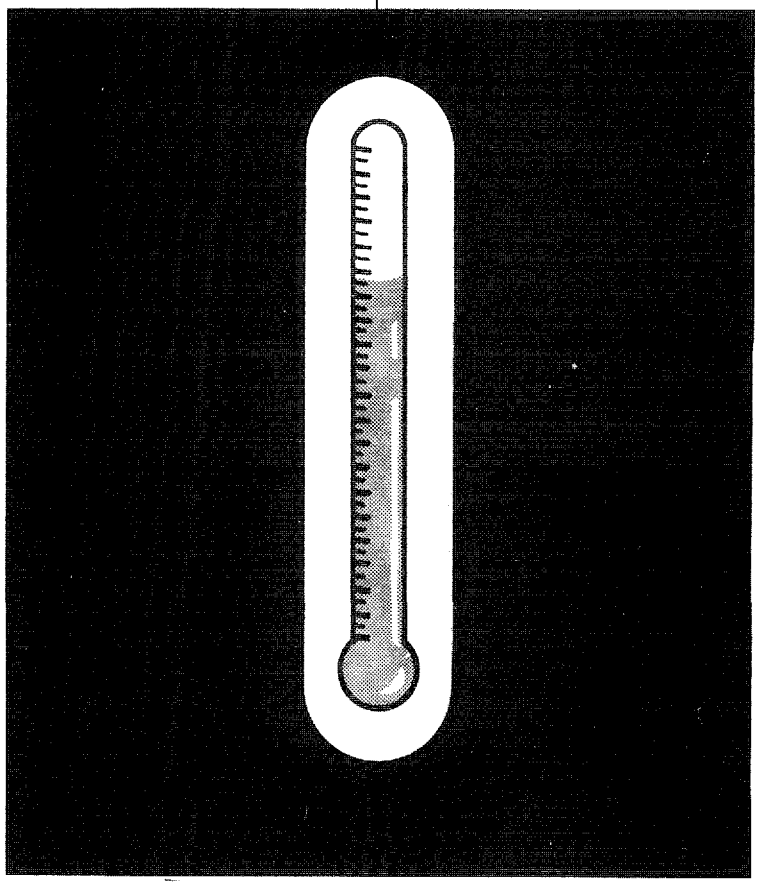
ADDRESS (IF KNOWN) - CITY AND STATE - ZIP CODE

TELEPHONE: ( )

ACCOUNT NUMBER

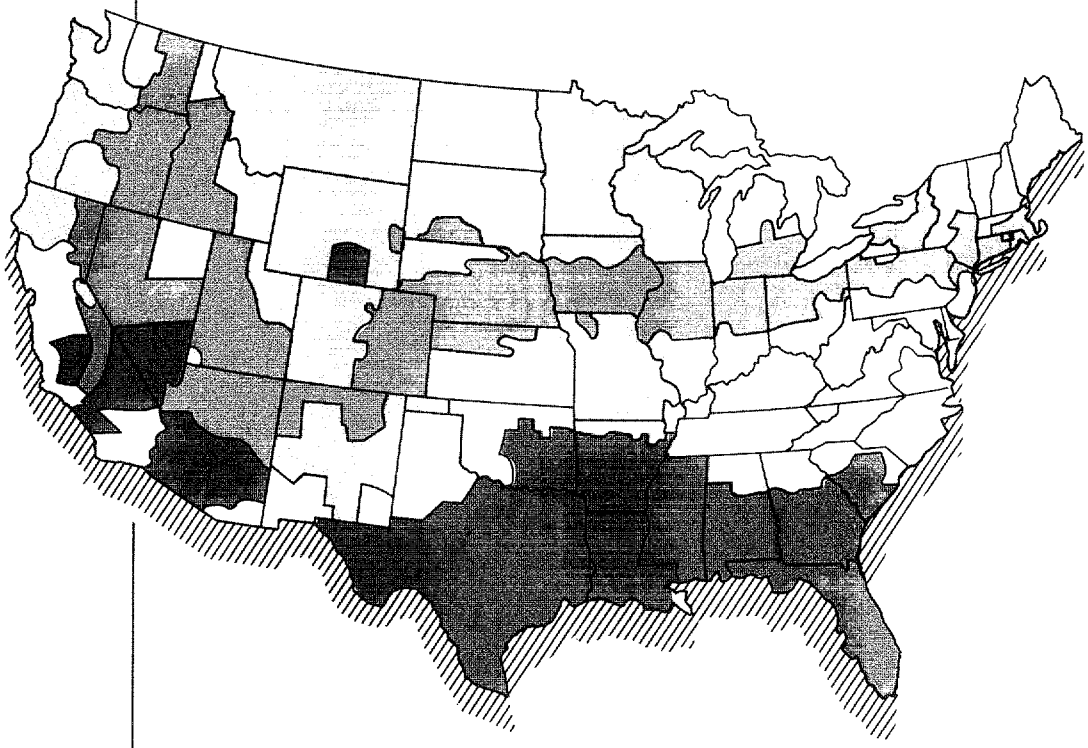
Appendix F

U.S.
Weather Zone
Map



Appendix F

U.S. Weather Zone Map of Heating Degree-Days (HDD) and Cooling Degree-Days (CDD)

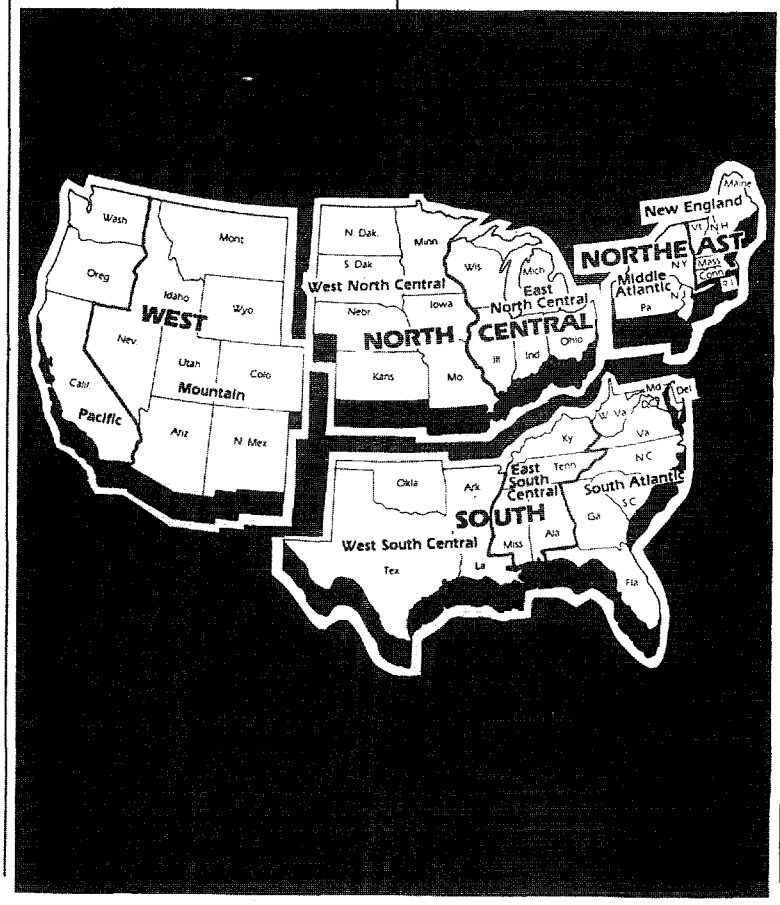


Weather Zones

- 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.

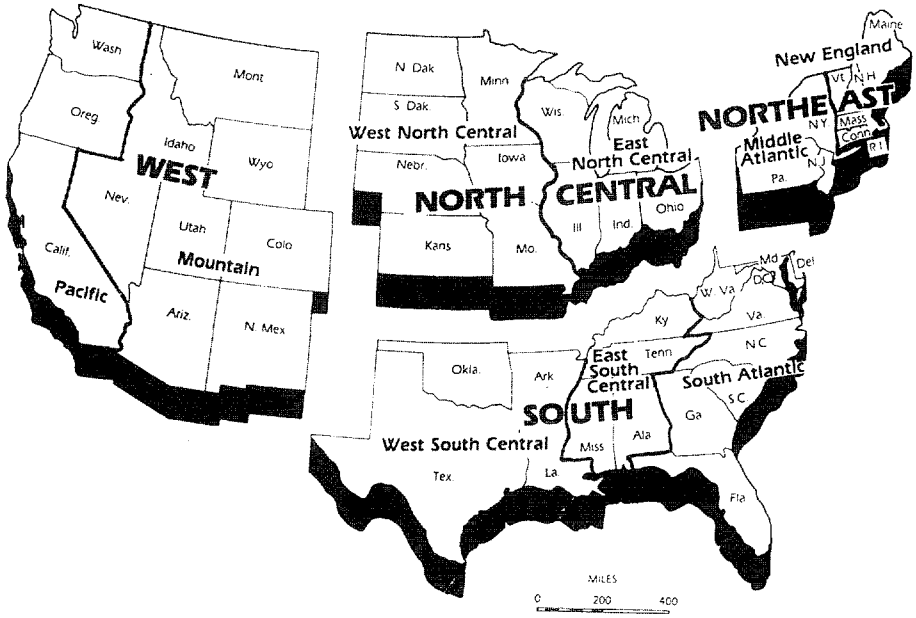
Appendix G

U.S.
Census Regions
and Divisions

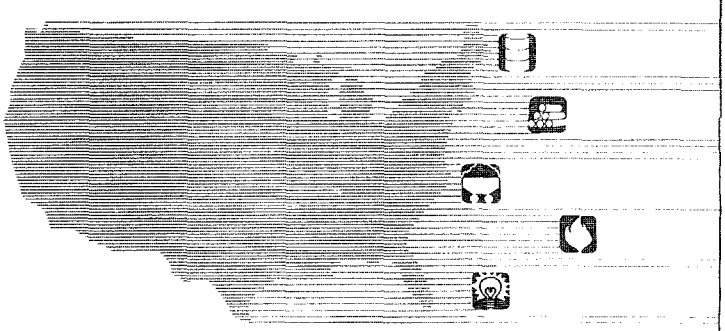


Appendix G

U.S. Census Regions and Divisions



Glossary



Glossary

Air Conditioning refers to the cooling of air by a refrigeration unit. It does not include fans, blowers, or evaporative cooling systems that are not connected to a refrigeration unit. Air-conditioning units which are not currently in working condition or not used but are in place in a building are included in this survey.

Btu (British Thermal Units). A Btu is the amount of energy required to raise the temperature of one pound of water, one degree Fahrenheit at or near 39.2 degrees Fahrenheit and one atmosphere of pressure.

Btu conversion factors for this survey are:

Electricity	3,412	Btu/kilowatt-hour
Natural Gas	1,019	Btu/cubic foot
Fuel Oil/Kerosene		
Distillate	138,690	Btu/gallon
Residual	149,690	Btu/gallon
Kerosene	135,000	Btu/gallon
Grade Not Specified	140,000	Btu/gallon
Liquid Petroleum Gas	91,333	Btu/gallon
Steam	1,000	Btu/pound

Building Activity refers to the primary business, commerce, or function carried out by the occupants of a building. The activity categories were designed to group buildings having similar patterns of energy consumption after controlling for weather and size.

Building Conservation Features refer to the four types of materials or fixtures included in this survey, which may be installed in, or added to, a building to reduce the amount of energy consumed during the heating and/or cooling of the building.

Building Type is derived from the predominant activity in which the occupants of a building are engaged. For this report, mixed-use buildings (those buildings where 75 percent or more of the floorspace was not devoted to a single activity) have been categorized according to the predominant building activity. Each category is described below.

Assembly refers to large buildings used for the gathering of 50 or more persons for purposes such as social, recreational, or religious activities. Included in this category are the following building types:

Social/Public/Civic Assembly (fixed seating): (meeting hall/lodge hall, convention hall/assembly hall, town hall, auditorium, lecture hall, student union, etc.)

Religious Assembly: (Church, chapel, synagogue, mosque, etc.)

Recreational Facility:

- Gymnasium/YMCA or YWCA/indoor racket sports, recreation center/athletic facility
- Poolroom
- Amusement arcade
- Skating rink
- Bowling alley
- Indoor pool
- Other

Entertainment Building:

- Archive/library, museum/art gallery/exhibit hall
- Observatory/planetarium

Glossary (Continued)

(Building Type Continued, "Assembly")

- Concert hall
- Coliseum/arena (enclosed)
- Theater/movie/cinema
- Radio/TV studio or station
- Nightclub
- Other

Other Enclosed Assembly Building:

- Passenger terminal
- Armory
- Other

Nonenclosed or Partial Structure:

- Stadium
- Grandstand
- Other

Automotive Sales and Service Buildings include:

Gas Stations
Automobile Dealers
Motor Vehicle Repair/Service

Education buildings house academic or technical instruction. This category includes:

Preschool
Elementary
Junior High
Senior High
College or University
Vocational School
Specific Building Types (on school campuses)

- Administration (see Office)
- Auditorium (see Assembly)
- Dormitory (see Lodging)
- Gymnasium (see Assembly)
- Infirmary (see Health Care)
- Library (see Assembly)
- Museum (see Assembly)
- Student union (see Assembly)
- School for mentally retarded (see Health Care)
- Stadium (see Assembly)

Food Sales and Service buildings include:

Cafeteria

Full-Service Restaurant: (Diner - limited menu, bar and grill - limited menu, coffee shop - limited menu, full menu service, bar, etc.)

Carry-Out Service: (Caterer, pizza parlor, sandwich shop, fast food etc.)

(Building Type Continued, "Food Sales and Service")

Retail Food Sales:

- Supermarket
- Specialty food store
- Meat/seafood market
- Retail bakery
- Farmer's market, fruit/vegetable market
- Other

Food-Related Activities/Other Activity Except Office or Residential (Mixed-Use):

- Food Sales or Service/Other Retail Sales
- Food Sales or Service/Other Service Activity
- Food Sales or Service/Storage (except supermarket)
- Other

Health Care buildings house diagnostic and treatment facilities for both in- and out-patient care. In-patient facilities treat the mentally or physically ill. Buildings for overnight care are also included. This type includes:

Medical Care Hospital: [General medical and surgical; chronic disease; medical infirmary (connected with institution); tuberculosis/other respiratory disease; orthopedic; maternity; ear, eye, nose, and throat; etc.]

Mental Facility: (Psychiatric, mental retardation)

Rehabilitation: (Narcotic/drug addiction, physical therapy, alcoholism, etc.)

Veterinary: (Hospital, kennel)

(Out-patient care may be medical, dental, or psychiatric. A building housing out-patient veterinary practices also falls into this category.) Buildings of this type include:

- Medical Clinic: (Abortion; ear, eye, nose, and throat; general)
- Mental Health Clinic
- Dental Clinic
- Veterinary Clinic

Lodging facilities refer to buildings offering multiple accommodations for long- or short-term residents. Included are

Short-Term Residence:

- Shelter home
- Motel
- Tourist home
- Hotel
- Convention hotel
- Inn
- Other

Long-Term Residence:

- Boarding house
- Orphanage

Glossary (Continued)

(Building Type Continued, "Lodging")

- Home for aged, nursing home
- Convent/monastery
- Dormitory/sorority/fraternity
- Other

Office buildings are used for general office space, professional offices, and administrative offices. Included are

Professional Office Building: (Management consulting, engineering, medical, law, corporate, administration of an institution, mixed professional)

Financial Office Building: (Bank, insurance, securities, brokerage firm, real estate, etc.)

Data Processing:

- Computer center
- Other data processing

Offices/Other Activity (Except Residential): Mixed Use

- Office with retail (except food)
- Office with food sales or service
- Offices/services activity (other than food)
- Office/warehouse or storage
- Real estate/other commercial
- State or Federal capitol

Residential buildings serve as living quarters and have individual kitchen facilities.

Multi-Family:

- High-rise apartments
- Low-rise apartments

Single-Family:

- Detached
- Duplex
- Triplex
- Quadraplex
- Townhouse/rowhouse

Mobile Homes

Residential/Other Building Type (Mixed-Use):

- Residential/food-related
- Residential/sales (nonfood)
- Residential/office space
- Residential/service activity
- Residential/other use than above-mentioned

Retail Sales and Personal Services buildings are those housing sales and displays of goods or services (excluding food). Included are

Shopping Mall

Strip Shopping Center

(Building Type Continued, "Retail Sales and Personal Services")

Retail Sales (Single establishment):

- Building materials, hardware, garden supply stores
- Department stores, apparel stores
- Furniture, home furnishings, and equipment stores
- Drugstores
- Multi-retail establishments
- Other retail stores

Wholesale Goods (except food)

Sevices (except food):

- Laundry/dry cleaner/car wash
- Post office
- Personal service
- Multi-service establishment
- Other service

Building Housing Two or More Services, Retail or Wholesale Establishments Not Previously Mentioned:

- Service/retail
- Retail/wholesale
- Service/wholesale
- Retail/wholesale/service

Warehouse and Storage buildings are used for the storage of goods, merchandise, raw materials, or manufactured products. Included are

Agricultural

Warehouse--nonrefrigerated

Refrigerated storage

Other

Storage/Retail, Wholesale, or Manufacturing:

- Storage/food processing
- Storage/retail sales (nonfood)
- Storage/wholesale (nonfood)
- Storage/manufacturing (nonfood)

Other buildings are those that do not fit into any of the previous categories. Included are

Crematorium

Parking garage

Hangar

Telephone exchange

(Also included in the Other category are the building types Laboratory and Public Order and Safety)

Glossary (Continued)

(Building Type Continued, "Other")

Laboratory buildings house equipment for experimental testing or for analysis. Included are

Mechanical/Electrical

Medical/Dental

Agricultural

Other

Public Order and Safety buildings house establishments engaged in the preservation of law and order or in public safety.

Fire station

Police station

Jail

Reformatory

Penitentiary

Courthouse

Sheriff's Office

Other

Campus or complex refers to a well-defined geographic area containing a group of separate buildings that are operated as a unit (such as a college or university campus).

Census Region is an area consisting of various States selected according to population size and physical location. In this survey, the States were grouped into four regions:

Northeast - Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

North Central - Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, North Dakota, and South Dakota.

South - Maryland, Delaware, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas.

West - Montana, Wyoming, Washington, Oregon, Nevada, Colorado, California, Idaho, Utah, New Mexico, and Arizona.

(Note: Alaska and Hawaii are normally considered parts of the western region but were not included in the sample for this survey.)

Central Air Conditioning serves all areas of the building that are air conditioned. Such systems are specially designed for each building.

Glossary (Continued)

Central Heating Systems. This heating equipment category represents two types of systems depending upon the location of the system. A central system located within the building (such as a furnace or a boiler) generates the heat but depends upon an additional system to distribute the heat. A central system located outside the building converts energy to a heated substance such as steam or hot water, which is then distributed to the heated parts of the building by a separate system wholly contained within the building.

Combination Air-Conditioning Systems are air-cooling systems composed of various types of equipment that are either combinations of window units, package units, or central systems.

Commercial Buildings are all nonresidential buildings with the exception of those where industrial activities occupy more of the total square footage than any other type of activity (see Nonresidential Buildings).

Conservation Practices refer to three types of actions that building owners or occupants may initiate, manually or automatically, to reduce the amount of energy consumed to heat or cool a building. The actions include reducing the heat or the cooling produced when the building is not in full use and having a regular maintenance program for the heating and/or air-conditioning systems.

Consumed refers to the amount of energy used by or delivered to the building during the 365-day period of calendar year 1979.

Cooling Degree-Days refer to the number of degrees the average daily temperature is above 65 degrees Fahrenheit. 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 daily temperature of 65 degrees or lower has none.

Cubic foot (cu. ft.) is the amount of gas contained in a cube whose edge is one foot.

Electricity refers to the electric power supplied to a building by a central utility via underground or aboveground powerlines. It does not refer to electric power generated onsite for the exclusive use of the building. In this case, the fuel used for the generator would be indicated.

Energy Suppliers are the companies that provide electricity, natural gas, fuel oil, coal, or other forms of energy to the buildings and to the individual customers within the buildings.

Establishment, as defined by the Standard Industrial Classification Manual, is "an economic unit, generally, at a single physical location where business is conducted or where services or industrial operations are performed."

Expenditures refer to the cost of energy consumed during the 365-day period of calendar year 1979. The total dollar amount includes State and local taxes, fuel adjustment charges, system charges, and demand charges. The total dollar amount excludes merchandise, repair charges, service charges, and any other charges not specifically requested. If the building (or separately billed establishments within a building) receives a budgeted bill, the budgeted bill is not provided. Instead, the actual consumption and expenditures are provided.

Glossary (Continued)

Forced Hot Air refers to a heat distribution system consisting of two types of units that distribute heat via fans: (1) a self-contained air-handling unit serving only a part of the building, and (2) a single central air-handling unit separate from the energy conversion system that distributes air throughout the building through ducts.

Fuel Oil refers to distillate fuel oil (No. 1, No. 2, or No. 4), residual fuel oil (No. 5 or No. 6), or kerosene that is burned for space-or water-heating purposes.

Glass as a Percentage of Exterior Surface refers to the proportion of glass to the exterior wall structure of the surface.

Heating Degree-Days refer to the number of degrees the average daily temperature is below 65 degrees Fahrenheit. 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 degrees (65-50=15), while one with an average daily temperature of 65 degrees or higher has none.

Hours of Operation During a Typical Week refer to the number of hours per week that a building is occupied by regular employees (employees responsible for carrying out the primary activity or activities of the building) and excludes hours when the building is occupied only by maintenance, security, or other support personnel. Many buildings do not maintain the same hours of operation during the year. Alternate schedules were reported for these buildings, but for this report "hours of operation" refer to the schedule followed most often. Other buildings do not have any regular schedule of hours, are open intermittently or by appointment only, or are open without being staffed (this last category includes automatic bank tellers and roadside rest stops). These buildings were recorded as having zero operating hours, according to the definition given by the questionnaire, even though they were not vacant.

Imputation is a statistical method used to estimate the response to specific unanswered questions that should have been answered or were unknown at the time of the interview.

Insulation is any material (such as fiberglass, foam, loose fill, etc.), which, when placed between the interior of the building and the outdoor environment, reduces the amount of heat or cold lost to the environment.

kWh (kilowatt-hour) is a unit of work or energy equal to that expended by one kilowatt (100 watts) in one hour.

Kerosene is a generic name referring to a distilled product of oil or coal. Kerosene is similar to No. 1 distillate fuel oil and is used for space heating, water heating, cooking, or lighting.

LPG or Liquid Petroleum Gas is any gas fuel supplied to a building in liquid form. It is usually delivered by tank truck and stored near the building in a tank or a cylinder until used. Propane and butane are liquefied petroleum gases.

Master-Metering is the method used by utility companies (i.e., electricity and natural gas) to measure the total volume of energy used by several individual customers collectively.

Metropolitan refers to buildings located within Standard Metropolitan Statistical Areas (SMSA's) as defined in the 1970 Census. Except in New England, an SMSA is a county or a group of contiguous counties that contains 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 SMSA if they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, SMSA's consist of towns and cities rather than counties. "Nonmetropolitan" refers to buildings not located within SMSA's as defined in the 1970 Census.

Multiple Building Unit is a single building address that at the time of the interview was discovered to be two or more separate buildings.

Natural Gas is utility gas supplied by pipeline to individual buildings by a central utility company. It does not refer to privately owned gas wells operated by a building owner.

Nonresidential Building is a roofed and walled structure that is used for some purpose other than just residential. The scope of this definition is quite broad and includes some buildings that are primarily residential (as well as commercial and industrial buildings). The term "residential" applies to structures where the primary activity is that of a dwelling for one or more households. Residential buildings were within the scope of the survey if they showed evidence of some kind of commercial or industrial activity. For example, a residential building, such as an apartment building, which also contained some obvious nonresidential activity, such as a store or an office, was considered a nonresidential building for the purposes of this survey. For a private residence to have been selected for this survey, it had to have a sign (large enough to be visible from the street) advertising the presence of some commercial or industrial activity.

Number of People Working in the Building is the normal number of people working in the building during a typical workday or during most of the year.

Number of Floors is the count of building levels in the tallest section of the building including parking areas, basements, or other floors below ground level.

Outside Shading includes window awnings or other features of the building that shade the exterior windows and thereby reduce the rate of solar penetration into the building. The outside shading may have been installed at the time of construction or since construction (retrofitted). In some buildings, outside shading may have been installed both at the time of construction and since construction. These buildings are reported in both categories. As a result, the total number of buildings for which outside shading is currently present is not a simple sum of these two categories.

Package Units refer to air-conditioning units that are built and assembled at a factory and installed as a unit to cool all, or portions of, a building.

Reduced Cooling refers to the manual or automatic reduction in the cooling produced by the air-conditioning system during the hours a building is not in full use. Buildings without air-conditioning systems or with only window air-conditioning units are reported as "Not Applicable."

Reduced Heating refers to the manual or automatic reduction in the heat produced by the heating system during the hours a building is not in full use. Buildings that do not have heating systems are reported as "Not Applicable."

Regular Maintenance refers to a systematic program for checking the heating and/or air-conditioning equipment on a regular basis (at least once a year), even if there are no apparent problems. Buildings that lack both

heating and air-conditioning systems are reported as "Not Applicable." Buildings with only window air-conditioning units and no heating system are also reported as "Not Applicable."

Self-Contained Heating Units are units installed either in the building or on the roof that generate and deliver heat to the area served.

Separate Metering refers to the method by which utility companies, (i.e., electricity and natural gas) measure the volume of energy consumed by individual customers in the building.

Special Building List. Part of the sampling procedure entailed locating "large" buildings within the sampled PSU's. "Large" buildings were defined as those with 250,000 or more square feet of enclosed floorspace in PSU's that are Standard Metropolitan Statistical Areas. In the remaining one-third of the PSU's, buildings of 100,000 square feet or more were listed.

Special Zip Codes are allocated by the U.S. Postal Service to business establishments, government agencies, or buildings that have a high mail volume.

Steam Energy Source refers to buildings that purchase steam from steam generation and distribution companies serving municipal areas such as natural gas distributors. This does not refer to buildings that use purchased fuels to generate their own steam for use in the building or other buildings in a campus/complex situation.

Structure Type refers to whether the building is detached (stands alone), attached to other buildings on one or more sides, or is part of a shopping mall.

Tank Capacity is the amount of fuel oil or kerosene a tank can hold.

Tank Inventory is the amount of fuel oil or kerosene stored in the tank at the time of the building interview.

Total Square Footage refers to all the space enclosed within the exterior walls of the building. This includes indoor parking facilities and basements, and all space such as hallways, lobbies, stairways, and elevator shafts.

Treated Glass includes tinted, reflective, insulated, or thermal pane type of glass that, when installed in the exterior windows of a building, serve to reduce the rate of solar penetration into the building or the rate of heat or cold loss to the environment. Such forms of glass may have been installed at the time of construction or since construction (retrofitted). In some cases, treated glass may have been installed both at the time of construction and since construction. These buildings are reported in both categories. As a result, the total number of buildings for which treated glass is currently present is not a simple sum of these two categories.

Waiver is an authorization form instructing energy-supplying companies serving the buildings to release the volumes and costs of energy the buildings consumed over a specified period.

Weatherstripping or Caulking refers to any material that is placed between the door or window and the door or window frame in order to reduce the rate of heat or cold loss.

Glossary (Continued)

Window Unit air conditioners are self-contained units that are installed in a window or through the wall.

Year Constructed is the year in which the major or largest portion of a building was constructed.

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